

.Net Framework

Q. What is Dot Net Framework?

A. Dot.net Framework is the collection of tools and classes that are required to create a web development application.

The .NET Framework allows you to:

- Apply common skills across a variety of devices, application types, and programming tasks.
- Integrate with other tools and technologies to build the right solution with less work.
- Build compelling applications faster
- The Components of .NET Framework are:
 - **Common Language Runtime** – Handles the execution of code at Run Time.
 - **Base Class Libraries** – Pre-built code for common low-level programming tasks.
 - **Development frameworks and technologies** – reusable, customizable solutions for larger programming tasks.

Q. What is CLR.What are various responsibilities of CLR.

A. The .NET Framework provides a run-time environment called the common language runtime, which runs the code and provides services that make the development process easier. It handles the execution of Code at Run Time.

Compilers and tools expose the common language runtime's functionality and enable you to write code that benefits from this managed execution environment.

Garbage collection eliminates memory leaks as well as some other common programming errors. Code that runs under CLR environment is called Managed Code. If your code is managed, you can use managed data, unmanaged data, or both managed and unmanaged data in your .NET Framework application. Because language compilers supply their own types, such as primitive types, you might not always know (or need to know) whether your data is being managed.

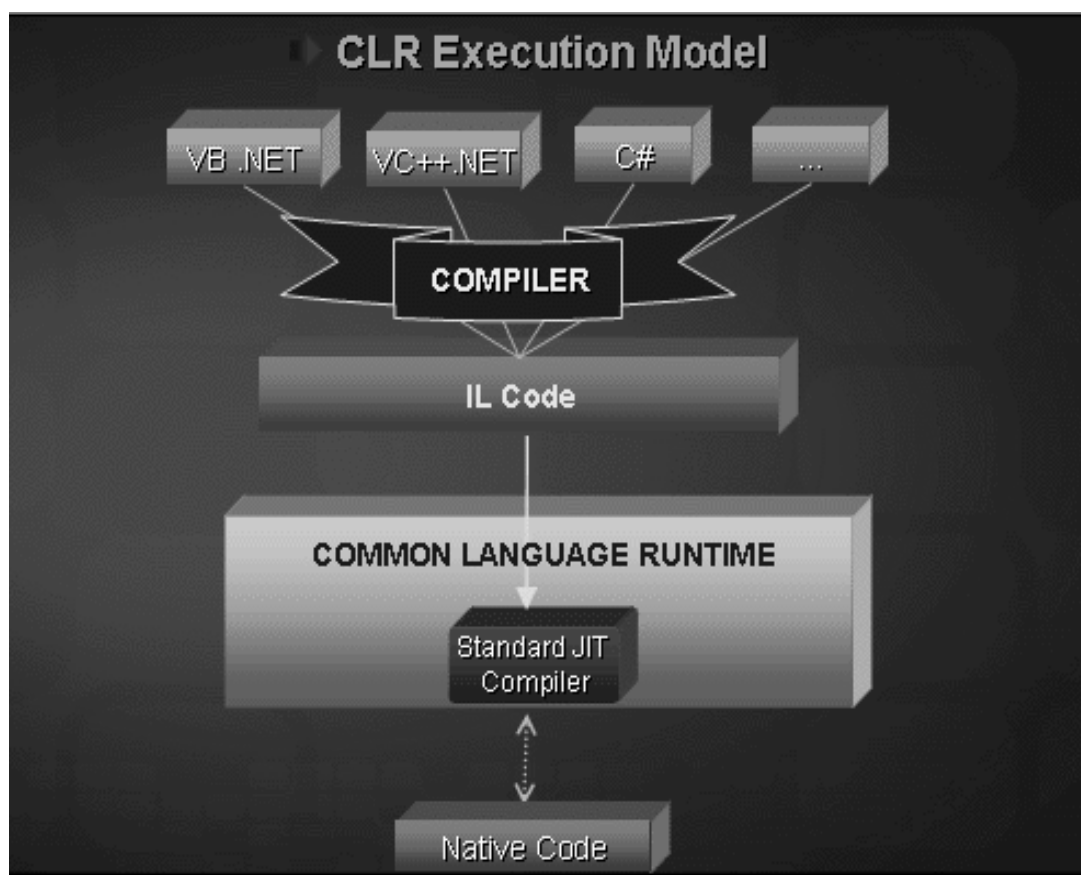
The common language runtime makes it easy to design components and applications whose objects interact across languages. Objects written in different languages can communicate with each other, and their behaviors can be tightly integrated.

The CLR provides the following benefits:

- Performance improvements.
- The ability to easily use components developed in other languages.
- Extensible types provided by a class library.
- Language features such as inheritance, interfaces, and overloading for object-oriented programming.

- Support for explicit free threading that allows creation of multithreaded, scalable applications.
- Support for Exception handling.
- Garbage collection.
- Use of delegates instead of function pointers for increased type safety and security.

CLR Execution Model:



Q. What is IL or MSIL or CIL

A. Common Intermediate Language (CIL, pronounced either "sil" or "kil") (formerly called Microsoft Intermediate Language or MSIL) is the lowest-level human-readable programming language defined by the Common Language Infrastructure (CLI) specification and is used by the .NET Framework. Languages which target a CLI-compatible runtime environment compile to CIL, which is assembled into an object code

that has a byte code-style format. CIL is an object-oriented assembly language, and is entirely stack-based. Its bytecode is translated into native code or executed by a virtual machine.

IL = Intermediate Language. Also known as MSIL (Microsoft Intermediate Language) or CIL (Common Intermediate Language). All .NET source code (of any language) is compiled to IL during development. The IL is then converted to machine code at the point where the software is installed, or (more commonly) at run-time by a Just-In-Time (JIT) compiler.

The execution process looks like this:

1. Source code is converted to Common Intermediate Language, CIL's equivalent to Assembly language for a CPU.
2. CIL is then assembled into a form of so called byte code and a .NET assembly is created.
3. Upon execution of a .NET assembly, its code is passed through the runtime's JIT compiler to generate native code. Ahead-of-time compilation may also be used, which eliminates this step, but at the cost of executable file portability.
4. The native code is executed by the computer's processor.

Q. What are CTS and CLS?

A. CTS:-

The common type system defines how types are declared, used, and managed in the common language runtime, and is also an important part of the runtime's support for cross-language integration. The common type system performs the following functions:

- Establishes a framework that helps enable cross-language integration, type safety, and high-performance code execution.
- Provides an object-oriented model that supports the complete implementation of many programming languages.
- Defines rules that languages must follow, which helps ensure that objects written in different languages can interact with each other.
- Provides a library that contains the primitive data types (such as Boolean, Byte, Char, Int32, and UInt64) used in application development.

CLS:-

The Common Language Specification (CLS) is an agreement among language designers and class library designers to use a common subset of basic language features that all languages have to follow.

Q. What is Managed Code

A. Manage Code

1. Code that is executed by the CLR. Managed code provides information (i.e., metadata) to allow the CLR to locate methods encoded in assembly modules, store and retrieve security information, handle exceptions, and walk the program stack. Managed code can access both managed data and unmanaged data. Managed data—Memory that is allocated and released by the CLR using Garbage Collection. Managed data can only be accessed by managed code
2. Code that targets the common language runtime, the foundation of the .NET Framework, is known as managed code; code that does not target the common language runtime is known as unmanaged code. You can think of the runtime as an agent that manages code at execution time, providing core services such as memory management, thread management, and remoting, while also enforcing strict type safety in the code. The concept of code management is a fundamental principle of the runtime.
3. Managed code supplies the metadata necessary for the CLR to provide services such as memory management, cross-language integration, code access security, and automatic lifetime control of objects. All code based on IL executes as managed code.
4. Code that executes under the CLI execution environment. Managed code uses the execution environment for memory management, object lifetime, and the basic type-system, among other fundamental services.

Managed Code

1. The Code is Understandable by CLR.
2. It is executed under the instructions of CLR.
3. The code which is done by .net compatible language will be compiled two times. In the first compilation, the compiler will generate MSIL code. Which is known as Managed Code.

Q. What is Unmanaged Code

A. Unmanaged Code

Code that is directly executed by the Operating System is known as un-managed code. Typically applications written in VB 6.0, C++, C, etc are all examples of unmanaged code. Unmanaged code typically targets the processor architecture and is always dependent on the computer architecture. Unmanaged code is always compiled to target a specific architecture and will only run on the intended platform. This means that if you want to run the same

code on different architecture then you will have to recompile the code using that particular architecture. Unmanaged code is always compiled to the native code which is architecture specific. When we compile unmanaged code it gets compiled into a binary X86 image. And this image always depends on the platform on which the code was compiled and cannot be executed on the other platforms that are different that the one on which the code was compiled. Unmanaged code does not get any services from the managed execution environment.

In unmanaged code the memory allocation, type safety, security, etc needs to be taken care of by the developer. This makes unmanaged code prone to memory leaks like buffer overruns and pointer overrides and so forth.

Unmanaged executable files are basically a binary image, x86 code, loaded into memory. The program counter gets put there and that's the last the Operating System knows. There are protections in place around memory management and port I/O and so forth, but the system doesn't actually know what the application is doing.

UnManaged Code

1. The CLR cannot able to understand the code.
2. The CLR cannot instruct the code.
3. The second time compilation is unmanaged code. It is understood only by the machine not by the user.

Q. What Is JIT. Explain various types of JIT(Pre,Econo,Normal)

A. JIT (Just in time) compiler is a part of the .NET runtime execution environment. Unlike traditional compilers JIT doesn't compile the full class file in one shot. Compilation is done on function basis or file basis. JIT compilation has advantage over traditional compilation that heavy parsing of original source code is avoided. Compilation in .NET is done on the basis and it's in steps most of the time.

In .NET environment there are three types of JIT compilers:

- **Pre-JIT:** Per-JIT compiler compiles source code into native code in a single compilation cycle. Pre-JIT sits at the stage of deployment of the application.
- **Econo- JIT:** Econo-JIT compiles methods that are called at runtime. However, these compiled methods are discarded when they're not required.
- **Normal JIT:** They're called "JIT" or "Normal JIT". Normal JIT only compiles the methods which are called at runtime. These methods are compiled the first time they're called and then they're stored in cache. When the same methods are called again, the compilation code from cache is used for execution.

Q. Explain Base Class Library?

A. The .NET Framework includes classes, interfaces, and value types that optimize the development process and provide access to system functionality. To facilitate interoperability between languages, the .NET Framework types are CLS-compliant and can therefore be used from any programming language whose compiler conforms to the common language specification (CLS).

The .NET Framework types are the foundation on which .NET applications, components, and controls are built. The .NET Framework includes types that perform the following functions:

- Represent base data types and exceptions.
- Encapsulate data structures.
- Perform I/O.
- Access information about loaded types.
- Invoke .NET Framework security checks.
- Provide data access, rich client-side GUI, and server-controlled, client-side GUI.

The .NET Framework provides a rich set of interfaces, as well as abstract and concrete (non-abstract) classes. You can use the concrete classes as is or, in many cases, derive your own classes from them. To use the functionality of an interface, you can either create a class that implements the interface or derive a class from one of the .NET Framework classes that implements the interface.

Q. What is strong name?

A. A name that consists of an assembly's identity—its simple text name, version number, and culture information (if provided)—strengthened by a public key and a digital signature generated over the assembly.

Q. Which is the base class for .net Class library?

A. System.Object

Q. Explain Page Development Life Cycle of Asp.Net

A.

Stage	Description
Page request	The page request occurs before the page life cycle begins. When the page is requested by a user, ASP.NET determines whether the page needs to be parsed and compiled (therefore beginning the life of a page), or whether a cached version of the page can be sent in response without running the page.

Start	In the start stage, page properties such as Request and Response are set. At this stage, the page also determines whether the request is a postback or a new request and sets the IsPostBack property. The page also sets the UICulture property.
Initialization	During page initialization, controls on the page are available and each control's UniqueID property is set. A master page and themes are also applied to the page if applicable. If the current request is a postback, the postback data has not yet been loaded and control property values have not been restored to the values from view state.
Load	During load, if the current request is a postback, control properties are loaded with information recovered from view state and control state.
PostBack Event handling	If the request is a postback, control event handlers are called. After that, the Validate method of all validator controls is called, which sets the IsValid property of individual validator controls and of the page.
Rendering	Before rendering, view state is saved for the page and all controls. During the rendering stage, the page calls the Render method for each control, providing a text writer that writes its output to the OutputStream object of the page's Response property.
Unload	The Unload event is raised after the page has been fully rendered, sent to the client, and is ready to be discarded. At this point, page properties such as Response and Request are unloaded and cleanup is performed.

Q. What is MetaData

A. Simply put, metadata is data about data. It is descriptive information about a particular data set, object, or resource, including how it is formatted, and when and by whom it was collected. Although metadata most commonly refers to web resources, it can be about either physical or electronic resources. It may be created automatically using software or entered by hand.

Metadata is binary information describing your program that is stored either in a common language runtime portable executable (PE) file or in memory. When you compile your code into a PE file, metadata is inserted into one portion of the file, while your code is converted to Microsoft intermediate language (MSIL) and inserted into another portion of the file. Every type and member defined and referenced in a module or assembly is described within

metadata. When code is executed, the runtime loads metadata into memory and references it to discover information about your code's classes, members, inheritance, and so on.

Q. What is garbage collector?

A. Garbage collection is a heap-management strategy where a run-time component takes responsibility for managing the lifetime of the memory used by objects. This concept is not new to .NET - Java and many other languages/runtimes have used garbage collection for some time. **It release the memory from unused object.**

Q. How we can forcefully run garbage collector?

A. `system.gc.collect()`

Q. What is the difference between a private assembly and a shared assembly?

A. **A private assembly is normally used by a single application, and is stored in the application's directory, or a subdirectory beneath. A shared assembly is normally stored in the global assembly cache, which is a repository of assemblies maintained by the .NET runtime. Shared assemblies are usually libraries of code which many applications will find useful, e.g. the .NET framework classes.**

Q. What is the difference between a Struct and a Class?

A. A struct is a **value type**, while a class is a **reference type**. The struct type is suitable for representing lightweight objects such as Point, Rectangle, and Color. Although it is possible to represent a point as a class, a struct is more efficient in some scenarios. For example, if you declare an array of 1000 Point objects, you will allocate additional memory for referencing each object. In this case, the struct is less expensive.

→When you create a struct object using the new operator, it gets created and the appropriate constructor is called.

→Unlike classes, structs can be instantiated without using the new operator. If you do not use new, the fields will remain unassigned and the object cannot be used until all of the fields are initialized.

→It is an error to declare a default (parameterless) constructor for a struct. A default constructor is always provided to initialize the struct members to their default values.

→It is an error to initialize an instance field in a struct.

→ There is no inheritance for structs as there is for classes. A struct cannot inherit from another struct or class, and it cannot be the base of a class. Structs, however, inherit from the base class Object. A struct can implement interfaces, and it does that exactly as classes do.

Q. What is difference between abstract class and an interface?

A. → An Abstract class is a class with some common/certain implementations and defines abstraction for other services which are implemented in its concrete sub classes, whereas interface only have method declaration with zero implementations.

→ An abstract class and Interface both have method only but not have body of method. The difference between Abstract class and An Interface is that if you call Abstract class then you have to call all method of that particular Abstract class but if u call an Interface then it is not necessary that you call all method of that particular interface.

→ An abstract class is a special kind of class that cannot be instantiated. So the question is why we need a class that cannot be instantiated? An abstract class is only to be sub-classed (inherited from). In other words, it only allows other classes to inherit from it but cannot be instantiated. The advantage is that it enforces certain hierarchies for all the subclasses. In simple words, it is a kind of contract that forces all the subclasses to carry on the same hierarchies or standards.

→ An interface is not a class. It is an entity that is defined by the word Interface. An interface has no implementation; it only has the signature or in other words, just the definition of the methods without the body. As one of the similarities to Abstract class, it is a contract that is used to define hierarchies for all subclasses or it defines specific set of methods and their arguments.

→ The main difference between them is that a class can implement more than one interface but can only inherit from one abstract class. Since C# doesn't support multiple inheritance, interfaces are used to implement multiple inheritance.

Q. **What is Web.config?**

A. Web.config file is a collection of settings. like database. session state.connection string related info if you want to do any change we can perform here so it reflect to entire project.

Example:

we develop a project for a company, now the database of that project shifted a new place where we have a different p.c. that time what we do simply change the connectin string reside in web.cofig file.

Q. **What is the difference between a.Equals(b) and a == b?**

A. a=b is used for assigning the values (rather then comparison) and a==b is for comparison.

Or

a == b is used to compare the references of two objects a.Equals(b) is used to compare two

objects

Or

a equals b -> copies contents of b to a a == b -> checks if a is equal to b

Q. Difference between Finalize and Dispose

A Finalize :

→ Finalize() is called by the runtime

→ Is a C# equivalent of destructor, called by Garbage Collector when the object goes out of scope.

→ Implement it when you have unmanaged resources in your code, and want to make sure that these resources are freed when the Garbage collection happens.

→ Finalize() can NOT be overridden or called in C#.

→ Since, Finalize() is called by the Garbage Collector, it is non-deterministic.

Dispose :

→ Dispose() is called by the user

→ Same purpose as finalize, to free unmanaged resources. However, implement this when you are writing a custom class, that will be used by other users.

→ Overriding Dispose() provides a way for user code to free the unmanaged objects in your custom class.

→ Dispose() has to be implemented in classes implementing IDisposable interface.

→ Dispose() method is called explicitly in the code itself.

Q. Can we use two partial classes in different assemblies represent the same Class.

A. We cannot have two partial classes referring to the same class in two different assemblies (projects). Once the assembly is compiled, the meta-data is baked in, and your classes are no longer partial. Partial classes allows you to split the definition of the same class into two files.

partial classes is a compile-time phenomenon, not runtime. Classes in assemblies are by definition complete.

Q. What is a garbage collector?

A. A garbage collector performs periodic checks on the managed heap to identify objects that are no longer required by the program and removes them from memory.

Q. What is an assembly?

A. An assembly is a collection of one or more .exe or dll's. An assembly is the fundamental unit for application development and deployment in the .NET Framework. An assembly contains a collection of types and resources that are built to work together and form a logical unit of functionality. An assembly provides the CLR with the information it needs to be aware of type implementations.

Q. What are the contents of assembly?

A. A static assembly can consist of four elements:

- Assembly manifest - Contains the assembly metadata. An assembly manifest contains the information about the identity and version of the assembly. It also contains the information required to resolve references to types and resources.
- Type metadata - Binary information that describes a program.
- Microsoft intermediate language (MSIL) code.
- A set of resources.

Q. What are the different types of assembly?

A. Assemblies can also be private or shared. A private assembly is installed in the installation directory of an application and is accessible to that application only. On the other hand, a shared assembly is shared by multiple applications. A shared assembly has a strong name and is installed in the GAC.

We also have satellite assemblies that are often used to deploy language-specific resources for an application.

Q. What is a dynamic assembly?

A. A dynamic assembly is created dynamically at run time when an application requires the types within these assemblies.

ADO Dot Net

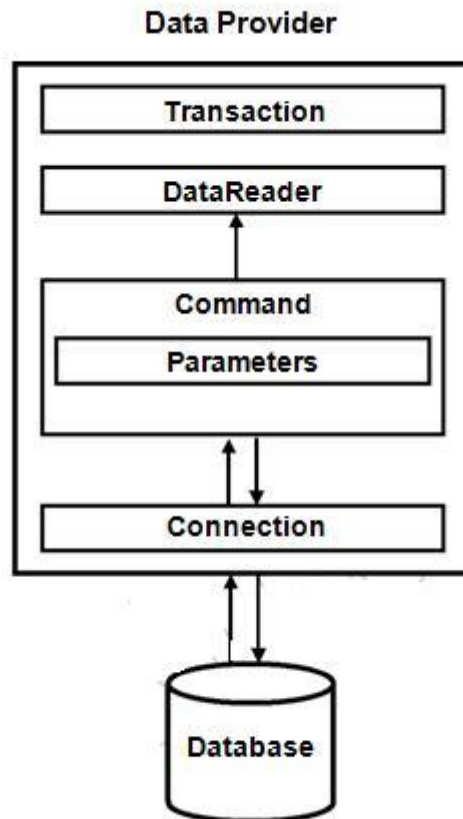
Q. Which class is used for sql connectivity?

A. Sql Connection Class

Q. What is connected and disconnected approach.

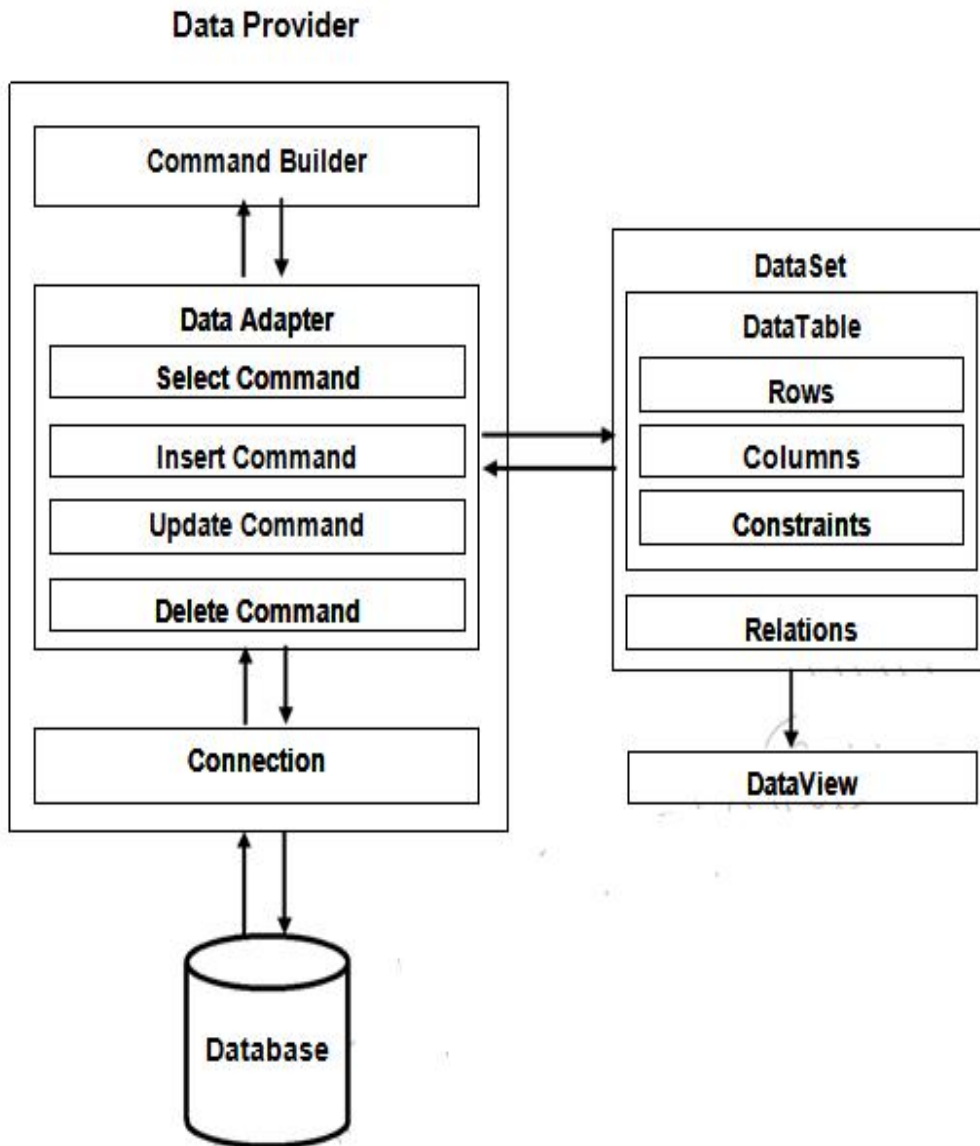
A. Connected Approach -:

In Connection Oriented Data Access Architecture the application makes a connection to the Data Source and then interact with it through SQL requests using the same connection. In these cases the application stays connected to the database system even when it is not using any Database Operations.



Disconnected Approach—:

ADO.Net solves this problem by introduces a new component called DataSet. In Disconnected architecture **DataSet** is used for retrieving data from database. Then no need for maintaining the connection also. All the operations can be performed with the data once retrieved. It wont cause traffic problem while working with database. The DataSet is the central component in the ADO.NET Disconnected Data Access Architecture. A DataSet is an in-memory data store that can hold multiple tables at the same time. DataSets only hold data and do not interact with a Data Source. One of the key characteristics of the DataSet is that it has no knowledge of the underlying Data Source that might have been used to populate it.



Q. Difference between SqlDataReader and SqlDataAdapter

A. SqlDataReader:

- Holds the connection open until you are finished (don't forget to close it!).
- Can typically only be iterated over once
- Is not as useful for updating back to the database

On the other hand, it:

- Only has one record in memory at a time rather than an entire result set (this can be huge)

- Is about as fast as it you can get for that one iteration
- Allows you start processing results sooner

SqlDataAdapter/DataSet

- Lets you close the connection as soon it's done loading data
 - All of the results are available in memory
 - You can iterate over it as many times as you need, or even look up a specific record by index
 - Has some built-in faculties for updating back to the database
- SqlDataAdapter at the cost of:
- *Much* higher memory use
 - You wait until all the data is loaded before using any of it

Q. What is the difference between DataSet and RecordSet

A. Dataset -:

Dataset is connectionless and it retrieves and stores more than one table information at a single fetch whereas record set is connection oriented and only one table data

Record Set

RecordSet doesn't support for retrieving the records from different DataSources like SQLserver2000 and ORACLE, but DataSet supports this. RecordSet cannot transmit on the web using HTTP protocol. But we can transmit the DataSet on the Web. RecordSet is COM based implementation ie binary standard. DataSet is as XML based Representation.

Q. What is Typed and Untyped Dataset.

A. Typed Dataset

- Typed Dataset contains Schema structure. So it will take datatype for fields automatically
- Datasets can be typed or untyped. A typed dataset is a dataset that is first derived from the base DataSet class and then uses information in an XML Schema file (an .xsd file) to generate a new class. Information from the schema (tables, columns, and so on) is generated and compiled into this new dataset class as a set of first-class objects and properties.

Untyped Dataset

- Untyped Dataset doesn't contain Schema.. We have to explicitly specify DataRow and DataColumn types
- An untyped dataset, in contrast, has no corresponding built-in schema. As in a typed dataset, an untyped dataset contains tables, columns, and so on — but those are exposed only as collections

Q. What is difference between ExecuteNonQuery, ExecuteScalar, and ExecuteReader

A.

ExecuteReader : Use for accessing data. It provides a forward-only, read-only, connected recordset.

Returns a connected recordset. It is forward only and uneditable at the same time.

ExecuteNonQuery : Use for data manipulation, such as Insert, Update, Delete. Doesn't return any recordsets, ideal for insert, update and delete queries where no recordsets are returned. However, It also return the no of records affected by the Query

ExecuteScalar : Use for retrieving 1 row 1 col. value.(single cell value), i.e. Single value. eg: for retriving aggregate function. It is faster than other ways of retrieving a single value from DB.

This returns one value only, no record sets.

Q. What are the Different layers in ADO.Net?

A. Presentation Layer, Business logic Layer, Database access layer

Q. Explain three tier architecture of asp.net?

A. 3-Tier architecture generally contains UI or Presentation Layer, Business Access Layer (BAL) or Business Logic Layer and Data Access Layer (DAL).

Presentation Layer (UI)

Presentation layer cotains pages like .aspx or windows form where data is presented to the user or input is taken from the user.

Business Access Layer (BAL) or Business Logic Layer

BAL contains business logic, validations or calculations related with the data

Data Access Layer (DAL)

DAL contains methods that helps business layer to connect the data and perform required action, might be returning data or manipulating data (insert, update, delete etc).

Q. What is dataset. How to fill data with dataset?

A. Dataset -: A data set (or dataset) is a collection of data, usually presented in tabular form. A dataset can contain more than one Table. Each column represents a particular variable. Each row corresponds to a given member of the data set in question. Its values for each of

the variables, such as height and weight of an object or values of random numbers. Each value is known as a datum. The data set may comprise data for one or more members, corresponding to the number of rows.

Q. What are the components of .Net Data Providers?

A. ConnectionObject, CommandObject, DataReaderObject, DataAdapterObject

Q. Difference between Ado and Ado.net?

A.

1. ADO used connected data usage, while ADO.net used disconnected data environment.
2. ADO used OLE DB to access data and is COM-based, while ADO.net uses XML as the format for transmitting data to and from your database and web application.
3. In ADO, Record set, is like a single table or query result, while in ADO.net Dataset, can contain multiple tables from any data source.
4. In ADO, it is sometime problematic because firewall prohibits many types of request, while in ADO.net there is no such problem because XML is completely firewall-proof.

Q. How you can update records in database using data reader?

A. Well, You cannot update. DataReader is just used for reading the data in forward only mode. You can achieve this using Dataset but not by DataReader.

Q. What is DataView in Ado.Net?

A. The DataView provides different views of the data stored in a DataTable. That is we can customize the views of data from a DataTable. DataView can be used to sort, filter, and search the data in a DataTable , additionally we can add new rows and modify the content in a DataTable.

Q. Name classes that are contained in system.data namespace?

A. DataSet, DataTable, DataColumn, DataRow, DataRealation, Constraint

Q. Name the classes that are found in system.data.common namespace?

A. DataColumnMapping 2)DataTableMapping

Q. Which ADO.NET Object's fill method is used to fill the data from database into either DataSet or DataTable?

A. Data Adapter

Q. Diff b/w DataReader, Dataset and Data table?

A. DataReader:- is a predefined class that access the data forward only and read only mode, and it belongs to connected architecture.

Dataset:- is a buffer location between database and application. All the manipulation are done here rather than directly database. It belongs to disconnected architecture.

DataTable:- is the collection of rows and columns in the dataset. In other sentence, The table in the dataset is called DataTable.

Q. We all know that Dataset is purely disconnected architecture, but we also know that we can update the changes made to the dataset can be updated in the backend database. When there is no connection how does the update happen?

A. Yes dataset have drawback. It is not updated in database automatically. We have to use `da.update(dataset_object, Table_name);` At this time only update the table in your database. As DataAdapter is internally build of Select, Insert, Update and Delete Command, It can be updated via using `da.Update(ds)`, It will internally create Insert/Update/Delete Command for DataAdapter (as per modification). Or else We can write specific Insert/Update/Delete Command for Every Action of User and attach these command to DataAdapter.

Q. To perform asynchronous data access, what must be added to the connection string?

A. `Asynchronous=true`

Q. You are working with a DataSet and want to be able to display data, sorted different ways. How do you do so?

A. Use a DataView object for each sort.

Q. What is connection Pooling

A. Pooling enables an application to use a connection from a pool of connections that do not need to be reestablished for each use. Once a connection has been created and placed in a pool, an application can reuse that connection without performing the complete connection process.

Data pooling: A centralized database where all resources are located, where all application can use it in a standardized manner

- Q. To improve the performance and scalability of your .NET application. Which one of the techniques would help?**
- A. Connection Pooling.
- Q. Which method is used to Gets the name of the specified column using DataReader?**
- A. GetName()
- Q. Which method is used to Get a value indicating whether the column contains non-existent or missing values?**
- A. IsDBNull
- Q. Which is the best method to get the single value from Database?**
- A. ExecuteScalar()
- Q. Which method is used to commit all changes in the DataSet or DataTable?**
- A. AcceptChanges()
- Q. Which method is used to create a new row in a Table?**
- A. NewRow()
- Q. Best Method to retrieve two values from Database (SQL Server)?**
- A. ExecuteNonQuery()
- Q. How to add auto increment column in the DataTable?**
- A. create columns for the DataTable
DataTable dt = new DataTable();
DataColumn auto = new DataColumn("AutoID", typeof(System.Int32));
dt.Columns.Add(auto);
// specify it as auto increment field
auto.AutoIncrement = true;
auto.AutoIncrementSeed = 1;
auto.ReadOnly = true;

Q. How to create column in DataTable?

A. `DataTable dt = new DataTable();`
`// create another column`
`DataColumn name = new DataColumn("Name", typeof(string));`
`dTable.Columns.Add(name);`

Q. How to add new row in DataTable?

A. `DataTable dt = new DataTable();`
`DataRow row = null;`
`for (int i = 0; i < 5; i++)`
`{`
`row = dt.NewRow ();`
`row["Name"] = i + " - Raja";`
`row["Address"] = "USA";`
`dt.Rows.Add(row);`
`}`

Q. Difference between OLEDB Provider and SqlClient ?

A. SQLClient .NET classes are highly optimized for the .net / sqlserver combination and achieve optimal results. The SqlClient data provider is fast. It's faster than the Oracle provider, and faster than accessing database via the OLEDB layer. It's faster because it accesses the native library (which automatically gives you better performance), and it was written with lots of help from the SQL Server team.

Q. WHAT Are the major major compnents of a data provider in ADO.net.?

A. Connection, Command, Data Reader, Data Adapter

Q. What is the difference between Dataset and Datatable?

A. A dataset can hold the data of multiple tables, whereas data table can have only one table's data.

Q. What is the use of command Object?

A. Command object is used to connect the connection object to data reader or dataset and is used to execute queries and stored procedures which are defined in the command text property. The main methods for command object property are:

1. `ExecuteNonQuery();`
2. `ExecuteReader();`

3.ExecuteScalar();

Q. What is the difference between a Dataset and DataReader? Can dataReader hold data from multiple tables?

A. Data reader:

1. It is a read only and forward only data access to data.
2. You can access one table at time.
3. It can't persist the data.
4. It is comes under connected architecture.
5. One of the most advantage is it is much faster than Data Adapter

Data set:

1. It can access multiple tables at a time.
2. It can persist the data.
3. It is a relational data cache hosted in application domain during execution.
4. It is a disconnected architecture.
5. It can't define with out data adapter.

Yes.Datareader hold data from multiple tables. The SELECT statement may have columns that belong to one or more tables in the database . By example using a JOIN or something similar.

```

string query="select * from employee;select * from student";
sqlcommand cmd=new sqlcommand(query,connection);
sqldatareader dr=cmd.ExecuteReader();
if(dr.hasrows)
{
dr.read();
gridview1.DataSource=dr;
gridview1.Databind();
if(dr.nextresult)
{
gridview2.datasourcesource=dr;
gridview2.databind();
}
}
dr.close();
connection.close();

```

Q. What is Event Bubbling Or bubble Events?

A. All heavy controls like grid view,datagrid or datalist,peater controls contains the child controls like button or link button, when we click this button then the event will be raised, that events are handled by parant controls,that is called event bubbling,means event is bubbled from bottom(child)to up(parent). Raise event of any child control through its parent control is called **Event Bubbling**.

Q. What are Attributs to DataSet

A. Dataset has 2 collections
1.DataTable(s) Collection
2.DataRelations Collection

DataTable has again 3 collections

1.DataColumn Collection
2.DataRow Collection
3.DataConstraint Collection

Q. What is Sql Native Client?

A. SQL NATIVE CLIENT is a Provider used to Connect with the SQL Server database.

Q. What provider ADO.net use by default?

A. SQL Client

Q. How to store XML data in Dataset?

A. ds.ReadXml();

Q. Which method is used to do sorting in DataView?

A. dv.sort()

C#

Q. What is difference between web Farm and web garden?

A. After developing our asp.net web application we host it on IIS Server. Now one standalone server is sufficient to process ASP.NET Request and response for a small web sites but when the site comes for big organization where there an millions of daily user hits then we need to host the sites on multiple Server. This is called web farms. Where single site hosted on multiple IIS Server and they are running behind the Load Balancer. This is the most common scenarios for any web based production environment. Where Client will hit an Virtual IP (vIP) . Which is the IP address of Load Balancer. When Load balancer received the request based on the server load it will redirect the request to particular Server.

All IIS Request process by worker process (w3wp.exe). By default each and every application pool contain single worker process. But An application pool with multiple worker process is called Web Garden. Many worker processes with same Application Pool can sometimes provide better throughput performance and application response time. And Each Worker Process Should have there own Thread and Own Memory space.

Q. What is Abstract or Must Inherit Class?

A. An abstract class is the one that is not used to create objects. An abstract class is designed to act as a base class (to be inherited by other classes). Abstract class is a design concept in program development and provides a base upon which other classes are built. Abstract classes are similar to interfaces. After declaring an abstract class, it cannot be instantiated on it's own, it must be inherited. Like interfaces, abstract classes can specify members that must be implemented in inheriting classes. Unlike interfaces, a class can inherit only one abstract class. Abstract classes can only specify members that should be implemented by all inheriting classes.

Q. What is an Interface?

A. Interfaces help to define the various properties, methods and events that classes are able to implement. For developers these fine a small group of closely related properties, methods, and events. Additional feature and functionality can be added at any by adding additional interfaces and implementations

Q. What are sealed class?

A. Sealed Class

Sealed class is used to define the inheritance level of a class.

The sealed modifier is used to prevent derivation from a class. An error occurs if a sealed class is specified as the base class of another class.

Some points to remember:

1. A class, which restricts inheritance for security reason is declared, sealed class.
2. Sealed class is the last class in the hierarchy.
3. Sealed class can be a derived class but can't be a base class.
4. A sealed class cannot also be an abstract class. Because abstract class has to provide functionality and here we are restricting it to inherit.

Q. What is a constructor?

- A.** Broadly speaking, it is a method in the class which gets executed when its object is created. Usually we put the initialization code in the constructor. Writing a constructor in the class is pretty simple, have a look at the following sample :

```
public class mySampleClass
{
public mySampleClass()
{
// This is the constructor method.
}
// rest of the class members goes here.
}
```

When the object of this class is instantiated this constructor will be executed. Something like this :

```
mySampleClass obj = new mySampleClass()
// At this time the code in the constructor will // be executed
```

Q. What are Parameterized Constructors?

- A** Parameterized constructors (or more simply "constructors") allow you to create a new instance of a class while simultaneously passing arguments to the new instance. Constructors are essential for object oriented programming since they allow user-defined construction code to be passed parameters by the creator of the instance. They simplify client code by allowing a new object instance to be created and initialized in a single expression.

Q. Can Static class have Constructor?

- A.** Yes , Static class can have only static constructors. A static constructor is used to initialize any static data, or to perform a particular action that needs to be performed once only. It is called automatically before the first instance is created or any static members are referenced. Static constructors have the following properties:

A static constructor does not take access modifiers or have parameters.

- A static constructor is called automatically to initialize the class before the first instance is created or any static members are referenced.
- A static constructor cannot be called directly.
- The user has no control on when the static constructor is executed in the program.

- A typical use of static constructors is when the class is using a log file and the constructor is used to write entries to this file.
- Static constructors are also useful when creating wrapper classes for unmanaged code, when the constructor can call the LoadLibrary method.
- If a static constructor throws an exception, the runtime will not invoke it a second time, and the type will remain uninitialized for the lifetime of the application domain in which your program is running.

Q. What is Structure?

A. A struct is a simple user-defined type, a lightweight alternative to a class. They support access modifiers, constructors, indexers, methods, fields, nested types, operators, and properties. They may declare a default constructor (a constructor with no parameters), however you can also declare a custom constructor. Unlike classes, structures do not support compile-time initialization of instance fields, they cannot derive from anything other than System.ValueType and they cannot be the base of another class. However, they may implement an Interface. They can be instantiated without using a new operator.

Q. Difference between Structure and Class?

A.

- Structs are *value types* and classes are *reference types*.
- The general different is that a *reference type* lives on the heap, and a *value type* lives inline, that is, wherever it is your variable or field is defined.
- A variable containing a *value type* contains the entire *value type* value. For a struct, that means that the variable contains the entire struct, with all its fields.
A variable containing a *reference type* contains a pointer, or a *reference* to somewhere else in memory where the actual value resides.

Q. What is function Overloading?

A. C# allows us to define multiple functions with the same name differing in the number type and order of arguments. This is termed as function overloading. This way, one does not have to remember the names of multiple functions that serve a similar core purpose.

Q. What is Function Overriding?

A. Method overriding in C# is a feature like the virtual function in C++. Method overriding is a feature that allows you to invoke functions (that have the same signatures) that belong to different classes in the same hierarchy of inheritance using the base class reference. C# makes use of two keywords: virtual and overrides to accomplish Method overriding.

Q. How can we achieve multiple inheritance in C#.Net?

A. “Does C# support multiple inheritance?” is a question we have all come across at some time or the other. And the standard answer to it is “Yes, using interfaces”. That’s where it usually stops.

However ,I will let you know “How”?

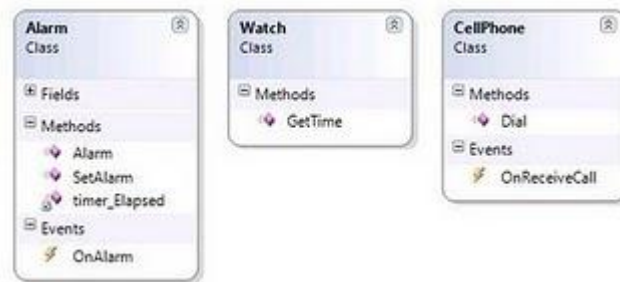
Typically inheritance has the following implications:

- The derived class Inherits the members of the base class along with the implementation
- It can override one or more of them
- The base class can be substituted for the derived class

If these conditions are fulfilled, we can safely say there is inheritance. In case of multiple inheritances the same some should hold true of the derived class for each of the base classes.

Can interfaces help us achieve these? Let us find out.I guess an example would be in order.

Let us take three classes which are defined as follows:

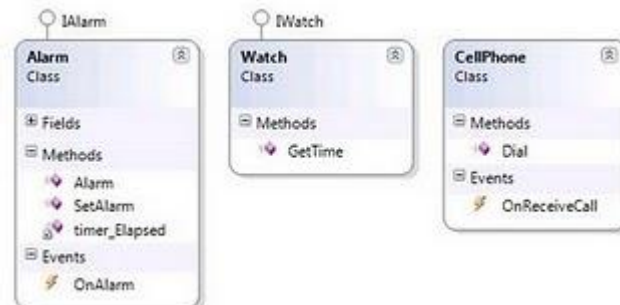


At this point, since we already Alarm and Watch classes defined, wouldn’t it be a good idea to be able to inherit them into the CellPhone class?

Since C# doesn’t allow us the luxury of declaring CellPhone: Alarm, Watch, we have find an alternative, namely interfaces.

By the way, did you know that it is possible to re-factor a class in Visual Studio to automatically extract an interface?

Now our classes look like this.



We should now implement the interfaces in CellPhone which now becomes...



In the CellPhone class we used the Alarm and Watch classes to implement the interfaces for us.

Let us see whether we have achieved inheritance for both Alarm and Watch classes.

- The derived class CellPhone Inherits the members of both the base classes Alarm and Watch along with the implementation
- It is possible to override any of members of IAlarm and IWatch in the CellPhone class
- The base classes (interfaces in this case) IAlarm and IWatch can be substituted for the derived class

There! We have achieved multiple inheritance!

Q. What are delegates and Events?

A. Delegates

Forget computers for a moment. Just think about delegates in the real world. Who are delegates? Delegates are people who represent a particular country or region or state in another country or region or state. Extend this same definition now to C#. In C#, delegates act as an intermediary between an event source and an event destination.

To be even precise delegates are similar to function pointers. They can be called as type safe function pointers. Delegates have other uses in addition to event handling. But this article would focus on describing delegates with respect to event handling. A delegate class used as an intermediary between an event source and event receiver is called an event handler.

Types of Delegates

- Single Cast delegate

- Multi Cast delegate

Events

An event is the outcome of an action. There are two important terms with respect to events. The event source and the event receiver. The object that raises the event is called event source and the object that responds to the event is called event receiver. Did you observe a hitch in the above explanation? O.K. my event source raises the event and my event receiver receives it, but what is the communication channel between them. Take the instance of you talking with a friend of yours over the telephone. Now you are the event source and your friend is the event receiver and the telephone cable is the communication channel. Similarly the communication channel between an event source and an event receiver is the delegate. The internals of events and their relationship to delegates would be dealt with in a later article. The explanation of events here is just to help the reader understand and visualize what exactly events are.

Q. What if an error occurs in Catch block, how can you prevent it?

A. We can insert a new try-catch block inside the catch block.
try-catch blocks are used for handling errors in c#.

Q. What properties we used to call stored procedure in C#?

A. `CommandObject.CommandType=CommandType.StoreProcedure;`
`CommandObject.CommandText="Sp";`
`CommandObject.Executenonquery();`

Q. Which collection will you use to store different types of objects collection like... int, employee, student, object etc?

A. We would use array list. Every element in an array list is of object type. Since object class is base class of all the types in .net or any custom class so it will be possible to store different types of objects like int,employee(Custom class), student(custom class), object (base class itself) into an Array list collection.

Q. What is abstraction and data Hiding?

A. Abstraction - : Abstraction refers to removal/reduction of irrelevant data or unnecessary data or confidential data from a Class.
"Abstraction is a process whereby we identify the important aspects of a phenomenon and ignore its details."

"Abstraction is generally defined as 'the process of formulating generalised concepts by extracting common qualities from specific examples.'"

Data Hiding-: Data hiding is a feature provided by the abstraction for hiding the data from the class.

"The process of hiding all the details of an object that do not contribute to its essential characteristics; typically, the structure of an object is hidden, as well as the implementation of its methods. The terms information hiding and encapsulation are usually interchangeable."

Q. What in Data Encapsulation?

A.

- Data encapsulation, also known as data hiding, is the mechanism whereby the implementation details of a class are kept hidden from the user. The user can only perform a restricted set of operations on the hidden members of the class by executing special functions commonly called *methods*.
- Encapsulation is the process of binding together of Data and Code. It can also be defined as the concept that an object totally separates its interface from its implementation. The concept of Encapsulation hides the implementation details behind its interface

Q. Can multiple catch blocks be Executed?

A. NO

Q. Use of Interface

A. In big companies, project manager understand the client requirement and make interfaces. These interfaces are then distributed to the under developers. Since interfaces are just outline of the method, so developers must use them in their class and code them. Developer need only concentration on coding. He need not worry about which methods he use to achieve client requirement. So interfaces provide only outline to the developer to get the goal.

Q. What is Polymorphism?

A. It allows you to invoke derived class methods through a base class reference during run-time. This is handy when you need to assign a group of objects to an array and then invoke each of their methods. They won't necessarily have to be the same object type. However, if

they're related by inheritance, you can add them to the array as the inherited type. Then if they all share the same method name, that method of each object can be invoked.

Q. What is TimeSpan in C#?

A. TimeSpan is the datatype in C#.which contain day,hour,min,sec
 TimeSpan myTimeSpan = new TimeSpan(2,12,0,12);

Q. How to make a class non-inheritable other than sealed?

A. There are two ways:

- 1: Make the base class as static.
- 2: Declare a private constructor in the base class.

if we use private constructor we cant make an instance of the class, but still we can inherit it—Not Confirmed

Q. Can we define a variable with the access modifier private in an interface?

A. NO you cannot.

1. Because an interface cannot contain fields.
2. For methods also, you cannot give an access modifier (public / private). By default, the methods will be public

Q. What are the pillar of OOPs in c#?

A. The four pillars of oops is :-
 abstraction,encapsulation,polymorphism,inherritance

Q. What are properties and indexer?

A. Using an object like an array is called Indexer.Indexer is similar to properties.Indexer is a collection of set and get procedures.Indexer name must be "this" only.One class can have only one indexer.

Syntax to create Indexer:

```
string s
public string firstname
{
  set{ s=value;}
  get (return s;)}
}
```

```
string[] x=new string[5];
public string this[inti]
{
set {x[i]=value}
get { return x[i]}
}
}
```

1. An index is identified by it's signature. But a property is identified it's name.
2. An indexer is always an instance member, but a property can be static also.
3. An indexer is accessed through an element access. But a property is through a member access.

Q. what does the term immutable means?

A. It means that this object can't be changed.but if you want another value to the same object another instance of the object is created and leave the current instance unchanged.an example of immutable is STRING. String Builder is Mutable

Q. Can interface inherits another interface

A. Yes interface inherits interface only

Q. I have a class declared as below

```
public class a
{
public void add()
{}
}
```

What is the diference between

a a1 =new a;

and simply

a a1;

A. In a a1=new a memory is allocated to the main function to execute.

a a1;

At this stage, a1 is of type a, but it does not actually contain the object data yet. For it to contain the object data, you need to use the new keyword to create a new instance of the a class,this process is known as object instantiation :a a1 = new a();

Q. What is Boxing and UnBoxing?

A. Converting value type to object and vice versa

Q. What is Serialization ?

A. Serialization is process of converting an object into stream of bytes so that it can be stored or transferred across the network. Real time scenario ?

Try saving an object to session implemented using Aspnet_State service or sql server. Here all the object need to be stored in session requires to be support serialization. because both aspnet_state service and session stored in sql server requires object to support serialization

Q. What r collections c sharp?

A. Sharp have the collections.Thats very useful utility package. using System.Collections is the base class stack queue hashtable arraylist etc., is the available class.his collection classes implements the ICollection Interface which extends IEnumerable interface. IDictionary and IList Interface extends ICollection Interface. IList is for values, while IDictionary is for collection of (Key,Values) pair. Collection that implement IList are: System.Array and System.Collections.ArrayList. Collections that implement IDictionary are Hashtable, ListDictionary, SortedList, HybridDictionary. Collections derived from ICollection are: Stak, BitArray, Queue, NameValueCollection.

Q. How to sort array elements in descending order?

A. Elements of an array may not be sorted by default. To sort them in descending order, the Sort() method is first called. Next, to descend the order, call the Reverse() method.

Q. What are partial classes?

A. A partial class, or partial type, is a feature of some object oriented computer programming languages in which the declaration of a class may be split across multiple source-code files, or multiple places within a single file.

Eg :

file1.vb

Partial Class MyClass

Private _name As String

End Class

file2.vb

Partial Class MyClass

Public Readonly Property Name() As String



```
Get  
    Return _name  
End Get  
End Property  
End Class
```

Sql Server

Q. What is NewId()?

A. The following example uses NEWID() to assign a value to a variable declared as the uniqueidentifier data type. The value of the uniqueidentifier data type variable is printed before the value is tested. Copy

```
-- Creating a local variable with DECLARE/SET syntax.
```

```
DECLARE @myid uniqueidentifier
```

```
SET @myid = NEWID()
```

```
PRINT 'Value of @myid is: '+ CONVERT(varchar(255), @myid)
```

Q. What is Scope_Identity()?

A. It returns the last IDENTITY value produced on a connection and by a statement in the same scope, regardless of the table that produced the value.

SCOPE_IDENTITY(), like @@IDENTITY, will return the last identity value created in the current session, but it will also limit it to your current scope as well. In other words, it will return the last identity value that you explicitly created, rather than any identity that was created by a trigger or a user defined function.

Q. What is difference between storeprocedures and functions?

A. Stored Procedure

- have to use EXEC or EXECUTE
- return output parameter
- can create table but won't return Table Variables
- you can not join SP
- can be used to change server configuration
- can be used with XML FOR Clause
- can have transaction within SP

Functions

- can be used with Select statement
- Not returning output parameter but returns Table variables
- You can join UDF
- Can not be used to change server configuration
- Can not be used with XML FOR clause
- Can not have transaction within function

Q. Can we call store procedure with in a function?

A. No, We can not call store procedure with in a function.

Q. Can functions return table?

A. CREATE FUNCTION dbo.fnEmployeeList()

5> RETURNS TABLE

6> AS

7> RETURN (SELECT id,name, city FROM Employee)

8> GO

Q. How to create temporary table in sql?

A. If you create a table named employees, the table can be used by any person who has the security permissions in the database to use it, until the table is deleted. If you create a local temporary table named #employees, you are the only person who can work with the table,

and it is deleted when you disconnect. If you create a global temporary table named ##employees, any user in the database can work with this table.

Eg:-

```
CREATE TABLE #MyTempTable (cola INT PRIMARY KEY)
INSERT INTO #MyTempTable VALUES (1)
SELECT * FROM #MyTempTable
```

Q. Various types of joins?

A. Joins

Create Table tbBook (iBookId int identity(1,1) not null,sBookName varchar(50) ,sAuthor varchar(50))

```
CREATE TABLE tbPageMgmt([iPageId] [int] IDENTITY(1,1) NOT NULL,[sPageName]
[varchar](50),iParentId int )
```

```
CREATE TABLE tbCustomers([iCustomerId] [int] IDENTITY(1,1) NOT
NULL,[sCustomerName] [varchar](50) )
```

```
CREATE TABLE tbOrderDetail(iOrderDetailId int identity(1001,1) NOT NULL,iOrderId
int ,[iProductId] [int],iUnitPrice int,iQuantity int )
```

```
CREATE TABLE tbProducts([iProductId] [int] identity(2001,1) NOT
NULL,[sProductName] varchar(50),iUnitPrice int )
```

```
CREATE TABLE tbOrder ([iOrderId] [int] identity(3001,1) NOT NULL ,[dOrderDate]
DateTime ,iCustomerId int,iEmployeeId int)
```

Create Table tbStudent (iStudentId int identity(1,1) not null,sName varchar(50) ,iRollNo int,iAge int)

```
CREATE TABLE TBITEM (iITEMID INT, sITEMNAME VARCHAR(10), iPRICE INT)
```

```
CREATE TABLE tbEmployee (iEmployeeID INT, iEmployeeName VARCHAR(50),
iSalary INT)
```

```
INSERT INTO tbEmployee VALUES ( 'EmpAlec', 10000)
```

```
INSERT INTO tbEmployee VALUES ( 'EmpStewart', 20000)
```

```
INSERT INTO tbEmployee VALUES ( 'EmpAnney', 30000)
```

```
INSERT INTO tbEmployee VALUES ( 'EmpCanny', 9000)
```

```

INSERT INTO TBITEM VALUES (1, 'A', 10)
INSERT INTO TBITEM VALUES (1, 'A', 20)
INSERT INTO TBITEM VALUES (1, 'A', 30)
INSERT INTO TBITEM VALUES (1, 'B', 90)
INSERT INTO TBITEM VALUES (2, 'A', 30)
INSERT INTO TBITEM VALUES (2, 'A', 100)
INSERT INTO TBITEM VALUES (3, 'C', 110)
INSERT INTO TBITEM VALUES (3, 'C', 120)

```

```

Insert into tbStudent (sName,iRollNo,iAge) values ('Gilbert',1,10)
Insert into tbStudent (sName,iRollNo,iAge) values ('Anney',2,1)
Insert into tbStudent (sName,iRollNo,iAge) values ('Aman',3,33)
Insert into tbStudent (sName,iRollNo,iAge) values ('Micheal',4,60)
Insert into tbStudent (sName,iRollNo,iAge) values ('Stewart',5,100)
Insert into tbStudent (sName,iRollNo,iAge) values ('Alec',6,56)

```

```

Insert into tbCustomers (sCustomerName) values ('Amit')
Insert into tbCustomers (sCustomerName) values ('Aman')
Insert into tbCustomers (sCustomerName) values ('Mohit')

```

```

Insert into tbOrderDetail (iOrderId,iProductId,iUnitPrice,iQuantity) values
(3001,2001,100,10)
Insert into tbOrderDetail (iOrderId,iProductId,iUnitPrice,iQuantity) values
(3001,2002,5000,20)
Insert into tbOrderDetail (iOrderId,iProductId,iUnitPrice,iQuantity) values
(3001,2003,3000,200)
Insert into tbOrderDetail (iOrderId,iProductId,iUnitPrice,iQuantity) values
(3002,2001,100,200)
Insert into tbOrderDetail (iOrderId,iProductId,iUnitPrice,iQuantity) values
(3002,2002,5000,300)
Insert into tbOrderDetail (iOrderId,iProductId,iUnitPrice,iQuantity) values
(3003,2002,200,300)
Insert into tbOrderDetail (iOrderId,iProductId,iUnitPrice,iQuantity) values
(3003,2001,1000,200)
Insert into tbOrderDetail (iOrderId,iProductId,iUnitPrice,iQuantity) values
(3003,2003,100,100)

```

```

Insert into tbProducts (sProductName,iUnitPrice) values ('Mouse',200)
Insert into tbProducts (sProductName,iUnitPrice) values ('Lappy',20000)

```

Insert into tbProducts (sProductName,iUnitPrice) values ('KeyBoard',300)

Insert into tbOrder (dOrderDate,iCustomerId) values ('3/3/2011 12:00:00 AM',1,4001)

Insert into tbOrder (dOrderDate,iCustomerId) values ('3/4/2011 12:00:00 AM',2,4002)

Insert into tbOrder (dOrderDate,iCustomerId) values ('3/5/2011 12:00:00 AM',1,4003)

Insert into tbOrder (dOrderDate,iCustomerId) values ('3/6/2011 12:00:00 AM',3,4004)

Insert into tbOrder (dOrderDate,iCustomerId) values ('3/3/2011 12:00:00 AM',2,4001)

Insert into tbOrder (dOrderDate,iCustomerId) values ('3/4/2011 12:00:00 AM',1,4005)

Insert into tbOrder (dOrderDate,iCustomerId) values ('3/4/2011 12:00:00 AM',3,4004)

Insert into tbOrder (dOrderDate,iCustomerId) values ('3/3/2011 12:00:00 AM',2,4004)

Insert into tbBook (sBookName,sAuthor) values ('Comp Network','Tenebaum')

Insert into tbBook (sBookName,sAuthor) values ('Data Structure','Norman Angell')

Insert into tbBook (sBookName,sAuthor) values ('Adonis','P.B. Shelley')

Insert into tbBook (sBookName,sAuthor) values ('Beloved','Toni Morrison')

Insert into tbBook (sBookName,sAuthor) values ('Lost Child','Mulk Raj Anand')

Insert into tbBook (sBookName,sAuthor) values ('Lost Honour','John Dean')

Insert into tbPageMgmt (sPageName,iParentId) values ('ContactUs',0)

Insert into tbPageMgmt (sPageName,iParentId) values ('Login',1)

Insert into tbPageMgmt (sPageName,iParentId) values ('Home',0)

Insert into tbPageMgmt (sPageName,iParentId) values ('Forum',3)

Insert into tbPageMgmt (sPageName,iParentId) values ('AboutUs',3)

Insert into tbPageMgmt (sPageName,iParentId) values ('More',2)

INNER JOIN

Use Above Tables created above in Question- Joins

1) Select bookstudent.BookId,Book.BookName,student.sname from Book
inner join BookStudent on Book.BookId=BookStudent.BookId **inner join**
student on student.sid=BookStudent.studentid

2) select bookstudent.BookId,Book.BookName,student.sname from student
inner join BookStudent on student.sid=BookStudent.studentid **inner join**
book on book.bookid=BookStudent.bookid order by student.sid

3) select bookstudent.BookId,(select book.BookName from Book where
Book.BookId=BookStudent.BookId) BookName, student.sid ,student.sname from BookStudent
inner join Student on student.sid=BookStudent.studentid order by student.sid

4) Eg Query :- Select cu.iCustomerId,cu.sCustomerName,o.iOrderId,
o.dOrderDate,od.iUnitPrice,od.iQuantity, p.sProductName,p.iUnitPrice from
tbCustomers cu
inner join tbOrder o on cu.iCustomerId=o.iCustomerId
inner join tbOrderDetail od on o.iOrderId=od.iOrderId
inner join tbProducts p on p.iProductId=od.iProductId

SELF JOIN

Eg.Query:- Select p1.iPageId,p1.sPageName as Parent,p2.sPageName as Sub from
PageMgmt p1 join PageMgmt p2 on p1.iPageId=p2.iParentid

VERY COMPLEX JOIN

Use Above Tables created above in Ques7- Joins

select distinct c.iCustomerId,c.sCustomerName from tbcustomers c
inner join (select icustomerId from tbOrder o
inner join tbOrderDetail od on o.iOrderId=od.iOrderId
inner join tbProducts p on p.iProductId=od.iProductId
where p.sProductName='Mouse') As Spen on c.iCustomerId=spen.iCustomerId
inner join (select icustomerId from tbOrder o
inner join tbOrderDetail od on o.iOrderId=od.iOrderId
inner join tbProducts p on p.iProductId=od.iProductId
where p.sProductName='Lappy') As spap on c.iCustomerId=spap.iCustomerId

Q. Difference between inner,outer,equi,and self join?

A. Inner Join:- An inner join (sometimes called a simple join) is a join of two or more tables that returns only those rows that satisfy the join condition.

Outer Joins:- An outer join extends the result of a simple join. An outer join returns all rows that satisfy the join condition and also returns non matching rows based on Outer join type.

Self Join:- When we join a table to itself it is called Self Join.

Q. What is a subquery? What are co-related sub queries?

A. SubQueries

A subquery is usually added in the WHERE Clause of the sql statement. Most of the time, a subquery is used when you know how to search for a value using a SELECT statement, but do not know the exact value.

Subqueries are an alternate way of returning data from multiple tables.

Subqueries can be used with the following sql statements along with the comparison operators like =, <, >, >=, <= etc.

SELECT
INSERT
UPDATE
DELETE

Use Above Tables created above in Ques7- Joins

For Example:

1) Usually, a subquery should return only one record, but sometimes it can also return multiple records when used with operators like IN, NOT IN in the where clause. The query would be like,

SELECT sName, iRollNo FROM tbstudent WHERE iAge NOT IN (33, 100)

The output would be similar to:

sName	iAge
-----	-----
Gillbert	1
Anney	2
Micheal	4
Alec	6

CoRelated SubQueries:

First Outer Query is compiled, then inner according to output of outer and then again the Outer according to the Output Of inner

RECORD OF CUSTOMER FROM ORDER TABLE WHEN THE CUSTOMER PLACED THE FIRST ORDER

Use Above Tables created in 4th eg of InnerJoin

Select o1.iCustomerId,o1.iOrderId,o1.dOrderDate from tbOrder o1
where o1.dOrderDate=(select min(o2.dOrderDate) from tbOrder o2
where o2.iCustomerId=o1.iCustomerId)
Order By iCustomerId

COMPANY NAME FROM CUSTOMER TABLE AND DATE WHEN HE PLACED THE FIRST ORDER

Use Above Tables created in 4th eg of InnerJoin

Select cu.sCustomerName,(select Min(dOrderDate) from tbOrder o where o.iCustomerId = cu.iCustomerId) as OrderDate From tbCustomers cu

List of Customers that hav placed atleast one Order:

Select iCustomerId,sCustomerName from tbCustomers cu where iCustomerId in(Select iCustomerId from tbOrder)

OR

Select iCustomerId,sCustomerName from tbCustomers cu where Exists(Select iOrderId from tbOrder o where o.iCustomerId=cu.iCustomerId)

Q. What are views?

A. The view is a virtual table, which can have the multiple columns from the one or more table. It can be used like the normal table. Normally view cannot store the data permanently in the table. When we create the view it stores the view definition schema as object under the concern database.

Let us see the syntax of the create view
CREATE VIEW View Name [Alias name1, name2,]
WITH ENCRYPTION
WITH SCHEMA BINDING
AS
SELECT statement [WITH CHECK OPTION]

Q. If we insert or update view, will data be inserted into table also

A. No

Q. What are triggers

A. TRIGGER

DeleteTrigger

1) Create trigger DeleteTrigger on Employee3 for delete
 as
 if((select EmpId from deleted)>5)
 begin
 print 'U Cannot delete Id greater than 5'
 rollback transaction
 end

2) alter trigger DeleteTrigger
 on Employee3
 for delete

```
as  
begin  
insert into employee2 select * From deleted  
end
```

**CHECK USING TRUNCATE AND DELETE STATEMENT-----TRUNCATED
STATEMENT WILL NOT BE ROLLED BACK.....BUT DELETED
RECORDS CAN BE ROLLEDBACK**

```
truncate table employee3  
delete from employee3
```

UPDATE TRIGGER

TRIGGER FOR NOT UPDATING ANY RECORD IN TABLE

```
CREATE trigger UpdateTrigger on Employee2  
for UPDATE as begin  
if(select empId from inserted)>0  
begin  
print 'u Cant Update Id'  
rollback transaction  
end  
end
```

if u hav 2 values then old value will be availabe in deleted table and new value will be
avaliabel in inserted table

```
4) CREATE trigger UpdateTrigger on Employee2 for UPDATE  
as  
begin  
if(select empId from inserted)=17  
begin  
print 'u Cant Update Id'  
rollback transaction  
end  
end
```

INSERT TRIGGER

```
CREATE trigger InsertTrigger
on Employee2
for Insert
as
begin
if(select empId from inserted)<1
or(select empId from inserted)>100
begin
print 'u Cant INsert. Id must be between 1 to 100'
rollback transaction
end
end
```

Q. What are cursors

A. Cursor is a database object used by applications to manipulate data in a set on a row-by-row basis, instead of the typical SQL commands that operate on all the rows in the set at one time.

In order to work with a cursor we need to perform some steps in the following order:

Declare cursor

Open cursor

Fetch row from the cursor

Process fetched row

Close cursor

Deallocate cursor

Q. Difference between clustered and non clustered indexes?

A. A **clustered index** is a special type of index that reorders the way records in the table are physically stored. Therefore table can have only one clustered index. The leaf nodes of a clustered index contain the data pages.

A **nonclustered index** is a special type of index in which the logical order of the index does not match the physical stored order of the rows on disk. The leaf node of a nonclustered index does not consist of the data pages. Instead, the leaf nodes contain index rows.

Q. Can store procedures return values?

A. Store procedure may or may not return value.

Q. What are various ranking methods?

A. Ranking Methods are:-

- Rank
- Ntile
- Dense Rank
- Row Number

The basic syntax follows.

ROW_NUMBER() OVER ([<partition_by_clause>] <order_by_clause>)

RANK() OVER ([<partition_by_clause>] <order_by_clause>)

DENSE_RANK() OVER ([<partition_by_clause>] <order_by_clause>)

NTILE(integer_expression) OVER ([<partition_by_clause>] <order_by_clause>)

Q. How can we deal with Null values in sql?

A. Null is a special marker used in Structured Query Language (SQL) to indicate that a data value does not exist in the database

DEALING WITH IS NULL

Keep age null in employee age column(not all)

1)select IsNULL(cast(Age as varchar),'Not Given') from employee

2) select customerId, CompanyName,IsNull (Cast((select min(OrderDate)
from orders where customers.CustomerId=orders.CustomerId) as varchar),
'NeverOrdered')
as FirstOrderPlacedOn
from Customers

Q. How to create temporary tables in sql?

A. TEMPORARY TABLES

```
declare @TempPageMgmt table
(
PageName varchar(50),
ParentId int
)
insert into @ PageMgmt
select PageName,ParentId from pagemanagement
```

where PageId between 1 and 5

select * from @ TempPageMgmt

Q. Select case statement in Sql?

A. SELECT CASE

Use Above Tables created above in Ques7- Joins

select * from student

```
select sName,iAge,Rank=
case
when iAge>1 and iAge<33 then 'Third'
when iAge>33 and iAge<60 then 'second'
when iAge>60 and iAge<100 then 'First'
else 'SomethingElse'
end
from tbstudent
```

```
select sName,iAge,Rank=
case IAGE
when 1 then 'Third'
when 33 then 'second'
when 56 then 'First'
```

```
else 'SomethingElse'
end
from tbstudent
```

Q. What are various aggregate functions available in sql?

A. Aggrigate Function

- Sum
- Avg
- Min
- Max
- Count

Q. Various operator in sql?

As the ANY and SOME operators are equivalent, you can interchange the two keywords without affecting the results:

Use Above Tables created above in Ques7- Joins

```
SELECT  iStudentId,  sName,  iAge,iRollNo
FROM    tbStudent
WHERE   iAge < SOME (SELECT iRollNo FROM tbStudent)
```

Q. What is Normalization and various forms of Normalization?

A. In the design of a relational database management system (RDBMS), the process of organizing data to minimize redundancy is called normalization. The goal of database normalization is to decompose relations with anomalies in order to produce smaller, well-structured relations. Normalization usually involves dividing large tables into smaller (and less redundant) tables and defining relationships between them. The objective is to isolate data so that additions, deletions, and modifications of a field can be made in just one table and then propagated through the rest of the database via the defined relationships.

Types of Normalization:

- 1 NF
- 2 NF
- 3 NF
- BCNF - Boyce Code Normal Form
- 5 NF
- 6NF : Impossible to achieve this level of normalization

Q. What is Group By clause?

A. Remember when we use GroupBy every column in the select list has to either part of the groupby or It must be an aggregate.

Use Above Tables created above in Ques7- Joins

```
0) select orderid,sum(quantity) total
from [order details] group by orderid
```

1) **Without Group By:** select iOrderId,iQuantity from tborderdetail where iorderId between 10248 and 10250

With Group By select iOrderId,sum(iQuantity) from tborderdetails where iorderId between 10248 and 10250 group by iorderId

2) select iOrderId,Avg(iQuantity) from tborderdetail where iorderId between 10248 and 10250 group by iorderId

3) select iOrderId,Min(iQuantity) from tborderdetail where iorderId between 10248 and 10250 group by iorderId

4) select iOrderId,Min(iQuantity) as Minimum,Max(iQuantity) as Maximum from tborderdetail where iorderId between 10248 and 10250 group by iorderId

5) select iOrderId,Min(iQuantity) Minimum,Max(iQuantity) Maximum
From tborderdetail where iorderId between 10248 and 10250 group by iOrderId

6)HAVING:

Select iorderid,sum(iquantity) total
from tborderdetail group by iorderid
having sum(iquantity)>300

4)number of orders that each employee has taken for customers with customerid between 1 and 4

select icustomerId,iEmployeeId,count(*) as Total from tborder
where icustomerid between 1 and 4
group by iCustomerId,iEmployeeId

OrderId CustomerId Employeeid-:

Select case when grouping(iCustomerId)=1 then 0
else iCustomerId end ,case when grouping
(iEmployeeId)=1 then 0 else iEmployeeId end
,Count(iEmployeeId) from tborder
group by iEmployeeId,icustomerId
with rollup

5) select icustomerId,iEmployeeId,count(*) from tborder
group by iEmployeeId,iCustomerId

Q. Difference Between “Having” and “Where”?

A. The difference is that **WHERE** operates on individual rows, while **HAVING** operates on groups.

HAVING specifies a search condition for a group or an aggregate function used in SELECT statement.

Example of **HAVING** and **WHERE** in one query:

```
SELECT          titles.pub_id,          AVG(titles.price)
FROM            titles          INNER JOIN          publishers
ON              titles.pub_id          =          publishers.pub_id
WHERE           publishers.state          =          'CA'
GROUP BY                               titles.pub_id
HAVING AVG(titles.price) > 10
```

Q. What is RollUp and Cube?

A. Use Above Tables created above in Ques7- Joins

```
SELECT * FROM TBITEM
ITEMID  ITEMNAME PRICE
```

```
-----
1      A      10
1      A      20
1      A      30
1      B      90
2      A      30
2      A     100
3      C     110
3      C     120
```

/*****

Simple Example of a **GROUP BY** Clause. The grouping is being done over **ITEMID** and **ITEMNAME** and the aggregate functions are used to display the total, the average, the max and min values, etc.

*****/

```
SELECT ITEMID, ITEMNAME, COUNT(*) AS CNT_RECORD, SUM(PRICE)
TOTAL_VAL, AVG(PRICE) AVG_VAL, MAX(PRICE) MAX_VAL,
MIN(PRICE) MIN_VAL
FROM TBITEM
GROUP BY ITEMID, ITEMNAME
GO
```

```
ITEMID  ITEMNAME  CNT_RECORD  TOTAL_VAL  AVG_VAL  MAX_VAL  MIN_VAL
-----
1      A          3           60         20       30       10
2      A          2          130        65       100      30
```

```
1   B   1   90   90   90   90
3   C   2  230  115  120  110
```

```
/******
```

```
*****
```

Now, let us take the same SQL and use the RollUP() function in addition to the GROUP BY clause:

```
*****
```

```
*****/
```

```
SELECT  IITEMID,  IITEMNAME,  SUM(PRICE)  AS  TOTAL_VAL
FROM    TBITEM
GROUP   BY        ROLLUP      (IITEMID,  IITEMNAME)
GO
```

Usage of the ROLLUP() function generates the GROUP BY aggregate rows PLUS super-aggregate (cumulative) rows and a final grand total row as well. If you see below, one row with a sub-total is generated for each unique combination of values of (IITEMID, IITEMNAME), and (IITEMID). As should be clear from the preceding statement, the order of the columns in the ROLLUP() function can change the output as well as the number of rows in the final result set.

```
IITEMID  IITEMNAME  TOTAL_VAL
-----
1   A   60   ==> Same as in the representation above
1   B   90   ==> Same as in the representation above
1  NULL 150   ==> Aggregation of the records from above
2   A  130   ==> Same as in the representation above
2  NULL 130   ==> Aggregation of the record from above
3   C  230   ==> Same as in the representation above
3  NULL 230   ==> Aggregation of the record from above
NULL  NULL 510   ==> The grand total
```

The above SQL can also be written as:

```
SELECT  IITEMID,  IITEMNAME,  SUM(PRICE)  AS  TOTAL_VAL
FROM    TBITEM
GROUP  BY IITEMID, IITEMNAME WITH ROLLUP
```

```
/******
```

```
*****
```

Now, let us take the same SQL and use the CUBE() function in addition to the GROUP BY clause:

```
*****
```

```
*****/
```

```
SELECT  IITEMID,  IITEMNAME,  SUM(PRICE)  AS  TOTAL_VAL
FROM    TBITEM
```

```
GROUP BY CUBE (IITEMID, IITEMNAME)
GO
```

A CUBE() as the name suggests generates data for the grouping of all permutations of expressions i.e. since we have 2 columns in our example that we are using the CUBE() function on, we have 2² which means 4 grouping sets:

```
IITEMID, IITEMNAME
IITEMNAME, IITEMID
IITEMID
IITEMNAME
```

Thus, one row will be produced for each unique grouping set from above and in addition, a sub-total row is generated for each row and an aggregated grand total row is produced with NULL values in all the other columns. You can see the output below:

```
IITEMID IITEMNAME TOTAL_VAL
-----
1      A      60
2      A      130
NULL   A      190
1      B      90
NULL   B      90
3      C      230
NULL   C      230
NULL   NULL   510
1      NULL   150
2      NULL   130
3      NULL   230
```

And as is obvious from the output, the order of the columns has no bearing on the output in the case of the CUBE() function.

The above SQL can also be written as:

```
SELECT IITEMID, IITEMNAME, SUM(PRICE) AS TOTAL_VAL
FROM TBITEM
GROUP BY IITEMID, IITEMNAME WITH CUBE
```

In order to distinguish the NULL values that are returned because of the usage of the ROLLUP() and/or CUBE() functions versus actual NULL values in the tables, one can make use of the GROUPING function. Example:

```
SELECT IITEMID, IITEMNAME, SUM(PRICE) AS TOTAL_VAL,
GROUPING(IITEMNAME) AS GRP_VALUE
FROM TBITEM
GROUP BY ROLLUP (IITEMID, IITEMNAME)
GO
```

```
IITEMID IITEMNAME TOTAL_VAL GRP_VALUE
-----
1      A      60      0
```

```

1      B      90      0
1      NULL   150     1
2      A      130     0
2      NULL   130     1
3      C      230     0
3      NULL   230     1
NULL   NULL   510     1

```

As seen from above, wherever the GRP_VALUE is marked as 1, those are the records that were generated because of the ROLLUP() function usage. Since the GROUPING() function takes in only one argument, we made usage of the outermost column in order to filter out all those records where the NULL value was being generated because of the usage of the function. In the case of the CUBE() function, you can use the GROUPING() function multiple times to filter out those records.

Another function to be aware of is the GROUPING_ID() function. This function can be used to compute the level of grouping. So, if there are two columns like we have in our example in this post, the GROUPING_ID() will be computed as:

Column(s)	GROUPING_ID(IITEMID, IITEMNAME)	=	GROUPING(IITEMID) +
	GROUPING(IITEMNAME)		GROUPING_ID() Output
IITEMID	10		2
IITEMNAME	01		1
IITEMID, IITEMNAME	11		3
IITEMNAME, IITEMID	11		3

Now, let us see this with the actual SQL execution:

```

SELECT  IITEMID,      IITEMNAME,      SUM(PRICE)      AS      TOTAL_VAL,
        GROUPING(IITEMID)      AS      C1,      GROUPING(IITEMNAME)      AS      C2,
        GROUPING_ID(IITEMID,      IITEMNAME)      AS      GRP_ID_VALUE
FROM      TBITEM
GROUP      BY      ROLLUP      (IITEMID,      IITEMNAME)
GO

```

```

IITEMID  IITEMNAME  TOTAL_VAL  C1  C2  GRP_ID_VALUE
-----
1      A      60      0  0  0
1      B      90      0  0  0
1      NULL   150     0  1  1
2      A      130     0  0  0
2      NULL   130     0  1  1
3      C      230     0  0  0
3      NULL   230     0  1  1
NULL   NULL   510     1  1  3

```

Q. Calculate third highest and third lowest salary using subQuery?

A. Maximum 3 Salaries

```
select * from Employee where Salary>=(select max(Salary) from Employee
where salary <(select max(salary) from employee where salary <(select max(salary)
from employee)))
```

Minimum 3 Salaries

```
select * from Employee where Salary<=(select min(Salary) from Employee
where salary >(select min(salary) from employee where salary >(select min(salary)
from employee)))
```

Q. What are Rules and Defaults?

A. Rules-: Creates an object called a rule. When bound to a column or an alias data type, a rule specifies the acceptable values that can be inserted into that column.

Syntax-:

```
CREATE RULE [ schema_name . ] rule_name
AS condition_expression
[ ; ]
```

Defaults :- Creates an object called a default. When bound to a column or an alias data type, a default specifies a value to be inserted into the column to which the object is bound (or into all columns, in the case of an alias data type), when no value is explicitly supplied during an insert.

Syntax-:

```
CREATE DEFAULT [ schema_name . ] default_name
AS constant_expression [ ; ]
```

Eg. Of Rules and Defaults

```
Create a default value for phone number to be used in example
USE AdventureWorks
GO
```

```
CREATE DEFAULT Default_PhNo
AS 'UnknownNumber'
GO
```

```
-- Create a rule for phone number to be used in example
-- Number will be in format +92-3335409953 or UnknownNumber by default
USE AdventureWorks
GO
```

```
CREATE RULE rule_PhNo
```

```

AS
(@phone='UnknownNumber')
OR
AND SUBSTRING(@phone,1,1)=(LEN(@phone)=14 '+'
AND SUBSTRING(@phone,4,1)='-'
GO

```

Q. Various Constraints in Sql server?

A. Constraints are used to limit the type of data that can go into a table.

Constraints can be specified when a table is created (with the CREATE TABLE statement) or after the table is created (with the ALTER TABLE statement).

We will focus on the following constraints:

- NOT NULL
- UNIQUE
- PRIMARY KEY
- FOREIGN KEY
- CHECK
- DEFAULT

Q. What are various keys available in sql server?

A. A key allows us to identify a set of attributes and thus distinguishes entities from each other. keys also help uniquely identify relationships, and thus distinguishes relation with each other.

Different types of keys:

- Super Key
- Candidate Key
- Primary Key
- Unique Key
- Foreign Key

Super Key - It is a set of one or more attributes that allows us to identify uniquely an entity set.

Candidate Key - A super key for which no subset is a superkey is called a candidate key.

Primary Key - In a table pk does not take no repetition and does not allow null values.

Foreign Key - It acts as a referential order. it refers one table from the another one.

Q. Can we have more than one primary key on single table?

A. Yes

Q. Difference between Set and Select?

A.

- Set is a ANSI standard for variable assignment.
- Select is a Non-ANSI standard when assigning variables.
- We can assign only one variable at a time
- We can assign multiple variable at a time
- When assigning from a query that returns more than one value, SET will fail with an error.
- When assigning from a query that returns more than one value, SELECT will assign the last value returned by the query and hide the fact that the query returned

Q. Difference between Varchar and NVarchar?

A. An nvarchar column can store any Unicode data. A varchar column is restricted to an 8-bit codepage. Some people think that varchar should be used because it takes up less space. I believe this is not the correct answer. Codepage incompatibilities are a pain, and Unicode is the cure for codepage problems. With cheap disk and memory nowadays, there is really no reason to waste time mucking around with code pages anymore.

Q. What are Sparse columns in sql 2008?

A. Sparse column is a tool that helps to reduce amount of physical storage used in a database. These are ordinary columns that have an optimized storage for all null values. SPARSE column are better at managing NULL and ZERO values in SQL Server. It does not take any space in database at all

Q. What is Order BY Clause?

A. **Specifies the sort order used on columns returned in a SELECT statement. The ORDER BY clause is not valid in views, inline functions, derived tables, and subqueries, unless TOP is also specified. by default is ascending**

Syntax:-

```
[ ORDER BY
  {
    order_by_expression
  [ COLLATE collation_name ]
  [ ASC | DESC ]
  } [ ,...n ]
]
```

Q. Difference between Caste and Convert Method

A. Cast and Convert perform datatype conversion. Convert also does some date formatting conversions that cast Doesn't offer

a) select 'The Customer has placed the order number'+cast(orderid as varchar)
from orders where customerid='ALFKI'

b) select OrderDate,Cast(OrderDate as varchar) as Converted from orders
where orderid=11050

c) select OrderDate,convert(varchar,orderdate,111) as Converted from orders
where orderid=11050—Japanes 111—four digit year

d) c) select OrderDate,convert(varchar,orderdate,5) as Converted from orders
where orderid=11050---Italian

Q. What are cursors?

A. Well cursors help us to do an operation on a set of data that we retrieve by commands such as Select columns from table. For example : If we have duplicate records in a table we can remove it by declaring a cursor which would check the records during retrieval one by one and remove rows which have duplicate values.

Q. When do we use the UPDATE_STATISTICS command?

A. This command is basically used when we do a large processing of data. If we do a large amount of deletions any modification or Bulk Copy into the tables, we need to basically update the indexes to take these changes into account. UPDATE_STATISTICS updates the indexes on these tables accordingly.

Q. Which TCP/IP port does SQL Server run on?

A. SQL Server runs on port 1433 but we can also change it for better security.

Q. From where can you change the default port?

A. From the Network Utility TCP/IP properties → Port number.both on client and the server.

Q. Can you tell me the difference between DELETE & TRUNCATE commands?

A. Delete command removes the rows from a table based on the condition that we provide with a WHERE clause and mainting its log file.we can rollback deleted data. Truncate will actually remove all the rows from a table and there will be no data in the table after we run the truncate command.we cannot rollback truncated data

Q. Can we use Truncate command on a table which is referenced by FOREIGN KEY?

A. No. We cannot use Truncate command on a table with Foreign Key because of referential integrity.

Q. What is the use of DBCC commands?

A. DBCC stands for database consistency checker. We use these commands to check the consistency of the databases, i.e., maintenance, validation task and status checks.

Q. Can you give me some DBCC command options?(Database consistency check) –

A. DBCC CHECKDB - Ensures that tables in the db and the indexes are correctly linked.and
DBCC CHECKALLOC - To check that all pages in a db are correctly allocated. DBCC
SQLPERF - It gives report on current usage of transaction log in percentage. DBCC
CHECKFILEGROUP - Checks all tables file group for any damage.

Q. What command do we use to rename a db?

A. sp_renamedb 'oldname' , 'newname'

Q. What is the difference between a HAVING CLAUSE and a WHERE CLAUSE?

A. Having Clause is basically used only with the GROUP BY function in a query. WHERE Clause is applied to each row before they are part of the GROUP BY function in a query.

Q. What do you mean by COLLATION?

A. Collation is basically the sort order. There are three types of sort order Dictionary case sensitive, Dictionary - case insensitive and Binary.

Q. What is a Linked Server?

A. Linked Servers is a concept in SQL Server by which we can add other SQL Server to a Group and query both the SQL Server dbs using T-SQL Statements.

- Q. Can you link only other SQL Servers or any database servers such as Oracle?**
- A.** We can link any server provided we have the OLE-DB provider from Microsoft to allow a link. For Oracle we have a OLE-DB provider for oracle that microsoft provides to add it as a linked server to the sql server group.
- Q. Which stored procedure will you be running to add a linked server?**
- A.** sp_addlinkedserver, sp_addlinkedsrvlogin
- Q. What are the authentication modes in SQL Server?**
- A.** Windows mode and mixed mode (SQL & Windows).
- Q. Where do you think the users names and passwords will be stored in sql server?**
- A.** They get stored in master db in the sysxlogins table.
- Q. What is log shipping?**
- A.** Can we do logshipping with SQL Server 7.0 - Logshipping is a new feature of SQL Server 2000. We should have two SQL Server - Enterprise Editions. From Enterprise Manager we can configure the logshipping. In logshipping the transactional log file from one server is automatically updated into the backup database on the other server. If one server fails, the other server will have the same db and we can use this as the DR (disaster recovery) plan.
- Q. What is BCP? When do we use it?**
- A.** BulkCopy is a tool used to copy huge amount of data from tables and views. But it won't copy the structures of the same.
- Q. What should we do to copy the tables, schema and views from one SQL Server to another?**
- A.** We have to write some DTS packages for it.
- Q. What is referential integrity? What are the advantages of it?**
- A.** *Referential integrity* is a database constraint that ensures that references between data are indeed valid and intact.

Referential integrity is a fundamental principle of database theory and arises from the notion that a database should not only store data, but should actively seek to ensure its quality.

Here are some additional definitions that we found on the Web.

- “Referential integrity in a relational database is consistency between coupled tables. Referential integrity is usually enforced by the combination of a primary key and a foreign key. For referential integrity to hold, any field in a table that is declared a foreign key can contain only values from a parent table's primary key field...”

- “[Referential integrity is] a feature provided by relational database management systems (RDBMS’s) that prevents users or applications from entering inconsistent data.

Most RDBMS’s have various referential integrity rules that you can apply when you create a relationship between two tables.”

- “[Referential integrity is] a database management safeguard that ensures every foreign key matches a primary key.

For example, customer numbers in a customer file are the primary keys, and customer numbers in the order file are the foreign keys. If a customer record is deleted, the order records must also be deleted; otherwise they are left without a primary reference. If the DBMS does not test for this, it must be programmed into the applications.”

There are many **benefits** of defining **referential integrity** in a database.

- **Improved data quality.** An obvious benefit is the boost to the quality of data that is stored in a database. There can still be errors, but at least data references are genuine and intact.

- **Faster development.** Referential integrity is declared. This is much more productive (one or two orders of magnitude) than writing custom programming code.

- **Fewer bugs.** The declarations of referential integrity are more concise than the equivalent programming code. In essence, such declarations reuse the tried and tested general-purpose code in a database engine, rather than redeveloping the same logic on a case-by-case basis.

- **Consistency across applications.** Referential integrity ensures the quality of data references across the multiple application programs that may access a database.

Q. What is the difference between a local and a global variable?

A. Difference between a local and a global variable

- A **local temporary table** exists only for the duration of a connection or, if defined inside a compound statement, for the duration of the compound statement.

- A **global temporary table** remains in the database permanently, but the rows exist only within a given connection. When connection are closed, the data in the global temporary table disappears. However, the table definition remains with the database for access when database is opened next time.

Q. Explain DBMS, RDBMS?

A. DBMS Stands for "**Database Management System.**" In short, a DBMS is a database program. Technically speaking, it is a software system that uses a standard method of cataloging, retrieving, and running queries on data. The DBMS manages incoming data, organizes it, and provides ways for the data to be modified or extracted by users or other programs.

Relational Database Management System (RDBMS) is a database management system (DBMS) that is based on the relational model as introduced by E. F. Codd. Most popular commercial and open source databases currently in use are based on the relational database model.

A short definition of an RDBMS is: a DBMS in which data is stored in tables and the relationships among the data are also stored in tables. The data can be accessed or reassembled in many different ways without having to change the table forms.

Q. What are primary keys and foreign keys?

A. Primary Key :- The primary key of a relational table uniquely identifies each record in the table. It can either be a normal attribute that is guaranteed to be unique (such as Social Security Number in a table with no more than one record per person) or it can be generated by the DBMS (such as a globally unique identifier, or GUID, in Microsoft SQL Server). Primary keys may consist of a single attribute or multiple attributes in combination.

Foreign Key :- A **foreign key** is a field (or fields) that points to the primary key of another table. The purpose of the foreign key is to ensure referential integrity of the data. In other words, only values that are supposed to appear in the database are permitted.

Q. How would you Update the rows which are divisible by 10, given a set of numbers in column?

A. UPDATE table_name
SET column1=value WHERE column1= value/10

Q. How can you get @@error and @@rowcount at the same time?

A. If @@Rowcount is checked after Error checking statement then it will have 0 as the value of @@Recordcount as it would have been reset. And if @@Recordcount is checked before the error-checking statement then @@Error would get reset. To get @@error and @@rowcount at the same time do both in same statement and store them in local variable. SELECT @RC = @@ROWCOUNT, @ER = @@ERROR

Q. What is Sql Injection?

- A.** SQL injection is an attack in which malicious code is inserted into strings that are later passed to an instance of SQL Server for parsing and execution. Any procedure that constructs SQL statements should be reviewed for injection vulnerabilities because SQL Server will execute all syntactically valid queries that it receives. Even parameterized data can be manipulated by a skilled and determined attacker.

The following script shows a simple SQL injection. The script builds an SQL query by concatenating hard-coded strings together with a string entered by the user:

```
var Shipcity;  
ShipCity = Request.form ("ShipCity");  
var sql = "select * from OrdersTable where ShipCity = " + ShipCity + "";
```

Q. What is Cascading?

- A.** **Cascading referential integrity constraints are foreign key constraints that tell SQL Server to perform certain actions when a primary key field in a primary key-foreign key relationship is updated or deleted.**

By using cascading referential integrity constraints, you can define the actions that SQL Server 2005 takes when a user tries to delete or update a key to which existing foreign keys point.

Q. What are different type of Collation Sensitivity?

- A. Case sensitivity**

A and a, B and b, etc.

- *Accent sensitivity* a and á, o and ó, etc.
- *Kana Sensitivity* When Japanese kana characters Hiragana and Katakana are treated differently, it is called Kana sensitive.
- *Width sensitivity* When a single-byte character (half-width) and the same character when represented as a double-byte character (full-width) are treated differently then it is width sensitive.

Q. What's the difference between a primary key and a unique key?

- A.** Both primary key and unique enforce uniqueness of the column on which they are defined. But by default primary key creates a clustered index on the column, where unique creates a nonclustered index by default. Another major difference is that, primary key doesn't allow NULLs, but unique key allows one NULL only.

Q. How to implement one-to-one, one-to-many and many-to-many relationships while designing tables?

A.

- **One-to-One relationship** can be implemented as a single table and rarely as two tables with primary and foreign key relationships.
- **One-to-Many relationships** are implemented by splitting the data into two tables with primary key and foreign key relationships.
- **Many-to-Many relationships** are implemented using a junction table with the keys from both the tables forming the composite primary key of the junction table.

Q. What is a NOLOCK?

A. Using the **NOLOCK** query optimiser hint is generally considered good practice in order to improve concurrency on a busy system. When the **NOLOCK** hint is included in a **SELECT** statement, no locks are taken when data is read. The result is a Dirty Read, which means that another process could be updating the data at the exact time you are reading it. There are no guarantees that your query will retrieve the most recent data. The advantage to performance is that your reading of data will not block updates from taking place, and updates will not block your reading of data.

SELECT statements take Shared (Read) locks. This means that multiple **SELECT** statements are allowed simultaneous access, but other processes are blocked from modifying the data. The updates will queue until all the reads have completed, and reads requested after the update will wait for the updates to complete. The result to your system is delay(blocking).

Q. Difference between Function and Stored Procedure?

A. UDF can be used in the SQL statements anywhere in the WHERE/HAVING/SELECT section where as Stored procedures cannot be. UDFs that return tables can be treated as another rowset. This can be used in JOINS with other tables. Inline UDF's can be thought of as views that take parameters and can be used in JOINS and other Rowset operations.

Q. What kind of User-Defined Functions can be created?

A. There are three types of User-Defined functions in SQL Server 2000 and they are Scalar, Inline Table-Valued and Multi-statement Table-valued.

Q. What is the difference between a local and a global variable?

A.

- A *local temporary* table exists only for the duration of a connection or, if defined inside a compound statement, for the duration of the compound statement.
- A *global temporary* table remains in the database permanently, but the rows exist only within a given connection. When connection are closed, the data in the global temporary table disappears. However, the table definition remains with the database for access when database is opened next time.

Q. What are three SQL keywords used to change or set someone's permissions?

A. GRANT, DENY, and REVOKE.

Q. What is the STUFF function and how does it differ from the REPLACE function?

A.

- **STUFF** function to overwrite existing characters. Using this syntax, STUFF(string_expression, start, length, replacement_characters), string_expression is the string that will have characters substituted, start is the starting position, length is the number of characters in the string that are substituted, and replacement_characters are the new characters interjected into the string.
- **REPLACE** function to replace existing characters of all occurrence. Using this syntax REPLACE(string_expression, search_string, replacement_string), where every incidence of search_string found in the string_expression will be replaced with replacement_string.

Using query analyzer, name 3 ways to get an accurate count of the number of records in a table?

```
SELECT * FROM Employee
SELECT COUNT(*) FROM Employee
SELECT rows FROM sysindexes WHERE id = OBJECT_ID(table1)
AND indid < 2
```

Q. What is data integrity? Explain constraints?

A. Data integrity is an important feature in SQL Server. When used properly, it ensures that data is accurate, correct, and valid. It also acts as a trap for otherwise undetectable bugs within applications.

- A **PRIMARY KEY** constraint is a unique identifier for a row within a database table. Every table should have a primary key constraint to uniquely identify each row and only one primary key constraint can be created for each table. The primary key constraints are used to enforce entity integrity.
- A **UNIQUE** constraint enforces the uniqueness of the values in a set of columns, so no duplicate values are entered. The unique key constraints are used to enforce entity integrity as the primary key constraints.
- A **FOREIGN KEY** constraint prevents any actions that would destroy links between tables with the corresponding data values. A foreign key in one table points to a primary key in another table. Foreign keys prevent actions that would leave rows with foreign key values when there are no primary keys with that value. The foreign key constraints are used to enforce referential integrity.
- A **CHECK** constraint is used to limit the values that can be placed in a column. The check constraints are used to enforce domain integrity.
- A **NOT NULL** constraint enforces that the column will not accept null values. The not null constraints are used to enforce domain integrity, as the check constraints.

Q. What are the properties of the Relational tables?

A. Relational tables have six properties:

Values are atomic.

Column values are of the same kind.

Each row is unique.

The sequence of columns is insignificant.

The sequence of rows is insignificant.

Each column must have a unique name.

Q. What is Identity?

- A.** Identity (or AutoNumber) is a column that automatically generates numeric values. A start and increment value can be set, but most DBA leave these at 1. A GUID column also generates numbers, the value of this cannot be controlled. Identity/GUID columns do not need to be indexed.

Q. What is Self Join?

- A.** This is a particular case when one table joins to itself, with one or two aliases to avoid confusion. A self join can be of any type, as long as the joined tables are the same. A self join is rather unique in that it involves a relationship with only one table. The common example is when company have a hierarchal reporting structure whereby one member of staff reports to another.

Q. What is Cross Join?

A. A cross join that does not have a WHERE clause produces the Cartesian product of the tables involved in the join. The size of a Cartesian product result set is the number of rows in the first table multiplied by the number of rows in the second table. The common example is when company wants to combine each product with a pricing table to analyze each product at each price

Q. Which virtual table does a trigger use?

A. Inserted and Deleted.

Q. List few advantages of Stored Procedure.

A.

- **Stored procedure** can reduced network traffic and latency, boosting application performance.
- **Stored procedure** execution plans can be reused, staying cached in SQL Server's memory, reducing server overhead.
- **Stored procedures** help promote code reuse.
- **Stored procedures** can encapsulate logic. You can change stored procedure code without affecting clients.
- **Stored procedures** provide better security to your data.

Q. What is OLTP(OnLine Transaction Processing)?

A. In OLTP – online transaction processing systems relational database design use the discipline of data modeling and generally follow the Codd rules of data normalization in order to ensure absolute data integrity. Using these rules complex information is broken down into its most simple structures (a table) where all of the individual atomic level elements relate to each other and satisfy the normalization rules.



.Net Controls and Concepts

Q. What are various datacontrols available in asp.net.?

A. Gridview,Listview,Datalist,Repeater,Formview,DetailView

Q. What is Gridview?

A. The GridView control is the official successor to the DataGrid control of yesteryears. It is no longer listed in the toolbox, even though it is supported by ASP.NET 2.0. All new projects would automatically use the GridView control. Though both these controls have a similar look and feel they are implemented differently as already explained in the earlier section of this tutorial. However, to reiterate some of the features of the GridView control let us list them:

The GridView control is associated with the DataSource control through its DataSourceID property.

In ASP.NET 2.0 there are several DataSource controls that are designed to work with different data sources.

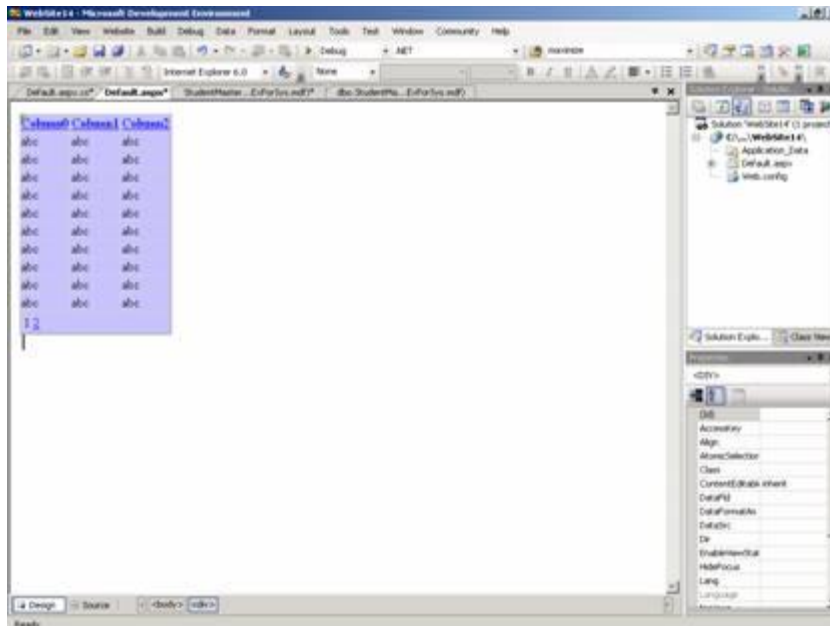
Enabling Editing and Deleting records in the GridView Control is as simple as setting the properties “AutoGenerateDeleteButton” and “AutoGenerateEditButton” as "True"

GridView totally supports 6 field types, they are:

1. BoundField,
2. CheckBoxField,
3. ButtonField,
4. CommandField,
5. HyperlinkField,
6. ImageField and
7. TemplateField

Creating a GridView control on a Page

1. Create a Web site
2. Open the Default.aspx page in design view and drag a GridView control onto it.



3. Switch over to the Source view and examine the code. The following code will be displayed.
4. For fetching records from a data source we need to add a SqlDataSource Control to the website. Click on the arrow and select
5. Click Ok. The Configuration Data Source wizard appears.

Q. How do u sort data in GridView?

A.

- The GridView control provides built-in sorting functionality without requiring any coding.
- You can further customize the sort functionality of the GridView control by using custom SortExpression property values for columns as well as by using the Sorting and Sorted events.
- GridView control does not perform its own sorting of columns, but rather relies on the data source control to perform sorting on its behalf.
- The control provides the user interface (UI) for sorting, such as LinkButton controls displayed at the top of each column of the grid.
- However, the GridView control relies on the data-sorting capabilities of the data source control to which it is bound.

- If the bound data source control can sort data, then the GridView control can interact with the data source control and request sorted data by passing a SortExpression to the data source when data is selected. Not all data source controls support sorting; for example, the XmlDataSource control does not.
- If the data source control supports sorting, however, the GridView can take advantage of it.
- **The following list describes data source controls and the configuration that is needed to support sorting:**

The SqlDataSource and AccessDataSource controls can sort if the DataSourceMode property is set to DataSet, or the SortParameterName property is set to either DataSet or DataReader.

The ObjectDataSource control can sort if its SortParameterName property is set to a value supported by the underlying object.

- GridView Sorting Process
- You can enable the default sorting behavior in the GridView control by setting its AllowSorting property to true.
- Setting this property to true causes the GridView control to render a LinkButton control in the column headers. The control also implicitly sets the SortExpression property of each column to the name of the data field to which it is bound.
- For example, if the grid contains a column that displays the City column of the Employees table in the Northwind sample database, the SortExpression property of that column will be set to City.
- At run time, users can click the LinkButton control in a column heading to sort by that column. Clicking the link causes the page to perform a postback and raises the GridView control's Sorting event.
- The sort expression — by default, the name of the data column — is passed as part of the event arguments.

- The default behavior for the Sorting event is that the GridView control passes the sort expression to the data source control.
- The data source control executes its selection query or method, including the sort parameters passed by the grid.
- After the query has executed, the grid's Sorted event is raised. This event allows you to perform post-query logic, such as displaying a status message.
- Finally, the data source control rebinds the GridView control to the results of the resorted query.

Q. How to create Automatic and Manual Paging In Gridview?

A. The Grid has three properties for paging:

PageSize - the number of records per page

CurrentPageIndex - the zero-based index of the page that will be loaded

PageSizeOptions - allows you to set what options will be available for the "records per page" dropdown list

```
<about:Grid id="grid1" PageSize="5" CurrentPageIndex="5"
  PageSizeOptions="1,5,10,15,20,25" runat="server"></about:Grid>
```

```
protected void gvEmployees_PageIndexChanging(object sender, GridViewPageEventArgs e)
{
    gvEmployees.PageIndex = e.NewPageIndex;
    BindGrid(string.Empty, "ASC");
}
```

Q. Can we edit data in Repeater?

A. Yes

Q. Explain ACID Property?

A. The term ACID conveys the role transactions play in mission- critical applications. Coined by transaction processing pioneers, ACID stands for atomicity, consistency, isolation, and durability.

These properties ensure predictable behavior, reinforcing the role of transactions as all-or-none propositions designed to reduce the management load when there are many variables.

Atomicity

A transaction is a unit of work in which a series of operations occur between the BEGIN TRANSACTION and END TRANSACTION statements of an application. A transaction executes exactly once and is atomic ? all the work is done or none of it is.

Operations associated with a transaction usually share a common intent and are interdependent. By performing only a subset of these operations, the system could compromise the overall intent of the transaction. Atomicity eliminates the chance of processing a subset of operations.

Consistency

A transaction is a unit of integrity because it preserves the consistency of data, transforming one consistent state of data into another consistent state of data. Consistency requires that data bound by a transaction be semantically preserved. Some of the responsibility for maintaining consistency falls to the application developer who must make sure that all known integrity constraints are enforced by the application. For example, in developing an application that transfers money, you should avoid arbitrarily moving decimal points during the transfer.

Isolation

A transaction is a unit of isolation ? allowing concurrent transactions to behave as though each were the only transaction running in the system. Isolation requires that each transaction appear to be the only transaction manipulating the data store, even though other transactions may be running at the same time. A transaction should never see the intermediate stages of another transaction.

Transactions attain the highest level of isolation when they are serializable. At this level, the results obtained from a set of concurrent transactions are identical to the results obtained by running each transaction serially. Because a high degree of isolation can limit the number of

concurrent transactions, some applications reduce the isolation level in exchange for better throughput.

Durability

A transaction is also a unit of recovery. If a transaction succeeds, the system guarantees that its updates will persist, even if the computer crashes immediately after the commit. Specialized logging allows the system's restart procedure to complete unfinished operations, making the transaction durable.

Q. Difference between Property and variable?

A. A *variable* corresponds directly to a memory location. You define a variable with a single declaration statement. A variable can be a *local variable*, defined inside a procedure and available only within that procedure, or it can be a *member variable*, defined in a module, class, or structure but not inside any procedure. A member variable is also called a *field*.
A *property* is a data element defined on a module, class, or structure. You define a property with a code block between the **Property** and **End Property** statements. The code block contains a **Get** procedure, a **Set** procedure, or both. These procedures are called *property procedures* or *property accessors*. In addition to retrieving or storing the property's value, they can also perform custom actions, such as updating an access counter.

Q. If we assign a value in textbox on Page_UnLoad event, will it display?

A. No

Q. How can we achieve paging in Repeater and Datalist?

A. By using PagedDataSource Class or Custom Paging.

Q. What is Caching?

A. Caching a page

In order to cache a page's output, we need to specify an @OutputCache directive at the top of the page. The syntax is as shown below:

```
<%@ OutputCache Duration=5 VaryByParam="None" %>
```

As you can see, there are two attributes to this directive. They are:

Duration - The time in seconds of how long the output should be cached. After the specified duration has elapsed, the cached output will be removed and page content generated for the next request. That output will again be cached for 10 seconds and the process repeats.

VaryByParam - This attribute is compulsory and specifies the querystring parameters to vary the cache.

In the above snippet, we have specified the *VaryByParam* attribute as *None* which means the page content to be served is the same regardless of the parameters passed through the querystring [see Example 1 in the sample download].

If there are two requests to the same page with varying querystring parameters, e.g.:
.../PageCachingByParam.aspx?id=12 and .../PageCachingByParam.aspx?id=15]
and separate page content is generated for each of them, the directive should be:

```
<%@ OutputCache Duration=5 VaryByParam="id" %>
```

The page content for the two requests will each be cached for the time specified by the `Duration` attribute [see Example 2 in the sample download].

To specify multiple parameters, use semicolon to separate the parameter names. If we specify the `VaryByParam` attribute as `*`, the cached content is varied for all parameters passed through the querystring.

Some pages generate different content for different browsers. In such cases, there is provision to vary the cached output for different browsers. The `@OutputCache` directive has to be modified to:

```
<%@ OutputCache Duration=5 VaryByParam="id" VaryByCustom="browser" %>
```

This will vary the cached output not only for the browser but also its major version. I.e., IE5, IE 6, Netscape 4, Netscape 6 will all get different cached versions of the output.

Caching page fragments

Sometimes we might want to cache just portions of a page. For example, we might have a header for our page which will have the same content for all users. There might be some text/image in the header which might change everyday. In that case, we will want to cache this header for a duration of a day.

The solution is to put the header contents into a user control and then specify that the user control content should be cached. This technique is called *fragment caching*.

To specify that a user control should be cached, we use the `@OutputCache` directive just like we used it for the page.

```
<%@ OutputCache Duration=10 VaryByParam="None" %>
```

With the above directive, the user control content will be cached for the time specified by the `Duration` attribute [10 secs]. Regardless of the querystring parameters and browser type and/or version, the same cached output is served. [See Example 3 in the download for a demonstration].

Data Caching

ASP.NET also supports caching of data as objects. We can store objects in memory and use them across various pages in our application. This feature is implemented using the `Cache` class. This cache has a lifetime equivalent to that of the application. Objects can be stored as name value pairs in the cache. A string value can be inserted into the cache as follows:

```
Cache["name"]="Smitha";
```

The stored string value can be retrieved like this:

```
if (Cache["name"] != null)
    Label1.Text= Cache["name"].ToString();
```

To insert objects into the cache, the `Add` method or different versions of the `Insert` method of the `Cache` class can be used. These methods allow us to use the more powerful features provided by the `Cache` class. One of the overloads of the `Insert` method is used as follows:

```
Cache.Insert("Name",                strName,                new
    CacheDependency(Server.MapPath("name.txt"),
    DateTime.Now.AddMinutes(2), TimeSpan.Zero);
```

The first two parameters are the key and the object to be inserted. The third parameter is of type `CacheDependency` and helps us set a dependency of this value to the file named *name.txt*. So whenever this file changes, the value in the cache is removed. We can specify `null` to indicate no dependency. The fourth parameter specifies the time at which the value should be removed from cache. [See example 5 for an illustration.] The last parameter is the *sliding expiration parameter* which shows the time interval after which the item is to be removed from the cache after its last accessed time.

The cache automatically removes the least used items from memory, when system memory becomes low. This process is called *scavenging*. We can specify priority values for items we add to the cache so that some items are given more priority than others:

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```
Cache.Insert("Name",                strName,                new
    CacheDependency(Server.MapPath("name.txt"),
    DateTime.Now.AddMinutes(2),  TimeSpan.Zero,    CacheItemPriority.High,
    null);
```

The `CacheItemPriority` enumeration has members to set various priority values. The `CacheItemPriority.High` assigns a priority level to an item so that the item is least likely to be deleted from the cache.

Q. What are webservice

A. ASP.NET Web Services support clients using HTTP-POST, HTTP-GET and SOAP protocols to invoke methods exposed, depends on your specific requirement you choose one method over the others. The main difference between HTTP-GET or HTTP-POST and

SOAP is the data types supported by SOAP is much richer because SOAP used XSD schema to represent complex data types.

Here are samples codes I use to test the building of ASP.NET Web Service:

Step 1: Create the ASP.NET Web Service Source File

ASP.NET Web Service file name has extension *asmx* and my file is named *MyWebService.asmx*, source is listed as follows:

File: MyWebService.asmx

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```
<%@ WebService Language="C#" class="MyClass" %>
```

```
using System.Web.Services ;
```

```
public class MyClass
{
    [WebMethod()]
    public int Add ( int a, int b)
    {
        return a + b ;
    }
}
```

The page directive `WebService` is required and class is the name of the .NET Class to expose the Web Service, each method exposes as Web Service Class Method need to have a declarative attribute statement `[WebMethod()]` in front of it. Here the .NET Class implementation is included in the same file with ASP.NET Web Service file but it is not mandatory and we can choose to include an external .NET Assembly to implement the service as the following example:

File: MyWebService2.asmx

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```
<%@   WebService   Language="C#"           class="MyWebService.MyStringReverse,
      MyWebServiceImpl" %>
```

The file *MyWebService2.asmx* is referencing another .NET Assembly *MyWebServiceImpl* which is located under the */bin* ASP.NET Application sub-folder (note that the default location for Assemblies in ASP.NET is */bin* sub-folder under each ASP.NET Applications). The source of .NET Assembly *MyWebServiceImpl* is written by C# and is listed as follows:

File: MyWebServiceImpl.cs

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```
namespace MyWebService
{
```

```
using System ;
using System.Web.Services ;

public class MyStringReverse: WebService
{
    [WebMethod(Description="Reverse String")]
    public String ReverseString ( String InString )
    {
        // Check null String
        if ( InString == null ) return null ;

        Int32 intSize = InString.Length ;
        char[] arrayInString = InString.ToCharArray() ;
        char[] arrayOutString = new char[intSize] ;

        for (Int32 i = 0 ; i < intSize ; ++i)
            arrayOutString[i] = arrayInString[intSize-i-1] ;

        return new String(arrayOutString) ;
    }
}
```

To create the *Assembly*, you can use the following command:

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```
C:\>CSC /t:library /out:bin/MyWebServiceImpl.dll MyWebServiceImpl.cs
```

The following sections I will continue use *MyWebService.asmx* as my experimental Web Service.

Step 2: Create the ASP.NET Web Service Clients

There are many ways to consume Web Services and have three examples. The first one uses HTTP-POST protocol and it has advantage to coexist with today's application quite well and use HTTP-GET is similar and I let reader to try it. The second one uses SOAP Proxy Client Object generated by WSDL utility and it provides programmers with their familiar object modal that they call methods provided by the generated Proxy Interface. The final one uses SOAP standard request message and it parses SOAP response message with the help of XMLHTTP COM object that is installed by Microsoft XML Parser 3.0.

Client use HTTP-POST Method

The example is an ASP.NET page *TestWebService.aspx* and source listing as follows:

File: TestWebService.aspx

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```
<html>
```

```
<body>
```

```
<form action="http://localhost/ASP.NET/MyWebService.asmx/Add" method="POST">
```

```
    <input name="a"></input>
```

```
    <input name="b"></input>
```

```
    <input type="submit" value="Enter"> </input>
```

```
</form>
```

```
</body>
```

```
</html>
```

The ASP page accepts parameters from browser and calls the `Add` method of the Web Service *MyWebService* via the HTTP-POST protocol, the result will be XML message and need further parsing by the client application. To parse the response, client can use either Java XML parser in applet or use IE5's DOM Object.

The following is an example of XML response when parameters `a=1`, `b=2` are inputted:

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```
<?xml version="1.0" encoding="utf-8" ?>
```

```
<int xmlns="http://tempuri.org/">3</int>
```

Client use WSDL Generated Proxy Object

If your client will be Windows applications or ASP.NET applications, you can use WSDL.EXE utility to create standard .NET Assembly to provide Proxy Class for your clients.

Here are steps you can follow and try:

Use WSDL.EXE utility to create the Proxy Class source file in any language you have chosen and here I use C# and command as follows:

☐Collapse

```
C:\>wsdl /language:C# /out:MyProxyClass.cs
```

```
http://localhost/ASP.NET/MyWebService.asmx
```

MyProxyClass.cs is generated and source listing as follows:

File: MyProxyClass.cs

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```
//-----
```

```
// <autogenerated>
```

```
// This code was generated by a tool.
```

```
// Runtime Version: 1.0.2914.16
```

```
//
// Changes to this file may cause incorrect behavior and will be lost if
// the code is regenerated.
// </autogenerated>
//-----

//
// This source code was auto-generated by wsdl, Version=1.0.2914.16.
//
using System.Diagnostics;
using System.Xml.Serialization;
using System;
using System.Web.Services.Protocols;
using System.Web.Services;

[System.Web.Services.WebServiceBindingAttribute(Name="MyClassSoap",
    Namespace="http://tempuri.org/")]
public class MyClass : System.Web.Services.Protocols.SoapHttpClientProtocol {

    [System.Diagnostics.DebuggerStepThroughAttribute()]
    public MyClass() {
        this.Url = "http://localhost/ASP.NET/MyWebService.asmx";
    }

    [System.Diagnostics.DebuggerStepThroughAttribute()]

        [System.Web.Services.Protocols.SoapDocumentMethodAttribute("http://tempuri.org
        /Add",

Use=System.Web.Services.Description.SoapBindingUse.Literal,

ParameterStyle=System.Web.Services.Protocols.SoapParameterStyle.Wrapped)]
    public int Add(int a, int b) {
        object[] results = this.Invoke("Add", new object[] {
            a,
            b});
        return ((int)(results[0]));
    }
}
```

```
[System.Diagnostics.DebuggerStepThroughAttribute()]
public System.IAsyncResult BeginAdd(int a, int b, System.AsyncCallback callback,
    object asyncState) {
    return this.BeginInvoke("Add", new object[] {
        a,
        b}, callback, asyncState);
}
```

```
[System.Diagnostics.DebuggerStepThroughAttribute()]
public int EndAdd(System.IAsyncResult asyncResult) {
    object[] results = this.EndInvoke(asyncResult);
    return ((int)(results[0]));
}
}
```

Then we need to create the .NET `Assembly` for used by clients:

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C:\> csc /t:library MyProxyClass.cs

The above command will compile the source and create *MyProxyClass.dll* library file.

I use ASP to depict how to use the proxy object and the file is *TestWebServiceWithProxy.aspx* source listing as follows:

File: TestWebServiceWithProxy.aspx

☒Collapse

```
<%@ page language="C#" %>
<html>
<script runat="server">
    void btn_click(Object source, EventArgs e)
    {
        MyClass mycls = new MyClass() ;
        int x = Int32.Parse(a.Text) ;
        int y = Int32.Parse(b.Text);

        Message.Text = mycls.Add( x, y).ToString() ;
    }
</script>

<body>
<form Action = "TestWebServiceWithProxy.aspx" runat="server">
    <asp:TextBox id="a" runat="server" />
    <asp:TextBox id="b" runat="server" />
```

```

<asp:button id=btn OnClick="btn_click" Text="Enter" runat="server" />
<p><asp:label id="Message" runat="server" /></P>
</form>
</body>
</html>

```

Client use XMLHTTP to call Web service via SOAP

To fully explore the SOAP capability, you may choose to call your ASP.NET Web Service via SOAP core protocol and here I provide another example for reference.

To test the ASP.NET service with SOAP protocol, I create an ASP client file *TestWebServiceByXML.asp* and its source is listed as follows:

File: TestWebServiceByXML.asp

☒Collapse

```

<html>
<body>
<script language="jscript">
    function btn_click (a, b)
    {
        var xmlObj = new ActiveXObject("Msxml2.DOMDocument");
        var sXml = "<?xml version='1.0' ?>";
        sXml += "<soap:Envelope "
        sXml += "xmlns:xsi='http://www.w3.org/2001/XMLSchema-instance\" ";
        sXml += "xmlns:xsd='http://www.w3.org/2001/XMLSchema\" ";
        sXml += "xmlns:soap='http://schemas.xmlsoap.org/soap/envelope^\">";
        sXml += "<soap:Body>";
        sXml += "<Add xmlns='http://tempuri.org^\">";
        sXml = sXml + "<a>" + a.value + "</a>";
        sXml = sXml + "<b>" + b.value + "</b>";
        sXml += "</Add></soap:Body></soap:Envelope>"

        // Try to parse the XML string into DOM object
        xmlObj.loadXML(sXml);

        //To see the validated XML string is well-formed
        XmlRequest.innerText = xmlObj.xml ;

        var xmlHTTP = new ActiveXObject("Msxml2.XMLHTTP");
        xmlHTTP.Open ( "Post", "http://localhost/ASP.NET/MyWebService.asmx",
        false);
        xmlHTTP.setRequestHeader("SOAPAction", "http://tempuri.org/Add");

```

```

xmlHTTP.setRequestHeader("Content-Type", "text/xml; charset=utf-8" );
xmlHTTP.Send(xmlObj.xml) ;
MyResult.innerText = xmlHTTP.responseText ;

var xmlResponse = xmlHTTP.responseXML ;
answer.innerText =
xmlResponse.selectSingleNode("soap:Envelope/soap:Body/AddResponse/AddResul
t").text ;
}
</script>

<form>
  <p>Please input a:<input id="a" name="a"></input></p>
  <p>Please input b:<input id="b" name="b"></input></p>
  <p>
  <input type="button" id="btn" value="Enter"
    onclick="jscript:btn_click(a, b)"></input>
  </p>
  <p>Answer is <span id="answer"></span></p>
  <hr></hr>
  <p>Request:</p>
  <span id="XmlRequest"></span>
  <p>Response:</p>
  <span id="MyResult"></span>

</form>

</body>
</html>

```

Here I installed Microsoft XML Parser 3.0 in my client machine that give me the XMLHTTP and DOM COM objects to test my application.

Q. What is Globalization and Localization?

A. Localization means "process of translating resources for a specific culture"
Globalization means "process of designing applications that can adapt to different cultures".

Q. Can we have nested gridview?

A. Yes

Q. What is Silverlight?

A. Silverlight is a new cross-browser, cross-platform implementation of the .NET Framework for building and delivering the next generation of media experiences and Rich Interactive Applications(RIA) for the web. It runs in all popular browsers, including Microsoft Internet Explorer, Mozilla Firefox, Apple Safari, Opera. The plugin required to run Silverlight is very small in size hence gets installed very quickly.

It is combination of different technologies into a single development platform that allows you to select tools and the programming language you want to use. Silverlight integrates seamlessly with your existing Javascript and ASP.NET AJAX code to complement functionality which you have already created.

Silverlight aims to compete with Adobe Flash and the presentation components of Ajax. It also competes with Sun Microsystems' JavaFX, which was launched a few days after Silverlight.

Currently there are 2 major versions of Silverlight:

Silverlight 1.0 and Silverlight 2.0(previously referred to as version 1.1).

Silverlight 1.0 :

Silverlight 1.0 consists of the core presentation framework, which is responsible for UI, interactivity and user input, basic UI controls, graphics and animation, media playback, DRM support, and DOM integration.

Main features of Silverlight 1.0 :

Built-in codec support for playing VC-1 and WMV video, and MP3 and WMA audio within a browser.

Silverlight supports the ability to progressively download and play media content from any web-server.

Silverlight also optionally supports built-in media streaming.

Silverlight enables you to create rich UI and animations, and blend vector graphics with HTML to create compelling content experiences.

Silverlight makes it easy to build rich video player interactive experiences.

Silverlight 2.0 :

Silverlight 2.0 includes a version of the .NET Framework, with the full Common Language Runtime as .NET Framework 3.0; so it can execute any .NET language including VB.NET and C# code. Unlike the CLR included with .NET Framework, multiple instances of the CoreCLR included in Silverlight can be hosted in one process. With this, the XAML layout markup file (.xaml file) can be augmented by code-behind code, written in any .NET language, which contains the programming logic.

This version ships with more than 30 UI controls(including TextBox, CheckBox, Slider, ScrollViewer, and Calendar controls), for two-way databinding support, automated layout management (by means of StackPanel, Grid etc) as well as data-manipulation controls, such as DataGrid and ListBox. UI controls are skinnable using a template-based approach.

Main features of Silverlight 2.0 :

A built-in CLR engine that delivers a super high performance execution environment for the browser. Silverlight uses the same core CLR engine that we ship with the full .NET Framework.

Silverlight includes a rich framework library of built-in classes that you can use to develop browser-based applications.

Silverlight includes support for a WPF UI programming model. The Silverlight 1.1 Alpha enables you to program your UI with managed code/event handlers, and supports the ability to define and use encapsulated UI controls.

Silverlight provides a managed HTML DOM API that enables you to program the HTML of a browser using any .NET language.

Silverlight doesn't require ASP.NET to be used on the backend web-server (meaning you could use Silverlight with with PHP on Linux if you wanted to).

Silverlight 2 includes Deep Zoom, a technology derived from Microsoft Live Labs Seadragon. It allows users to zoom into, or out of, an image (or a collage of images), with smooth transitions, using the mouse wheel. The images can scale from 2 or 3 megapixels in resolution into the gigapixel range, but the user need not wait for it to be downloaded entirely; rather, Silverlight downloads only the parts in view, optimized for the zoom level being viewed.

Silverlight 2 also allows limited filesystem access to Silverlight applications. It can use the operating system's native file dialog box to browse to any file (to which the user has access

Q. What are linq?

A. Language Integrated Query (LINQ), is a component released within the .NET 3.5 Framework. It is one of the most powerful features of .NET 3.5. It serves the purpose of querying objects.

LINQ comprises a series of operators, which are used to query, filter and project data in arrays, enumerable classes, relational databases and XML. In order to query data, the data needs to be encapsulated as an object. In case the data source is not an object, it first needs to be converted to an object in order for LINQ to query it.

LINQ has its own Query Processing Engine. The information returned by a LINQ query is a collection of in-memory object which may be enumerated.

The LINQ concept treats the data source as an Object, rather than a Database. So we may say, its an object that is queried. LINQ may query any type of data source, like:

- LINQ querying SQL (MS SQL Server supported).
- LINQ querying Datasets (Querying is possible on Datasets and DataTables)
- LINQ querying ORM Solution
- LINQ querying Objects (In-memory data may be queried)
- LINQ querying XML (Querying is possible on XML data source)

Q. Difference between authentication and authorization

A. Both Authentication and Authorization are concepts of providing permission to users to maintain different levels of security, as per the application requirement. Authentication is the mechanism whereby systems may securely identify their users. Authentication systems depend on some unique bit of information known only to the individual being authenticated and the authentication system.

Authorization is the mechanism by which a system determines what level of access a particular authenticated user should have to secured resources controlled by the system.

Q. What is StateManagement?

A. A new instance of the Web page class is created each time the page is posted to the server. In traditional Web programming, this would typically mean that all information associated with the page and the controls on the page would be lost with each round trip. For example, if a user enters information into a text box, that information would be lost in the round trip from the browser or client device to the server.

To overcome this inherent limitation of traditional Web programming, ASP.NET includes several options that help you preserve data on both a per-page basis and an application-wide basis. These features are as follows:

- View state
- Control state
- Hidden fields
- Cookies
- Query strings
- Application state
- Session state

View state, control state, hidden fields, cookies, and query strings all involve storing data on the client in various ways. However, application state, session state, and profile properties all store data in memory on the server. Each option has distinct advantages and disadvantages, depending on the scenario.

Q. Various types of statemanagement Techniques?

A. Some of the ways we can use to manage state include the following:

- Using Session and Application objects to cache information.
- Using Memory and Disk Cookies to preserve information.
- Using hidden input fields or the URL-embedded information to pass information from one page to another.
- Using the ViewState property of the page to set and retrieve information stored in a StateBag object.
- Using SQL Server to store state information.

Q. What is viewstate?

A. In this method, the ViewState property that is inherited from the base Control class is used to automatically save the values of the page and of each control prior to rendering of the page. ViewState is implemented with a hidden form field called the `_VIEWSTATE`, which is automatically created in every Web Form page. When ASP.Net executes a Web page on a Web Server, the values stored in the ViewState property of the page and controls on it are collected and formatted into a single encoded string. The encoded string is then assigned to the Value attribute of the hidden form field `_VIEWSTATE` and is sent to the client as a part of the Web page.

Q. What are Hidden fields?

A. In ASP.Net we can use the HTML standard hidden fields in a Web Form to store page-specific information. A hidden field does not render in a Web browser. However, we can set the properties of the hidden field. When a page is submitted to the server, the content of the hidden field is sent in the HTTP Form collection along with values of other controls.

Q. What is querystring?

A. The Query string is a part of the request that appears after the Question mark (?) character in the URL. A query string provides a simple way to pass information from one page to another.

Q. What are namedvaluecollections()?

A. Represents a collection of associated String keys and String values that can be accessed either with the key or with the index.

NameValueCollection can hold multiple string values under a single key. As elements are added to a NameValueCollection, the capacity is automatically increased as required

through reallocation. The one important thing is that you have to import *System.Collections.Specialized* Class in your program for using NameValueCollection.

Syntax :

[SerializableAttribute]

```
public class NameValueCollection : NameObjectCollectionBase
```

Adding new pairs

```
NameValueCollection.Add(name,value)
```

```
NameValueCollection pair = new NameValueCollection();
```

```
pair.Add("High", "80");
```

Get the value of corresponding Key

```
string[] NameValueCollection.GetValues(index);
```

```
NameValueCollection pair = new NameValueCollection();
```

```
pair.Add("High", "80");
```

```
string[] vals = pair.GetValues(1);
```

Q. What is limitation and scope of querystring?

- A.** Following are the benefits of using query string for state management: -
- No server resources are required. The query string containing in the HTTP requests for a specific URL.
 - All browsers support query strings.

Following are limitations of query string: -

- Query string data is directly visible to user thus leading to security problems.
 - Most browsers and client devices impose a 255-character limit on URL length.
- Below is a sample "Login" query string passed in URL
<http://www.querystring.com/login.asp?login=testing>.

This query string data can then be requested later by using Request.QueryString("login").

Q. What are cookies?

- A.** A cookie is a small data structure used by a Web server to deliver data to a web client. A cookie contains page specific information that a Web server sends to a client along with Page output. Cookies are used to keep track of each individual user who accesses the web page across a HTTP connection.

Q. How many cookies can be created per site?

- A.** 20

Q. What is the minimum and maximum size of cookie?

A. Minimum 4096 bytes per cookie

Q. What are temporary and permanent cookies?

A. Persistent Cookie Or Permanent Cookie: persistent cookie is a cookie which is stored in a cookie file permanently on the browser's computer.

Which is live for a time period defines by programmer in the buy viagra order viagra | buy cialis online in usa | levitra buy script.

Example:

```
<?php
$value = 'value';
setcookie("testcookie", $value, time()+3600);
/* expire in 1 hour */
// Where 3600 where buy cialis count in 60*60*1
[second*minute*hour]
?>
```

Session cookies Or Temporay Cookies - these are temporary cookie files, which are erased when you close your browser. When you restart your browser and go back to the site that created the cookie, the website will not recognize you. You will have to log back in (if login is required) or select your preferences/themes again if the site uses these features. A new session cookie will be generated, which will store your browsing information and will be active until you leave the site and close your browser. More on session cookies.

Q. What are the limitations of cookies.and where temporary cookies are stored

A. Limitations of Cookies –

- Cookies are meant for infrequent storage of small pieces of information.
- They are not meant as a normal communication or mechanism.
- Note that web browsers are not required to save more than 300 cookies total, nor more than 20 cookies per web server (for the entire server, not just for the page or site on the server), nor to retain more than 4 kilobytes of data per cookie (both name and value count towards this 4 kilobyte limit).
- The biggest limitation of these is the 20 cookies per server limit, and so it is not a good idea to use a different cookie for each variable that has to be saved.
- Rather save a single cookie containing a lot of information.

Q. What is control state?

- A.** Control state is a new construct within ASP.NET 2.0 and it is really nothing more than view state however it is view state with a significant advantage; that advantage is that other developers using your control cannot disable control state as they can view state. Control state survives even if the developer using the custom control disables view state. The advantage is pretty obvious; in prior versions of Visual Studio, the consumer of a custom control could disable view state; if the control relied on view state to maintain state information, the control would cease to function or at least misbehave. Creating control state removed the ability of a control consumer to disable view state based state management within the control; naturally the control designer may still opt to not use either view state or control state based state management.

Q. What is difference between session and profiles?

A.

Characteristics	Profile	Session
Scope	Each user has his own profile object	Each user has his own session object
Strongly typed nature	Profile object is strongly typed	Session object is not strongly typed and requires type casting when assigning and retrieving from the session object
Persistent duration	Profile values are available for the users, even between visits	Session object contents are available only for the duration of the current browser session
Persistent location	Profile object can be stored in a SQL Server Express database or in a SQL Server database and can be configured through the Web Site Administration tool	Session object can be configured to be stored in a database, IIS in-process, or in a session state server, depending on the configuration setting
Performance	Profile may have a negative impact on performance because of the chatty interface between the profile object and the persistent data store	Can be configured using properties such as EnableSessionState attributes at the page level
IntelliSense	Provides IntelliSense because of its strongly typed nature	No support for IntelliSense

Profile object:

1. Profile object is persistent.
2. Its uses the provider model to store information.
3. Strongly typed
4. Anonymous users used mostly.

Session object:

1. Session object is non-persistent.
2. Session object uses the In Proc, Out Of Process or SQL Server Mode to store information.
3. Not strongly typed.
4. Only allowed for authenticated users.

ASP .Net

Q. What does the keyword virtual declare for a method?

A. The method or property can be overridden.

Q. Tell me implicit name of the parameter that gets passed into the set property of a class?

A. The data type of the value parameter is defined by whatever data type the property is declared as.

Q. What is the difference between an interface and abstract class ?

A.

1. In an interface class, all methods are abstract and there is no implementation. In an abstract class some methods can be concrete.
2. In an interface class, no accessibility modifiers are allowed. An abstract class may have accessibility modifiers.

Q. How to Specify the accessibility modifier for methods inside the interface?

A. They all must be public, and are therefore public by default.

Q. Define interface class ?

A.

Interfaces, like classes, define a set of properties, methods, and events. But unlike classes, interfaces do not provide implementation. They are implemented by classes, and defined as separate entities from classes.

Q. When you declared a class as abstract?

A.

1. When at least one of the methods in the class is abstract.
2. When the class itself is inherited from an abstract class, but not all base abstract methods have been overridden.

Q. Define abstract class?

A.

1. A class that cannot be instantiated.
2. An abstract class is a class that must be inherited and have the methods overridden.
3. An abstract class is essentially a blueprint for a class without any implementation

- Q. How to allowed a class to be inherited, but it must be prevent the method from being over-ridden?**
- A.** Just leave the class public and make the method sealed.
- Q. How to prevent your class from being inherited by another class?**
- A.** We use the sealed keyword to prevent the class from being inherited.
- Q. What class is underneath the SortedList class?**
- A.** A sorted HashTable.
- Q. What is the .NET collection class that allows an element to be accessed using a unique key?**
- A.** HashTable.
- Q. 12 Difference between the System.Array.Clone() and System.Array.CopyTo()?**
- A.** The Clone() method returns a new array (a shallow copy) object containing all the elements in the original array. The CopyTo() method copies the elements into another existing array. Both perform a shallow copy. A shallow copy means the contents (each array element) contains references to the same object as the elements in the original array. A deep copy (which neither of these methods performs) would create a new instance of each element's object, resulting in a different, yet identacle object.
- Q. Difference between System.String and System.Text.StringBuilder classes?**
- A.** System.String is immutable. System.StringBuilder was designed with the purpose of having a mutable string where a variety of operations can be performed.
- Q. What is the top .NET class that everything is derived from?**
- A.** System.Object.
- Q. How can you automatically generate interface for the remotable object in NET?**
- A.** Use the Soapsuds tool.
- Q. How to configure a .NET Remoting object via XML file?**

A. It can be done via machine.config and application level .config file (or web.config in ASP.NET). Application-level XML settings take precedence over machine.config.

Q. What is Singleton activation mode?

A. A single object is instantiated regardless of the number of clients accessing it. Lifetime of this object is determined by lifetime lease.

Q. What security measures exist for .NET Remoting?

A. None.

Q. In .NET Remoting, What are channels?

A.

Channels represent the objects that transfer the other serialized objects from one application domain to another and from one computer to another, as well as one process to another on the same box. A channel must exist before an object can be transferred.

Q. What are remotable objects in .NET Remoting?

A.

1. They can be marshaled across the application domains.
2. You can marshal by value, where a deep copy of the object is created and then passed to the receiver. You can also marshal by reference, where just a reference to an existing object is passed.

Q. Do you know the proxy of the server object in .NET Remoting?

A.

This process is known as marshaling. It handles the communication between real server object and the client object. We can say that It's a fake copy of the server object that resides on the client side and behaves as if it was the server.

Q. Give your idea when deciding to use .NET Remoting or ASP.NET Web Services?

A.

1. Remoting is a more efficient communication exchange when you can control both ends of the application involved in the communication process.
2. Web Services provide an open-

protocol-based exchange of information. Web Services are best when you need to communicate with an external organization or another (non-.NET) technology.

Q. Define the possible implementations of distributed applications in .NET?

A. .NET Remoting and ASP.NET Web Services. If we talk about the Framework Class Library, noteworthy classes are in System.Runtime.Remoting and System.Web.Services.

Q. Explain what relationship is between a Process, Application Domain, and Application?

A .A process is an instance of a running application. An application is an executable on the hard drive or network. There can be numerous processes launched of the same application (5 copies of Word running), but 1 process can run just 1 application.

Q. What's typical about a Windows process in regards to memory allocation?

A .Each process is allocated its own block of available RAM space, no process can access another process' code or data. If the process crashes, it dies alone without taking the entire OS or a bunch of other applications down.

Q. What's a Windows process?

A .It's an application that's running and had been allocated memory.

Q. Using XSLT, how would you extract a specific attribute from an element in an XML document?

A.

Successful candidates should recognize this as one of the most basic applications of XSLT. If they are not able to construct a reply similar to the example below, they should at least be able to identify the components necessary for this operation: `xsl:template` to match the appropriate XML element, `xsl:value-of` to select the attribute value, and the optional `xsl:apply-templates` to continue processing the document.

Q. What is SOAP and how does it relate to XML?

A.

The Simple Object Access Protocol (SOAP) uses XML to define a protocol for the exchange of information in distributed computing environments. SOAP consists of three

components: an envelope, a set of encoding rules, and a convention for representing remote procedure calls. Unless experience with SOAP is a direct requirement for the open position, knowing the specifics of the protocol, or how it can be used in conjunction with HTTP, is not as important as identifying it as a natural application of XML.

Q. What is main difference between Global.asax and Web.Config?

A.

ASP.NET uses the global.asax to establish any global objects that your Web application uses. The .asax extension denotes an application file rather than .aspx for a page file. Each ASP.NET application can contain at most one global.asax file. The file is compiled on the first page hit to your Web application. ASP.NET is also configured so that any attempts to browse to the global.asax page directly are rejected. However, you can specify application-wide settings in the web.config file. The web.config is an XML-formatted text file that resides in the Web site's root directory. Through Web.config you can specify settings like custom 404 error pages, authentication and authorization settings for the Web site, compilation options for the ASP.NET Web pages, if tracing should be enabled, etc

Q. What is the difference between the value-type variables and reference-type variables in terms of garbage collection?

A. .The value-type variables are not garbage-collected, they just fall off the stack when they fall out of scope, the reference-type objects are picked up by GC when their references go null.

Q. Where do the reference-type variables go in the RAM?

A. The references go on the stack, while the objects themselves go on the heap. However, in reality things are more elaborate.

Q. What's the difference between struct and class in C#?

A.

1. Structs cannot be inherited.
2. Structs are passed by value, not by reference.
3. Struct is stored on the stack, not the heap.

Q. To test a Web service you must create a windows application or Web application to consume this service?

A. The webservice comes with a test page and it provides HTTP-GET method to test.

- Q. What is the transport protocol you use to call a Web service?**
A. SOAP is the preferred protocol.
- Q. Can you give an example of what might be best suited to place in the Application Start and Session Start subroutines?**
A. This is where you can set the specific variables for the Application and Session objects.
- Q. Where do you store the information about the user's locale?**
A. System.Web.UI.Page.Culture
- Q. Where does the Web page belong in the .NET Framework class hierarchy?**
A. System.Web.UI.Page
- Q. Name two properties common in every validation control?**
Ans: ControlToValidate property and Text property
- Q. What property must you set, and what method must you call in your code, in order to bind the data from some data source to the Repeater control?**
A. .You must set the DataSource property and call the DataBind method.
- Q. How can you provide an alternating color scheme in a Repeater control?**
A. Use the AlternatingItemTemplate
- Q. Which template must you provide, in order to display data in a Repeater control?**
A. .ItemTemplate
- Q. Can you edit data in the Repeater control?**
A. No, it just reads the information from its data source
- Q. Which method do you invoke on the DataAdapter control to load your generated dataset with data?**
A. The .Fill() method

Q. Describe the difference between inline and code behind.

A.

Inline code written along side the html in a page. Code-behind is code written in a separate file and referenced by the .aspx page.

Q. What's a bubbled event?

A.

When you have a complex control, like DataGrid, writing an event processing routine for each object (cell, button, row, etc.) is quite tedious. The controls can bubble up their eventhandlers, allowing the main DataGrid event handler to take care of its constituents.

Q. What is the role of global.asax.

A. Store global information about the application

Q. Can the action attribute of a server-side <form> tag be set to a value and if not how can you possibly pass data from a form page to a subsequent page.

A. No, You have to use Server.Transfer to pass the data to another page.

Q. Can you give an example of when you might use it?

A.

When you want to inherit (use the functionality of) another class. Base Class Employee. A Manager class could be derived from the Employee base class.

Q. Can you explain the difference between an ADO.NET Dataset and an ADO Recordset?

A.

1. A DataSet can represent an entire relational database in memory, complete with tables, relations, and views.
2. A DataSet is designed to work without any continuing connection to the original data source.
3. Data in a DataSet is bulk-loaded, rather than being loaded on demand.

Q. What is the difference between Server.Transfer and Response.Redirect?

A.

1. Server.Transfer() performs server side redirection of the page avoiding extra round trip. While The Response.Redirect () method can be used to redirect the browser to specified url.
2. Server.Transfer is used to post a form to another page. Response.Redirect is used to redirect the user to another page or site.

Q. What is smart navigation?

A.

Smart navigation is, cursor position is maintained when the page gets refreshed due to the server side validation and the page gets refreshed.

Q. What is the difference between Literal and Lable Control?

A.

We use literals control if we want to typed text using HTML formatting and without using property. We typed HTML code in .cs file when used literals.

Lable control when displayed already formatted. Typed text can not be formatted in .cs file.

Q What are the 2 Layouts supported by a Web form in ASP.NET?

A.

1. Grid layout: Pages using grid layout will not always display correctly in non-Microsoft browsers, and controls are placed exactly where they draw. It means they have absolute positions on the page. Use grid layout for Microsoft Windows-style applications, in which controls are not mixed with large amounts of text.

2. Flow layout: Controls relative to other elements on the page.

Controls that appear after the new element move down if you add elements at run time.

Flow layout for document-style applications, in which text and controls are intermingled.

Q 55 Can you specify authorization settings both in Web.config and in IIS?

A.

Yes, It will be done. For this, the IIS setting is evaluated first and then the setting in Web.config is evaluated. Hence we can say, the most restrictive setting will be used.

Q. How do you determine, what is the role of the current user?

A.

The User object provides an IsInRole method to determine the role of the current user, as shown in the following example:

```
if(User.IsInRole("Administrators"))
```

```
{  
/////
```

```
}
```

Q. How do you get a User Identity?

A.

Using the User object's Identity property. The Identity property returns an object that includes the user name and role information, as shown in the following code:

```
private void Page_Load(object sender, System.EventArgs e)  
{  
Label1.Text = User.Identity.IsAuthenticated.ToString();  
Label2.Text = User.Identity.Name;  
Label3.Text = User.Identity.AuthenticationType;  
}
```

Q. What is the default authentication method when you create a new Web application project?

A.

Windows authentication is the default authentication method when you create a new Web application project.

Q. What is the advantage of using Windows authentication in a Web application?

A.

The advantage of Windows authentication:

1. Web application can use the exact same security that applies to your corporate network like user names, passwords, and permissions.
2. To access the Web application users logged on to the network. It is important that user does'nt logged on again.

Q. What do you mean by neutral cultures?

A.

Neutral cultures represent general languages, such as English or Spanish and a specific language and region.ASP.NET assigns that culture to all the threads running for that Web application.When user set culture attribute for a Web application in Web.config.ASP.NET maintains multiple threads for a Web application within the aspnet_wp.exe worker process.

Q. What are the steps to follow to get user's culture at run time?

A.

1. Get the Request object's UserLanguages property.
2. Use the returned value with the CultureInfo class to create an object representing the user's current culture.

For example, the following code gets the user's culture and displays the English name and the abbreviated name of the culture in a label the first time the page is displayed:

```
private void Page_Load(object sender, EventArgs e)
{
    // Run the first time the page is displayed
    if (!IsPostBack)
    {
        // Get the user's preferred language.
        string sLang = Request.UserLanguages[0];
        // Create a CultureInfo object from it.
        CultureInfo CurrentCulture = new CultureInfo(sLang);
        lblCulture.Text = CurrentCulture.EnglishName + ": " +
        CurrentCulture.Name;
    }
}
```

Q. What are the 3 different ways to globalize web applications?

A.

Detect and redirect approach : In this approach we create a separate Web application for each supported culture, and then detect the user's culture and redirect the request to the appropriate application. This approach is best for applications with lots of text content that requires translation and few executable components.

Run-time adjustment approach : In this approach we create a single Web application that detects the user's culture and adjusts output at run time using format specifiers and other tools. This approach is best for simple applications that present limited amounts of content.

Satellite assemblies approach : In this approach we create a single Web application that stores culture-dependent strings in resource files that are compiled into satellite assemblies. At run time, detect the user's culture and load strings from the appropriate assembly. This

approach is best for applications that generate content at run time or that have large executable components.

Q. What is Globalization?

A.

Globalization is the process of creating an application that meets the needs of users from multiple cultures.

This process involves translating the user interface elements of an application into multiple languages, using the correct currency, date and time format, calendar, writing direction, sorting rules, and other issues.

Q. From the content page code how can you reference a control on the master page?

A.

Use the FindControl() method as shown in the code sample below.

```
void Page_Load()
{
// Gets a reference to a TextBox control inside
// a ContentPlaceHolder
ContentPlaceHolder ContPlaceHldr = (ContentPlaceHolder)Master.FindControl
("ContentPlaceHolder1");
if(ContPlaceHldr != null)
{
TextBox TxtBox = (TextBox)ContPlaceHldr.FindControl("TextBox1");
if(TxtBox != null)
{
TxtBox.Text = "WHERE R4R";
}
}
// Gets a reference to a Label control that not in
// a ContentPlaceHolder
Label Lbl = (Label)Master.FindControl("Label1");
if(Lbl != null)
{
Lbl.Text = "R4R HERE";
}
}
```

Q. Can you dynamically assign a Master Page?

A.

PreInit stage using the Page class MasterPageFile property as shown in the code sample below. Using this you can assign a master page dynamically.

```
void Page_PreInit(Object sender, EventArgs e)
{
    this.MasterPageFile = "~/MasterPage.master";
}

void Page_PreInit(Object sender, EventArgs e) {

    if (Request.Browser.IsBrowser("IE")) {
        this.MasterPageFile = "ArticleMaster_IE.master";
    }
    else if (Request.Browser.IsBrowser("Mozilla")) {
        this.MasterPageFile = "ArticleMaster_FireFox.master";
    }
    else {
        this.MasterPageFile = "ArticleMaster.master";
    }
}
```

Q. How do you identify a Master Page and how do you bind a Content Page to a Master Page?

A.

The master page is identified by a special @ Master directive that replaces the @ Page directive that is used for ordinary .aspx pages.

MasterPageFile attribute of a content page's @ Page directive is used to bind a Content Page to a Master Page.

Q. What are the 2 important parts of a master page and file extension for a Master Page?

A.

The following are the 2 important parts of a master page

1. The Master Page itself
2. One or more Content Pages

The file extension for Master Page is ".master".

Q. What is a Master Page in Asp.Net?

A.

For consistent layout for the pages in application used Master Pages. A single master page defines the look and feel and standard behavior that you want for all of the pages (or a group of pages) in your application. Then user create individual content pages that share all the information and lay out of a Master Page.

Q. What are the Session State Modes? Define each Session State mode supported by ASP.NET.

A.

ASP.NET supports three Session State modes.

1. InProc: This mode stores the session data in the ASP.NET worker process and fastest among all of the storage modes. Its Also effects performance if the amount of data to be stored is large.
2. State Server: This mode maintained on a different system and session state is serialized and stored in memory in a separate process.
State Server mode is serialization and de-serialization of objects. State Server mode is slower than InProc mode as this stores data in an external process.
3. SQL Server: This mode can be used in the web farms and reliable and secures storage of a session state. In this storage mode, the Session data is serialized and stored in a database table in the SQL Server database.

Q. Disadvantages of using Session State ?

A.

Disadvantages:

1. It is not advisable to use session state when working with large sum of data. Because Data in session state is stored in server memory.
2. Too many variables in the memory effect performance. Because session state variable stays in memory until you destroy it.

Q. Advantages of using Session State?

A.

Advantages:

1. It is easy to implement.
2. Ensures platform scalability, works in the multi-process configuration.

3. Ensures data durability, since session state retains data even if ASP.NET work process restarts as data in Session State is stored in other process space.

Q. What is the Session Identifier?

A.

Session Identifier is :

1. To identify session.
2. It has SessionID property.
3. When a page is requested, browser sends a cookie with a session identifier.
4. Session identifier is used by the web server to determine if it belongs to an existing session or not. If not, then Session ID is generated by the web server and sent along with the response.

Q. What is SessionID?

A.

To identify the request from the browser used sessionID. SessionId value stored in a cookie. Configure the application to store SessionId in the URL for a "cookieless" session.

Q. Describe Server – Side State Management ?

A.

Server side state management provides Better security, Reduced bandwidth.

1. Application State: This State information is available to all pages, regardless of which user requests a page.
2. Session State – Session State information is available to all pages opened by a user during a single visit.

Q. Describe Client – Side State Management?

A.

Client side state management have:

- a. Stores information on the client's computer by embedding the information into a Web page.
- b. A uniform resource locator(url).
- c. Cookie.

To store the state information at the client end terms are:

1. View State: It is used by the Asp.net page framework to automatically save the values of the page and of each control just prior to rendering to the page. Asp.Net uses View State to track the values in the Controls. You can add custom values to the view state.

2. Control State: When user create a custom control that requires view state to work properly, you should use control state to ensure other developers don't break your control by disabling view state.
3. Hidden fields: Like view state, hidden fields store data in an HTML form without displaying it in the user's browser. The data is available only when the form is processed.
4. Cookies: Cookies store a value in the user's browser that the browser sends with every page request to the same server. Cookies are the best way to store state data that must be available for multiple Web pages on a web site.
5. Query Strings: Query strings store values in the URL that are visible to the user. Use query strings when you want a user to be able to e-mail or instant message state data with a URL.

Q. What is Authentication and Authorization ?

A.

An authentication system is how you identify yourself to the computer. The goal behind an authentication system is to verify that the user is actually who they say they are.

Once the system knows who the user is through authentication, authorization is how the system decides what the user can do.

Q. Define State management?

A.

This is possible to at a time many request occurs. State management is the process by which maintained state and page information over multiple requests for the same or different pages.

Two types of State Management:

1. Client side state management: This stores information on the client's computer by embedding the information into a Web page, uniform resource locator (url), or a cookie.
2. Server side state management: There are two state Application State, Session State.

Ques: 78 What are the different states in ASP.NET?

Ans: There are three types of state:

1. View state: Under the client-side state management. The ViewState property provides a dictionary object for retaining values between multiple requests for the same page. When an ASP.NET page is processed, the current state of the page and controls is hashed into a string and saved in the page as a hidden field.

2. Application state:Under the server side state management. ASP.NET allows you to save values using application state, a global storage mechanism that is accessible from all pages in the Web application. Application state is stored in the Application key/value dictionary.

3. Session state:Under server side state management . ASP.NET allows you to save values using session state, a storage mechanism that is accessible from all pages requested by a single Web browser session.

Q. Whether we can use vbscript and javascript combination for validation?

A.

WE cant use them together,since compiler are different.

Q. What is GAC and name of the utility used to add an assembly into the GAC ?

A.

GAC(Global Assembly Cache) for an effective sharing of assemblies.GAC refers to the machine-wide code cache in any of the computers that have been installed with common language runtime.Global Assembly Cache in .NET Framework acts as the central place for private registering assemblies.

"gacutil.exe" utility used to add assembly in GAC

Q. What is the Purpose of System.Collections.Generic ?

A.

For more safty and better performance strongly typed collections are useful for the user. System.Collections.Generic having interfaces and classes which define strongly typed generic collections.

Q. What is the use of Global.asax File in ASP.NET Application ?

A.

The Global.asax file, can be stored in root directory and accesible for web-sites,is an optional file.This Global.asax file contained in HttpApplicationClass.we can declare global variables like variables used in master pages because these variables can be used for different pages right.Importent feature is that its provides more security in comparision to other.

It handle two event:

1.Application-level

2.Session-level events.

Global.asax File itself configured but it can not be accessed while one request is in processing it is impossible to send another request, we can not get response for other request and even we can not start a new session.

while adding this Global.asax file to our application by default it contains five methods, Those methods are:

- 1.Application_Start.
- 2.Application_End.
- 3.Session_Start.
- 4.Session_End.
- 5.Application_Error.

Q. What is the Default Expiration Period For Session and Cookies, and maximum size of viewstate?

A.

The default Expiration Period for Session is 20 minutes.

The default Expiration Period for Cookie is 30 minutes.

The maximum size of the viewstate is 25% of the page size

Q. Difference between Session object and Profile object in ASP.NET?

A.

Profile object:

1. Profile object is persistent.
2. Its uses the provider model to store information.
3. Strongly typed
4. Anonymous users used mostly.

Session object:

1. Session object is non-persistent.
2. Session object uses the In Proc, Out Of Process or SQL Server Mode to store information.
3. Not strongly typed.
4. Only allowed for authenticated users.

Q. What are the two levels of variable supported by Asp.net?

A.

1. Page level variable: String ,int ,float.
2. Object level variable: Session level, Application level.

Q. Explain the aim of using EnableViewState property?

A.

When the page is posted back to the server, the server control is recreated with the state stored in viewstate. It allows the page to save the users input on a form across postbacks. It saves all the server side values for a given control into ViewState, which is stored as a hidden value on the page before sending the page to the clients browser.

Q. Why the exception handling is important for an application?

A.

Exception handling prevents the unusual error in the asp.net application, when application executed. If the exceptions are handled properly, the application will never get terminated abruptly.

Q. Define Error Events in Asp.Net?

A.

In ASP.Net when any unhandled exception occurs in application then an event occurs, that event called Error event. Two types of Event:

1. Page_Error: When exception occurs in a page then this event raised.
2. Application_error: Application_Error event raised when unhandled exceptions in the ASP.NET application and is implemented in global.asax.

The error event have two method:

1. GetLastError: Returns the last exception that occurred on the server.
2. ClearError: This method clear error and thus stop the error to trigger subsequent error event.

Q. How to create Multivalued Cookie ?

A.

```
<%@ Page Language="C#" %>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<script runat="server">
    void btnSubmit_Click(Object s, EventArgs e)
    {
        Response.Cookies["preferences"]["firstName"] = txtFirstName.Text;
        Response.Cookies["preferences"]["lastName"] = txtLastName.Text;
    }
</script>
```

```
        Response.Cookies["preferences"]["favoriteColor"] = txtFavoriteColor.Text;
        Response.Cookies["preferences"].Expires = DateTime.MaxValue;
    }
</script>
<html xmlns="http://www.w3.org/1999/xhtml" >
<head id="Head1" runat="server">
    <title>Set Cookie Values</title>
</head>
<body>
    <form id="form1" runat="server">
        <div>
            <asp:Label
                id="lblFirstName"
                Text="First Name:"
                AssociatedControlID="txtFirstName"
                Runat="server" />
            <br />
            <asp:TextBox
                id="txtFirstName"
                Runat="server" />
            <br /><br />
            <asp:Label
                id="lblLastName"
                Text="Last Name:"
                AssociatedControlID="txtFirstName"
                Runat="server" />
            <br />
            <asp:TextBox
                id="txtLastName"
                Runat="server" />
            <br /><br />
            <asp:Label
                id="lblFavoriteColor"
                Text="Favorite Color:"
                AssociatedControlID="txtFavoriteColor"
                Runat="server" />
            <br />
            <asp:TextBox
                id="txtFavoriteColor"
```

```
        Runat="server" />
<br /><br />
<asp:Button
    id="btnSubmit"
    Text="Submit"
    OnClick="btnSubmit_Click"
    Runat="server" />
</div>
</form>
</body>
</html>
```

Q. How do you require authentication using the Web.config file?

A.

Include the following <authorization> element to require authentication:

```
<authorization>
  <deny users="?" />
</authorization>
```

Q. What is the difference between web.config and Machine.config files?

A.

1. Usually on a webserver there is only one Machine.config file whereas in a web application there is no of files, but in the root directory.
2. Web.config file settings will override machine.config settings.
3. Machine.config file specifies configuration settings for all of the websites on the web server. Web.config file specifies configuration settings for a particular web application, and is located in the applications root directory .

Q. What is the main difference between the Button server control and the Button HTML control?

A.

The Button HTML control triggers the event procedure indicated in the button's onclick attribute, which runs on the client.

When clicked, the Button server control triggers an ASP.NET Click event procedure on the server.

Q. Differences between Web and Windows applications?

A.

Web Forms: Web forms use server controls, HTML controls, user controls, or custom controls created specially for Web forms. Web applications are displayed in a browser. Web forms are instantiated on the server, sent to the browser, and destroyed immediately.

Windows Forms: Windows forms are instantiated, exist for as long as needed, and are destroyed. Windows applications run on the same machine they are displayed on. Windows applications

display their own windows and have more control over how those windows are displayed.

Q. Describe the property of cookie in Asp.Net ?

A.

Properties:

1. Domain: The domain associated with the cookie for example, `aspx.superexpert.com`
2. Expires: The expiration date for a persistent cookie.
3. HasKeys: A Boolean value that indicates whether the cookie is a cookie dictionary.
4. Name: The name of the cookie.
5. Path: The path associated with the Cookie. The default value is `/`.
6. Secure: A value that indicates whether the cookie should be sent over an encrypted connection only. The default value is `False`.
7. Value: The value of the Cookie.
8. Values: A `NameValueCollection` that represents all the key and value pairs stored in a Cookie dictionary.

Q. Write the code that creates a cookie containing the user name R4R and the current date to the user computer. Set the cookie to remain on the user computer for 30 days?

A.

Code:

```
HttpCookie cookUserInfo = new HttpCookie("UserInfo");  
CookUserInfo["Name"] = "R4R";  
CookUserInfo["Time"] = DateTime.Now.ToString();  
cookUserInfo.Expires = DateTime.Now.AddDays(30);  
Response.Cookies.Add(cookUserInfo);
```

Description:

"HttpCookie" :The HttpCookie class is under System.Web namespace.

"CookUserInfo" :is the object of class HttpCookie

"Expires": is the property that sets the duration,when cookie expire.

Q. What do you mean by three-tier architecture?

A.

The three-tier architecture was improve management of code and contents and to improve the performance of the web based applications. There are mainly three layers in three-tier architecture.This architecture remove the many drawbacks of previous Cliet-Server architecture.

There are three stages in this Architecture;

(1)Presentation Layer: PL(Presentation Layer) Contains only client side scripting like HTML, javascript and VB script etc.The input Validation validate on Cliet side.

(2)Business Logic Layer:BL(Business Logic Layer) contain the server side code for data transaction, query and communicate through Data Base,and Pass the data to the user interface.

(3)Database layer:Data Layer represents the data store like MS Access, SQL Server, an XML file, an Excel file or even a text file containing data also some additional database are also added to that layers.

Q. Define ASP.Net page life cycle in brief ?

A.

1. OnInit (Init): Initializes each child control.
2. LoadControlState: Loaded the ControlState of the control. To use this method the control must call the Page.RegisterRequiresControlState method in the OnInit method of the control.
3. LoadViewState: Loaded the ViewState of the control.
4. LoadPostData: Controls that implement this interface use this method to retrieve the incoming form data and update the control According to there properties.
5. Load (OnLoad): Allows actions that are common to every request to be placed here. control is stable at this time, it has been initialized and its state has been reconstructed.
6. RaisePostDataChangedEvent: Is defined on the interface IPostBackData-Handler.
7. RaisePostBackEvent: Handling the clien side event caused Postback to occur
8. PreRender (OnPreRender): Allows last-minute changes to the control. This event takes place before saving ViewState so any changes made here are saved.
9. SaveControlState: Saves the current control state to ViewState.
10. SaveViewState: Saves the current data state of the control to ViewState.

11. Render: Generates the client-side HTML Dynamic Hypertext Markup Language (DHTML) and script that are necessary to properly display this control at the browser. In this stage any changes to the control are not persisted into ViewState.
12. Dispose: Accepts cleanup code. Releases any unman-aged resources in this stage. Unmanaged resources are resources that are not handled by the .NET common language runtime such as file handles and database connections.
13. UnLoad

Q. What is ViewState?

A.

State of the object to be stored in hidden field on the page. ViewState is not stored on the server or any other external source. ViewState transported to the client and back to the server. ViewState is used to retain the state of server-side objects between postbacks. ViewState should be the first choice to save data to access across postbacks.

Q. What classes are needed to send e-mail from an ASP.NET Application?

Ans: Following Classes use to sent email from ASP.Net application:

1. MailMessage
2. SmtMail

Both are classes defined in the .NET Framework Class Library's "System. Web. Mail" namespace.

Q. Do Web controls support Cascading Style Sheets?

A.

All Web controls inherit a property named CssClass from the base class "System.Web.UI. WebControls. WebControl" which can be used to control the properties of the web control.

Q. What is Data Binding?

A.

Data Binding is binding controls to data from databases. Using Data binding a control to a particular column in a table from the database or we can bind the whole table to the data grid.

In other words Data binding is a way used to connect values from a collection of data (e.g. DataSet) to the controls on a web form. The values from the dataset are automatically displayed in the controls without having to write separate code to display them.

Q. What is the difference between Server.Transfer and Response.Redirect?

A.

Response.Redirect: This tells the browser that the requested page can be found at a new location. The browser then initiates another request to the new page loading its contents in the browser.

Server.Transfer: It transfers execution from the first page to the second page on the server. As far as the browser client is concerned, it made one request and the initial page is the one responding with content. The benefit of this approach is one less round trip to the server from the client browser.

Q. Describe Paging in ASP.NET?

A.

"In computer operating systems there are various ways in which the operating system can store and retrieve data from secondary storage for use in main memory". One such memory management scheme is referred to as paging. In ASP.Net the DataGrid control in ASP.NET enables easy paging of the data. The AllowPaging property of the DataGrid can be set to True to perform paging. ASP.NET automatically performs paging and provides the hyperlinks to the other pages in different styles, based on the property that has been set for PagerStyle.Mode.

Q. What is the ASP.NET validation controls?

A.

Validation controls applied on client side scripting. List of Validations:

1. RequiredFieldValidator: Makes an input control to required field.
2. RangeValidator: Check the values falls between two values.
3. CompareValidator: Compares the value of one input control to the value of another input control or to a fixed value.
4. RegularExpressionValidator: Input value matches a specific pattern.
5. CustomValidator: Write a Method to validate input.
6. ValidationSummary: Displays a report of all validation errors occurred in a Web page.

Q. Explain the differences between server-side and client-side code in Asp.Net?

A.

In Asp.Net Environment Server side code or scripting means the script will be executed by server as interpreted needed. Server side scripting does the business logic like transaction and fetching data to Server.

Client side scripting means that the script will be executed immediately in the browser such as form field validation, clock, email validation, etc. Client side scripting is usually done in VBScript or JavaScript. Since the code is included in the HTML page, anyone can see the code by viewing the page source.

Q. What is Postback in Asp.net?

A.

When first time request to the server PostBack is False. When request or an action occurs (like button click), the page containing all the controls within the <FORM... > tag performs an HTTP POST, while having itself as the target URL. This is called Postback. We can say it's a mechanism to allow the communication between client side and server side.

Q. Explain Web Services?

A.

Web services are programmable business logic components that provide access to functionality through the Internet. Web services are given the .asmx extension. Standard protocols like HTTP can be used to access them. Web services are based on the Simple Object Access Protocol (SOAP), which is an application of XML. In .Net Framework Web services convert your application into a Web Application, which publishes their functionality to the whole world on the internet. Web Services like a software system that is designed to support interoperable machine-to-machine interaction over the Internet.

Q. What is Shallow Copy and Deep Copy in .NET?

A.

Shallow copy: When an object is created and copying nonstatic fields of the current object to the new object is known as shallow copy.

If a field is a value type --> a bit-by-bit copy of the field is performed

a reference type --> the reference is copied but the referred object is not; therefore, the original object and its clone refer to the same object.

Deep copy: Deep copy is little the same as shallow copy, deep copy the whole object and make a different object, it means it does not refer to the original object while in case of shallow copy the target object always refers to the original object and changes in target object also make changes in original object.

Q. What is CLR?

A.

CLR(Common Language Runtime) provide Environment to debugg and run program and utility developed at the .Net FrameWork.CLR provide memory management, debugging, security, etc. The CLR is also known as Virtual Execution System (VES). The managed and unmanaged code both runs under CLR.Unmanaged code run through the Wrapered Classes.There are many system Utilities run under the CLR.

Q. Explain Namespace ?

A.

There are many classes in Asp.Net.If Microsoft simply jumbled all the classes together, then you would never find anything. Microsoft divided the classes in the Framework into separate namespaces.All classes working with a file system located in System.IO Namespace. All classes working with SQL data base used System.Data.SqlClient Namespace.

The ASP.NET Framework gives you the most commonly used namespaces:

- . System
- . System.Collections
- . System.Collections.Specialized
- . System.Configuration
- . System.Text
- . System.Text.RegularExpressions
- . System.Web
- . System.Web.Caching
- . System.Web.SessionState
- . System.Web.Security
- . System.Web.Profile
- . System.Web.UI
- . System.Web.UI.WebControls
- . System.Web.UI.WebControls.WebParts
- . System.Web.UI.HtmlControls

Q. What are the advantages and disadvantage of Using Cookies?

A.

Advantage:

- 1.Cookies do not require any server resources since they are stored on the client.
2. Cookies are easy to implement.
3. Cookies to expire when the browser session ends (session cookies) or they can exist for a specified length of time on the computer (persistent cookies).

Disadvantage:

1. Users can delete a cookies.
2. Users browser can refuse cookies,so your code has to anticipate that possibility.
3. Cookies exist as plain text on the client machine and they may security risk as anyone can open and tamper with cookies.

Q. What is the difference between Session Cookies and Persistent Cookies?

A.

When client broweses session cookie stored in a memmory.when browser closed session cookie lost.

```
//Code to create a UserName cookie containing the name David.
```

```
HttpCookie CookieObject = new HttpCookie("UserName", "David");  
Response.Cookies.Add(CookieObject);
```

```
//Code to read the Cookie created above
```

```
Request.Cookies["UserName"].Value;
```

Persistent cookie same as the session cookie except that persistent cookie have expiration date.The expiration date indicates to the browser that it should write the cookie to the client's hard drive.

```
//Code to create a UserName Persistent Cookie that lives for 10 days
```

```
HttpCookie CookieObject = new HttpCookie("UserName", "David");  
CookieObject.Expires = DateTime.Now.AddDays(10);  
Response.Cookies.Add(CookieObject);
```

```
//Code to read the Cookie created above
```

```
Request.Cookies["UserName"].Value;
```

Q. What are the steps to host a web application on a web server?

A.

Step1.Set up a virtual folder for the application using IIS.

2. Copy the Web application to the virtual directory.

3. Adding the shared .NET components to the server's global assembly cache (GAC).

4. Set the security permissions on the server to allow the application to access required resources.

Q. What happens when you make changes to an application's Web.config file?

A.

When make change in web.config file.IIS restarts application and automatically applies changes.This effect the Session state variable and effect the application,then user adversely affected.

Q. What is Globalization ?

A.

The process to make a Application according to the user from multiple culture.The process involves translating the user interface in to many languages,like using the correct currency, date and time format, calendar, writing direction, sorting rules, and other issues.Accommodating these cultural differences for an application is called Globlization.

Three different ways to globalize web applications:

- 1.Detect and redirect approach
- 2.Run-time adjustment approach
- 3.Satellite assemblies approach

Q. What is the Difference between Compiler and Translator?

A.

Compiler converet the program one computer language to another computer language.in other word high level language to low level language.

Traslator traslate one language to many other language like english to hindi,french etc.

Q. What is the Difference Between Compiler and Debugger ?

A.

Compiler is a software or set of soetware that translate one computer Language to another computer.Most cases High level Programming Language to low level Programming Language.

Most of the time Program analyzed and examined error then Debugger used.Debugger is another program that is used for testing and debugging purpose of other programs. It will be able to tell where exactly in your application error occurred,and tell the where error occured.

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NO

Q. Types of Debbuger ?

A.

Debugger is another program that is used for testing and debugging purpose of other programs. Most of the time it is using to analyze and examine error conditions in application. It will be able to tell where exactly in your application error occurred,

Two Types of Debbuger:

1. CorDBG – command-line debugger. To use CorDbg, you must compile the original C# file using the /debug switch.
2. DbgCLR – graphic debugger. Visual Studio .NET uses the DbgCLR.

Q. Difference between Cookies and Session in Asp.Net ?

A.

1. The main difference between cookies and sessions is that cookies are stored in the user's browser, and sessions are not. This difference determines what each is best used for.

2. A cookie can keep information in the user's browser until deleted. If a person has a login and password, this can be set as a cookie in their browser so they do not have to re-login to your website every time they visit. You can store almost anything in a browser cookie

3. Sessions are not reliant on the user allowing a cookie. They work instead like a token allowing access and passing information while the user has their browser open. The problem with sessions is that when you close your browser you also lose the session. So, if you had a site requiring a login, this couldn't be saved as a session like it could as a cookie, and the user would be forced to re-login every time they visit.

Q. What is the structure of ASP.Net Pages ?

A.

1. Directives: A directive controls how an ASP.NET page is compiled. The beginning of a directive is marked with the characters <%@ and the end of a directive is marked

with the characters %>. A directive can appear anywhere within a page. A directive typically appears at the top of an ASP.NET page.

2. Code declaration block: A code declaration block contains all the application logic for your ASP.NET page and all the global variable declarations, subroutines, and functions. It must appear within a `<Script Runat="Server">` tag.

3. ASP.Net Controls: ASP.NET controls can be freely interspersed with the text and HTML content of a page. The only requirement is that the controls should appear within a `<form Runat="Server">` tag. And, for certain tags such as `` and `<ASP:Label Runat="Server"/>`, this requirement can be ignored without any dire consequences.

4. Code Render Blocks: If you need to execute code within the HTML or text content of your ASP.NET page, you can do so within code render blocks. The two types of code render blocks are inline code and inline expressions. Inline code executes a statement or series of statements. This type of code begins with the characters `<%` and ends with the characters `%>`.

5. Server side comments: You can add comments to your ASP.NET pages by using server-side comment blocks. The beginning of a server-side comment is marked with the characters `<%--` and the end of the comment is marked with the characters `--%>`.

6. Server side include Directives: You can include a file in an ASP.NET page by using one of the two forms of the server-side include directive. If you want to include a file that is located in the same directory or in a subdirectory of the page including the file, you would use the following directive: `<!-- #INCLUDE file="includefile.aspx" -->`

7. Literal text and html Tags: The final type of element that you can include in an ASP.NET page is HTML content. The static portion of your page is built with plain old HTML tags and text.

Q. Define File Name Extensions In Asp .net ?

A.

Applications written in Asp .net have different files with different extension. native files generally have .aspx or .ascx extension . Web services have .asmx extension.

File name containing the business logic depend on the language that you are using. For Example a c# file have extension aspx.cs.

Q. What is ASp.net ?

A.

ASP .NET built on .net framework. Asp .net is a web development tool. Asp .net is offered by Microsoft. We can built dynamic websites by using asp .net. Asp .net was first released in January 2002 with version 1.0 of the .net framework. It is the successor of Microsoft's

ASP. .NET Framework consists of many class libraries, support multiple languages and a common execution platform. Asp .net is a program run in IIS server. Asp .net is also called Asp+. Every element in Asp .net is treated as object and run on server. Asp .net is an event driven programming language. Most html tags are used by Asp .net. Asp .net allows the developer to build applications faster. Asp .net is a server side scripting.

Q. ASP.net Versions ?

A.

ASP .NET version 1.0 was first released in January 2002

ASP .NET version 1.1 released in April 2003 (ASP .NET 2003)

ASP .NET version 2.0 released in November 2005 (ASP .NET 2005)

ASP .NET version 3.5 released in November 2007 (ASP .NET 2008)

Q. Difference bt ASP and asp.net?

A.

1.Asp .net is compiled while asp is interpreted.

2.ASP is mostly written using VB Script and HTML. while asp .net can be written in C#, J# and VB etc.

3.Asp .net have 4 built in classes session , application , request response, while asp .net have more than 2000 built in classes.

4.ASP does not have any server side components whereas Asp .net have server side components such as Button , Text Box etc.

5.Asp does not have page level transaction while Asp .net have page level transaction.

ASP .NET pages only support one language on a single page, while Asp support multiple language on a single page.

6.Page functions must be declared as <script runat=server> in ASP. net . While in Asp page function is declared as <% %>.

Q. What is the difference between an EXE and a DLL?

A.

DLL:Its a Dynamic Link Library .There are many entry points. The system loads a DLL into the context of an existing thread. Dll cannot Run on its own

EXE:Exe Can Run On its own.exe is a executable file.When a system launches new exe, a new process is created.The entry thread is called in context of main thread of that process.

Q. Difference Between Thread and Process?

A.

Process is a program in execution where thread is a separate part of execution in the program. Thread is a part of process. process is the collection of thread.

Q. How does cookies work in ASP.Net?

A.

Using Cookies in web pages is very useful for temporarily storing small amounts of data, for the website to use. These Cookies are small text files that are stored on the user's computer, which the web site can read for information; a web site can also write new cookies.

An example of using cookies efficiently would be for a web site to tell if a user has already logged in. The login information can be stored in a cookie on the user's computer and read at any time by the web site to see if the user is currently logged in. This enables the web site to display information based upon the user's current status - logged in or logged out.

Q. What is ASP.Net?

A.

ASP Stands for Active server Pages.ASP used to create interacting web pages.

Q. What is Benefits of ASP.NET?

A.

>>>Simplified development:

ASP.NET offers a very rich object model that developers can use to reduce the amount of code they need to write.

>>>Web services:

Create Web services that can be consumed by any client that understands HTTP and XML, the de facto language for inter-device communication.

>>>Performance:

When ASP.NET page is first requested, it is compiled and cached, or saved in memory, by the .NET Common Language Runtime (CLR). This cached copy can then be re-used for each subsequent request for the page. Performance is thereby improved because after the first request, the code can run from a much faster compiled version.

>>>Language independence

>>>Simplified deployment

>>>Cross-client capability

Q. How to make User Control in ASP.net?

A.

a)Add User Controll

write code:-

```
<hr color=red/>
```

```
<center><H1><SPAN
```

```
style="COLOR: #ff9999; TEXT-DECORATION: underline">BigBanyanTree.com</SPAN></H1></center>
```

```
<hr Color=Green/>
```

b)In .aspx page:-

```
<% @ Register TagPrefix=a TagName="MyUserCtl" Src="~/WebUserControl.ascx"%>
```

c)Now use this :-

```
<a:MyUserCtl ID="tata" runat=server/>
```

Q. Write a program to show the Use of dataList in ASP.NET?

A

```
<asp:DataList ID="DataList1" runat="server" BackColor="White" BorderColor="#336666"
BorderStyle="Double" BorderWidth="3px" CellPadding="4" GridLines="Both">
```

```
<HeaderTemplate>Employee Detailed</HeaderTemplate>
```

```
<ItemTemplate>
```

```
    <%#DataBinder.Eval(Container.DataItem, "Empno") %>
```

```
    <%#DataBinder.Eval(Container.DataItem, "Ename") %>
```

```
    <%#DataBinder.Eval(Container.DataItem, "Sal") %>
```

```
</ItemTemplate>
```

Q. How to show data in HTML table using Repeater?

A.

```
<asp:Repeater ID="Repeater1" runat="server">
```

```
<HeaderTemplate>
```

```
<table border="10" width="100%" bgcolor=green style="width:100%" >
```

```
<tr>
```

```
    <th>Empno</th> <th>Ename</th> <th>Sal</th>
```

```
</tr>
```

```
</HeaderTemplate>
```

```
<ItemTemplate>
```

```

<tr>
<td>
<%#DataBinder.Eval(Container.DataItem, "Empno") %>
</td>
<td>
<%#DataBinder.Eval(Container.DataItem, "Ename") %>
</td>
<td>
<%#DataBinder.Eval(Container.DataItem, "Sal") %>
</td>
</tr>
</font>
</ItemTemplate>
<FooterTemplate>
</table>
</FooterTemplate>
</asp:Repeater>
</td>
<td style="width: 100px; height: 226px">
</td>
</tr>
</table>

```

Q. How Repeater is used in ASP.NET?

A.

```

<asp:Repeater ID="Repeater1" runat="server"> <ItemTemplate>
<%#DataBinder.Eval(Container.DataItem, "Empno") %>
<%#DataBinder.Eval(Container.DataItem, "Ename") %>
<%#DataBinder.Eval(Container.DataItem, "Sal") %>

```

Employee Detailed

```

</HeaderTemplate>
<ItemTemplate>
<font color=gray>
<%#DataBinder.Eval(Container.DataItem, "Empno") %>
<%#DataBinder.Eval(Container.DataItem, "Ename") %>
<%#DataBinder.Eval(Container.DataItem, "Sal") %>
</font>
</ItemTemplate>

```

```

<AlternatingItemTemplate>
<font color=green>
    <%#DataBinder.Eval(Container.DataItem, "Empno") %>
    <%#DataBinder.Eval(Container.DataItem, "Ename") %>
    <%#DataBinder.Eval(Container.DataItem, "Sal") %>
</font>
</AlternatingItemTemplate>
<FooterTemplate>
    Thanks
</FooterTemplate>
<SeparatorTemplate>
    <hr/>
</SeparatorTemplate>
</asp:Repeater>

```

Q. Write a Program to Connect with dropdownlist in ASP.NET

A.

```

OleDbConnection x;
OleDbDataAdapter y;
DataSet z;
protected void Button1_Click(object sender, EventArgs e)
{
    x = new OleDbConnection("Provider=msdaora;user id=scott;password=tiger");
    x.Open();
    y=new OleDbDataAdapter("select * from emp",x);
    z = new DataSet();
    y.Fill(z, "emp");
    DropDownList1.DataSource = z;
    DropDownList1.DataTextField = "ename";
    DropDownList1.DataBind();
    x.Close();
}

```

Q. Write a program to show data in Gridview in ASP.NET?

A.

```

OleDbConnection x;
OleDbDataAdapter y;

```

```

DataSet z;
protected void Button2_Click(object sender, EventArgs e)
{
    x = new OleDbConnection("provider=msdaora;user id=scott;password=tiger");
    x.Open();
    y = new OleDbDataAdapter("select * from emp", x);
    z = new DataSet();
    y.Fill(z, "emp");
    GridView1.DataSource = z.Tables["emp"];
    GridView1.DataBind();
    y.Dispose();
    x.Close();
}

```

Q. Write a program to Delete Record in ASP.NET ?

A.

```

OleDbConnection x;
OleDbCommand y;
protected void Button1_Click(object sender, EventArgs e)
{
    X = new OleDbConnection("provider=microsoft.jet.oledb.4.0;data source=c:\\db1.mdb");
    x.Open();
    y = new OleDbCommand("delete from emp where empno=@p",x);
    y.Parameters.Add("@p", TextBox1.Text);
    y.ExecuteNonQuery();
    Label1.Visible = true;
    Label1.Text="Record Deleted";
    y.Dispose();
    x.Close();
}

```

Q. How to add Record in ASP.NET?

A.

```

OleDbConnection x;
OleDbCommand y;
protected void Button1_Click(object sender, EventArgs e)
{

```

```

x      =      new      OleDbConnection("provider=microsoft.jet.oledb.4.0;data
      source=c:\\db1.mdb");
x.Open();
y = new OleDbCommand("Insert into emp(empno,ename,sal) values(@p,@q,@r)", x);
y.Parameters.Add("@p", TextBox1.Text);
y.Parameters.Add("@q", TextBox2.Text);
y.Parameters.Add("@r", TextBox3.Text);
y.ExecuteNonQuery();
Label1.Visible = true;
Label1.Text="Record Addedd";
y.Dispose();
x.Close();
}

```

Q. Write a program to show connection to Excel in ASP.NET?

A. OleDbConnection x;

```

OleDbCommand y;
OleDbDataReader z;
protected void Page_Load(object sender, EventArgs e)
{
    x      =      new      OleDbConnection("provider=microsoft.jet.oledb.4.0;data
      source=c:\\book1.xls;Extended Properties=excel 8.0");
x.Open();
y = new OleDbCommand("select * from [sheet1$]", x);
z = y.ExecuteReader();
while (z.Read())
{
    Response.Write("<li>");
    Response.Write(z["ename"]);
}
z.Close();
y.Dispose();
x.Close();
}

```

Q. Write a program to show connection with Oracle in ASP.NET?

A.

OleDbConnection x;

```
OleDbCommand y;
OleDbDataReader z;
protected void Page_Load(object sender, EventArgs e)
{
    x = new OleDbConnection("provider=msdaora;user id=scott;password=tiger");
    x.Open();
    y = new OleDbCommand("select * from emp", x);
    z = y.ExecuteReader();
    while (z.Read())
    {
        Response.Write("<li>");
        Response.Write(z["ename"]);
    }
    z.Close();
    y.Dispose();
    x.Close();
}
```

Q. Write a program in ASP.NET to Show Data With Access?

A.

```
Page_Load():-
OleDbConnection x;
OleDbCommand y;
OleDbDataReader z;
protected void Page_Load(object sender, EventArgs e)
{
    x = new OleDbConnection("provider=microsoft.jet.oledb.4.0;data source=c:\\db1.mdb");
    x.Open();
    y = new OleDbCommand("select * from emp", x);
    z = y.ExecuteReader();
    while (z.Read())
    {
        Response.Write(z["ename"]);
        Response.Write("<hr>");
    }
    z.Close();
    y.Dispose();
    x.Close();
}
```

}

Q. Define Life Cycle of Page in ASP.NET?

A.

```
protected void Page_PreLoad(object sender, EventArgs e)
{
    Response.Write("<br>"+"Page Pre Load");
}
protected void Page_Load(object sender, EventArgs e)
{
    Response.Write("<br>" + "Page Load");
}
protected void Page_LoadComplete(object sender, EventArgs e)
{
    Response.Write("<br>" + "Page Complete");
}
protected void Page_PreRender(object sender, EventArgs e)
{
    Response.Write("<br>" + "Page Pre Render");
}
protected void Page_Render(object sender, EventArgs e)
{
    Response.Write("<br>" + "Pre Render");
}
protected void Page_PreInit(object sender, EventArgs e)
{
    Response.Write("<br>" + "Page Pre Init");
}
protected void Page_Init(object sender, EventArgs e)
{
    Response.Write("<br>" + "Page Init");
}
protected void Page_InitComplete(object sender, EventArgs e)
{
    Response.Write("<br>" + "Page Pre Init Complete");
}
```

Q. Describe Wizard server control with example in Share Point?

A.

This control enables you to build a sequence of steps that are displayed to the end users side. It is also used either display or gather information in small steps in system.

```
using System;
using System.Collections.Generic;
using System.Text;
using System.Web.UI.HtmlControls;
using System.Web.UI.WebControls;
using Microsoft.SharePoint.WebPartPages;
namespace LoisAndClark.WPLibrary
{
public class MyWP : WebPart
{
protected override void CreateChildControls()
{
Wizard objWizard = new Wizard();
objWizard.HeaderText = "Wizard Header";
for (int i = 1; i <= 6; i++)
{
WizardStepBase objStep = new WizardStep();
objStep.ID = "Step" + i;
objStep.Title = "Step " + i;
TextBox objText = new TextBox();
objText.ID = "Text" + i;
objText.Text = "Value for step " + i;
objStep.Controls.Add(objText);
objWizard.WizardSteps.Add(objStep);
}
this.Controls.Add(objWizard);
}
}
}
```

}

}

Q. What is BulletedList Control in Share Point. Give an example?

A.

Bullet style allow u choose the style of the element that precedes the item.here u can

choose numbers, squares, or circles.here child items can be rendered as plain text, hyperlinks, or buttons.

This example uses a custom image that requires to be placed in a virtual directory on the server.

```
using System;
using System.Collections.Generic;
using System.Text;
using System.Web.UI.HtmlControls;
using System.Web.UI.WebControls;
using Microsoft.SharePoint.WebPartPages;
namespace LoisAndClark.WPLibrary
{
public class MyWP : WebPart
{
protected override void CreateChildControls
{
BulletedList objBullist = new BulletedList();
objBullist.BulletStyle = BulletStyle.CustomImage;
objBullist.BulletImageUrl = @"/_layouts/images/rajesh.gif";
objBullist.Items.Add("First");
objBullist.Items.Add("Seciond");
objBullist.Items.Add("Third");
objBullist.Items.Add("Fourth");
this.Controls.Add(objBullist);
}
}
}
```

Q. How to create a SharePoint web part using File upload control.give example?

A.

```
using System;
using System.Collections.Generic;
using System.Text;
using System.Web.UI.HtmlControls;
using System.Web.UI.WebControls;
using Microsoft.SharePoint.WebPartPages;
namespace LoisAndClark.WPLibrary
```

```
{
public class MYWP : WebPart
{
FileUpload objFileUpload = new FileUpload();
protected override void CreateChildControls()
{
this.Controls.Add(new System.Web.UI.LiteralControl
("Select a file to upload:"));
this.Controls.Add(objFileUpload);
Button btnUpload = new Button();
btnUpload.Text = "Save File";
this.Load += new System.EventHandler(btnUpload_Click);
this.Controls.Add(btnUpload);
}
private void btnUpload_Click(object sender, EventArgs e)
{
string strSavePath = @"C:\temp\";
if (objFileUpload.HasFile)
{
string strFileName = objFileUpload.FileName;
strSavePath += strFileName;
objFileUpload.SaveAs(strSavePath);
}
else
{
//otherwise let the message show file was not uploaded.
}
}
}
```

Q. Print Hello World message using SharePoint in Asp.Net 2.0?

A.

```
using System;
using System.Collections.Generic;
using System.Text;
using System.Web.UI.HtmlControls;
using System.Web.UI.WebControls;
using Microsoft.SharePoint.WebPartPages;
```

```
namespace LoisAndClark.WPLibrary
{
public class MYWP : WebPart
{
protected override void CreateChildControls()
{
Content obj = new Content();
string str1 = obj.MyContent<string>("Hello World!");
this.Controls.Add(new System.Web.UI.LiteralControl(str1));
}
}
}
```

generic method shows that SharePoint site is running on .NET Framework 2.0, and the code of the generic method seems like this:

```
public string MyContent<MyType>(MyType arg)
{
return arg.ToString();
}
```

Q. How to Configure SMTP in asp .NET?

A.

This example specifies SMTP parameters to send e-mail using a remote SMTP server and user that are important. This program shows configuration process-

```
<system.net>
<mailSettings>
<smtp
deliveryMethod="Network|PickupDirectoryFromIis|SpecifiedPickupDirec>
<network
defaultCredentials="true|false"
from="r4r@fco.in"
host="smtpghost"
port="26"
password="password"
userName="user"/>
<specifiedPickupDirectory
pickupDirectoryLocation="c:\pickupDirectory"/>
</smtp>
</mailSettings>
</system.net>
```

