1 Can you edit data in Repeater control?
No, it is readonly and forward only control so we can't edit data in repeater control.

---

2 Which ADO.NET object is very fast in getting data from database?
SqlDataReader object. (Note: Even datasets also use SqlDataReader objects internally for retriving data from database.)

---

3 Can you edit data in the Repeater control?
No, it just reads the information from its data source

---

4 Diff Data Grid and Repeater
Datagrid is
* one which has advanced features and lets you do lot many things like paging and sorting your data without much effort.
* DataGrid can hold text data, but not linked or embedded objects.

Whereas a DataRepeater is
* which does not have the paging feature but we can do it by coding.
* one which can hold other controls and can embed objects.
* It can embed a Datagrid within it but not viceversa.

Apart from this a Data Repeater
--is used in places where you need more control over the rendering of your data
-- have very flexible templates that give you total control over the formatting of your data

---

5 What is the purpose of connection pooling in ADO.NET?
Connection pooling enables an application to use a connection from a pool of connections that do not need to be re-established for each use. Once a connection has been created and placed in a connection pool, an application can reuse that connection without performing the complete connection creation process.

---

6 If you have more than one lakh rows in database table,while printing that table in frontend performence will be degraded. for that what do you do to improve the performence?
increase the execution time out in web.config (or)increase the connection time out in connection string

---

7 What is a Linked Server?
A linked server configuration enables SQL Server to execute commands against OLE DB data sources on remote servers. 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.
Linked servers offer the following advantages:

1. Remote server access.
2. The ability to issue distributed queries, updates, commands, and transactions on heterogeneous data sources across the enterprise.
3. The ability to address diverse data sources similarly.

With a linked server, you can create very clean, easy to follow, SQL statements that allow remote data to be retrieved, joined and combined with local data. Stored Procedure sp_addlinkedserver, sp_addlinkedsrvlogin will be used add new Linked Server.

---

8 Can DataAdapter object accept DataTable as parameter in Fill method?
Yes,

DataAdapter object can accept either DataTable or DataSet as parameter to fill data from database.

eg.

```
SqlDataAdapter dAd = new SqlDataAdapter();
DataTable dTable = new DataTable();
DataSet dSet = new DataSet();
----
---
dAd.Fill(dTable); // will also work
dAd.Fill(dSet); // will also work
```

We should only use DataSet as parameter when we are expecting more than one result set is being returned from database.

---

9 How to create a DataView from DataTable?
In order to create a DataView from a DataTable, use instantiate the DataView object by passing DataTable as parameter in the constructor.

eg.

```
DataView dView = new DataView(dTable);
```

---

10 Name some of the top level objects which ADO consists?
1. Connection object is responsible for creating a connection to the database.
2. Record object represents data which is not from the database.
3. Parameter object represents a sql parameter
4. Stream object is responsible to represent data from a text page or web page.

---

11 Explain about the relationship of XML and ADO.NET?
ADO.NET utilizes the power of XML by providing disconnected access to data. This is designed with the help of XML classes in .NET Framework which form the components of single architecture.

---

12 Explain about Data access objects or DAO?
DAO is used for database access on windows platform. It creates a work space object in which applications or operations are performed. There are two types of database engines they are Jet database engine and ODBC direct database engine.

---

13 What are the advantage of ADO.Net?
• ADO.NET Does Not Depend On Continuously Live Connections
• Database Interactions Are Performed Using Data Commands
• Data Can Be Cached in Datasets
• Datasets Are Independent of Data Sources

• Data Is Persisted as XML
• Schemas Define Data Structures

---

14 Difference between OLEDB Provider and SqlClient ?
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.

---

15 How to add a new row in DataTable?
To add a new row in DataTable, we can use NewRow() method of the DataTable object.(Here assume that there are two columns Name, Address in the DataTable.

```
DataTable dTable = new DataTable();
DataRow row = null;

for (int i = 0; i < 5; i++)
{
  row = dTable.NewRow ();
  row["Name"] = i + " - Raja";
  row["Address"] = "USA";
  dTable.Rows.Add(row);
}
```

---

16 How to create a column in the DataTable?
To create a column in the DataTable we can use the Columns.Add method of the DataTable object and pass DataColumn object as parameter.

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

---

17 How to add auto increment column in the DataTable?
To add auto increment column in the DataTable, we can set the AutoIncrement property of the DataColumn object as true and specify the seed value after adding that field into the DataTable object.

```
// create columns for the DataTable
DataTable dTable =  new DataTable();
DataColumn auto = new DataColumn("AutoID", typeof(System.Int32));
dTable.Columns.Add(auto);
// specify it as auto increment field
auto.AutoIncrement = true;
auto.AutoIncrementSeed = 1;
auto.ReadOnly = true;
```

---

18 Best Method to retrieve two values from Database (SQL Server)

1. ExecuteDataSet()
2. ExecuteScalar()
3. ExecuteReader()
4. ExecuteNonQuery()

Correct Ans : 4

---

19 Which method is used to create a new row in a Table

1. NewRow()
2. Add()
3. Read()
4. ExecuteReader()

Correct Ans : 1 After you create a DataTable and define its structure using columns and constraints, you can add new rows of data to the table. To add a new row, declare a new variable as type DataRow. A new DataRow object is returned when you call the NewRow method. The DataTable then creates the DataRow object based on the structure of the table, as defined by the DataColumnCollection.

---

20 Which method is used to commit all changes in the DataSet or DataTable?

1. Update()
2. AcceptChanges()
3. GetChanges()
4. None

Correct Ans : 2 Calling the AcceptChanges method or AcceptChanges method will commit all changes in the DataSet or DataTable. If either of these methods are called before the Update method is called, no changes will be committed when the Update method is called, unless further changes have been made since AcceptChanges was called.

---

21 Which method is used to Gets the name of the specified column using DataReader?

1. GetSqlValue ()
2. GetOrdinal ()
3. GetName ()
4. all the above

Correct Ans : 3

---

22 Which method is used to Get a value indicating whether the column contains non-existent or missing values

1. GetType()
2. IsDBNull ()
3. GetValues ()
4. All the above

Correct Ans : 2

---

23 To improve the performance and scalability of your .NET application. Which one of the following techniques would help?.

1. Connection Strings
2. Connection Pooling
3. SQL Injection
4. Data Adapter

Correct Ans : 2

---

24 Which is the base class for TypedDataset

1. DataReader
2. Dataset
3. DataAdapter
4. all the above

Correct Ans : 2

---

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

1. Use the Sort method on the DataTable object.
2. Use the DataSet object's Sort method.
3. Use a DataView object for each sort.
4. Create a DataTable for each sort, using the DataTable object's Copy method, and then Sort the result.

Correct Ans : 3 The DataView can be used for each sort.

---

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

1. BeginExecute=true
2. MultiThreaded=true
3. MultipleActiveResultSets=true
4. Asynchronous=true

Correct Ans : 4 You must set Asynchronous=true.

---

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

1. DataAdapter
2. DataReader
3. Command
4. Connection

Correct Ans : 1 SqlDataAdapter's Fill method is used to fill the data from database to either DataSet or DataTable. Fill method has two overload DataSet and DataTable that can be used as per need.

---

28 Which is the default Provider Name of the Providers used to access the DataBase?

1. System.Data.SqlClient
2. System.Data.Odbc
3. System.Data.Oledb
4. System.Data.OracleClient

Correct Ans : 1

---

29 Name the classes are found in System.Data.Common NameSpace?

```
1)DataColumnMapping
2)DataTableMapping
```

---

30 Name the classes that are contained in System.Data NameSpace?

```
DataSet
DataTable
DataColumn
DataRow
DataRealation
Constraint
```

---

31 Stored procedure return more than one resut set and datareader used to fetch record, how you fetch second result set using datareader?

Use DataReader.NextResult()

True - It Check more result remain to read and reader will forward to next result.
False - No more result set found

---

32 What is Dataview in ADO Dot Net ?
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.

We can create DataView in two ways. Either we can use the DataView constructor, or we can create a reference to the DefaultView property of the DataTable.

DataView dView = new DataView(dTbl);
dView = dataSet.Tables(0).DefaultView;

---

33 How can you update the records in database using datareader?
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.

---

34 What are the differences between ADO and ADO.NET?
ADO relied on a connection based model . In the connected approach, the client had to be connected with the server and remain connected till the whole procedure or transaction was completed. Time resources and bandwidth became major constraints on such architecture.

To solve this problem the latter version of ADO used RecordSet. All the contents from the data source were copied into RecordSet. This allows clients to get disconnected from the server, work on the RecordSet and copy the changes back to the data source again. This approach did not succeed much because it requires COM marshalling to transmit disconnected data, it support only those datatypes that were defined by the COM standards and hence required type conversion.

ADO.NET can be used to access data sources using new .NET data providers as well as existing OLEDB data providers using the OLEDB.NET data provider.

---

35 What are the components of .NET DataProvider?
The .NET DataProvider is a set of components that includes the Connection, Command, DataReader and DataAdapter objects. It is used for connecting to a database , executing commands and retrieving results. Using the .NET data provider we can either access database directly or use the disconnected approach. For the disconnected approach we use DataSet class.

Connection Object:- It is used to connect to the data source. Data source can be any database file. The connection object contains information like the provider name, server name, datasource name, user name and password.

Command Object:- It is used for connect the connection object to a DataReader or DataAdapter object. The command object allow us to execute SQL statement or a stored procedure in a data source.

DataReader Object:- It is used to read the data in a fast and efficient manner from the database. It is generally used to extract one or a few records or specific field values or to execute simple SQL statement.

DataAdapter Object:- It is used to fill data from the database into the DataSet object. it is use din the disconnected approach.

---

36 What are the benefits of ADO.NET?
BENEFITS OF ADO.NET

1>Scalability:-
ADO.NET works on DataSet that can represent a whole database or even a data table as a disconnected object and thereby eliminates the problem of the constraints of number of databases being connected. In this way scalability is achieved.

2>Data Source Independence:-
In ADO.NET DataSet is completely independent of data source and no way DataSet is controlled by the data source as it happens in case of RecordSet.

3>Interoperability:-
As ADO.NET transmits the data using the format of XML which is not dependent on ADO.NET or windows platform.

4>Strongly Typed Fields:-
It supports strongly typed fields by using CTS.

5>Performance:-
The performance in ADO.NET is higher in comparison to ADO that uses COM marshalling.

6>Firewall:
As in ADO.NET transmission is via XML format, therefore it can pass through firewalls.

---

37 What is the use of DataSet?
DataSet acts as a virtual table. The value is retrieved from the database
and stores in the DataSet. Then we can pass the data to the DataGrid through DataSet.

---

38 How to fill DataSet with data?
To fill DataSet with data we have to use Fill() method of DataAdapter object.

Fill() has several overloads. But the simple one is

```
Fill(DataSet,  DataTable)
```

The first parameter will take the name of the dataset to be filled and the second parameter specifies the name of the DataTable in the DataSet which will contain the data.

---

39 What is a DataSet?
The Dataset is the central object in ADO.NET. DataSet is a logical container of data. It represents a set of data tables referenced as one unit in the application.

With this object you can get all the data you need from each table quickly, examine and change it while you are disconnected from the server and then update the server with changes in an efficient operation.

---

40 How to convert a DataSet to a DataReader?
DataTableReader rd = ds.Tables[0].CreateDataReader();

---

41 Give Expansions of ODBC,OLE,OLE DB,ADO?
1.ODBC-Open Database Connectivity.
2.OLE-Object Linking and Embedding.
3.OLE DB-Object Linking and Embedding for Database.
4.ADO-ActiveX Data Object.

---

42 Components of data providers in ADO.NET?
Connection Object: The Connection object represents the connection to the database. The Connection object has ConnectionString which contains all the information required to connect to the database.

Command Object: The command object is used to execute stored procedures and command on the database. It contains methods such as ExecuteNonQuery, ExecuteScalar and ExecuteReader.

ExecuteNonQuery: It executes a command that doesn't return any record, such as INSERT, UPDATE and DELETE.

ExecuteScalar: It executes and returns a single value from a database.

ExecuteReader: It returns a result set by the DataReader object.

DataReader Object: It provides a connected, forward-only and read-only recordset from a database. The Command.ExecuteReader method creates and returns a DataReader object. Since it is connected to the database through out its lifetime, it requires the use of connection object.

DataAdapter Object: This object acts like a communication bridge between the database and a dataset. It fills the dataset with data from the database. The dataset stores the data in the memory and it allows changes. The DataAdapter update method can transmit the changes to the database.

---

43 What are the different DataAdapter Object properties present?
Select Command: This command is used to select the data from the database.
Insert Command: This command is used to insert a row into the table.
Delete Command: This command is used to delete the existing rows in the table.
Update Command: This command is used to update the values of records present in table.

---

44 Define connected and disconnected data access in ADO.NET?
In **connected** data access you can connect through the DataReader objects of data provider. This object requires exclusive use of the connection object. It can provide fast and forward-only data access. It doesn't allow editing.

Disconnected data access is achieved through the DataAdapter object. This object establishes connection, executes the command, load data in the DataSet. The Dataset works independent of database. It contains data in the memory and can edit the data. The changes in the data can be transmitted to the database using Update method of DataAdapter object.

---

45 Describe Command Type property of a SQLCommand in ADO.NET?
A SQLCommand has CommandType property which can take *Text*, *Storedprocedure* or *TableObject* as parameter. If it is set to Text, the command executes SQL string that is set to CommandText property. When set to StoredProcedure, the command runs the stored procedure of the database. If the property is set to TableObject, the command returns the entire content of the table indicated by the CommandText property.

---

46 What is the role of data provider?
The .NET data provider layer resides between the application and the database. Its task is to take care of all their interactions.

The .NET Data provider can be demonstrated to be:
• SQL Server data provider
• OLEDB data provider
• ODBC Data Provider

ADO.NET supports the following OLE DB Providers:
• SQLOLEDB - Microsoft OLE DB Provider for SQL Server.
• MSDAORA - Microsoft OLE DB Provider for Oracle.
• Microsoft.Jet.OLEDB.4.0 - OLE DB Provider for Microsoft Jet

---

47 What is DataViewManager?
DataViewManager is used to manage view settings of the tables in a DataSet. A DataViewManager is best suited for views that consist of a combination of multiple tables. The properties like ApplyDefaultSort, Sort, RowFilter, and RowStateFilter are referenced using DataViewSetting.

---

48 What is Connection Pooling ?
Connection Pooling will make a single connection instance, which allows that instance to connect to all the databases. Advantage is that it does not open and close the connection object multiple times.

---

49 What is the use of SqlParameter.Direction Property?
This Property is used to initialize the Sql Parameter type and sets some of its properties such as *input-only* , *output-only* , *bidirectional* , or a stored procedure which will return value parameter. The default property is Input.

---

50 Can you enforce constraints and relations on tables inside a DataSet?
Yes, the collection of DataTable objects from a DataSet can relate to each other with the DataRelation objects. You can also put in execution of data integrity in the DataSet by using *UniqueKeyConstraint* and *ForeignKeyConstraint* objects.

---

51 What happens when you apply AcceptChanges() method on a DataSet?
When you will apply AcceptChanges() method to a DataSet, then it will call AcceptChanges() method on each table within the DataSet. This method will also have in both the DataRow and DataTable classes.

When AcceptChanges() calls at the DataTable level, it causes the AcceptChanges method for each DataRow.

When AcceptChanges() call on the DataSet, then the edit mode of DataRow objects will end successfully with editing. The RowState property of each DataRow also changes. The added and modified rows become as it is, and deleted rows are removed.

---

52 What is the use of DataSet.HasChanges() Method?
This method is used to made changes into the DataSet including new, modify, and delete rows. It will return a Boolean value that is either true or false according to the changes made in DataSet. This can also be used to update a DataSource, if there is some change.

---

53 What happens when you apply RejectChanges method on a DataSet?
Let's consider, a DataSet contains 3 tables. When you will apply RejectChanges() method, it will be automatically invoked on all the 3 tables in the dataset. So any changes that were done with the tables will be rolled back.

When you call DataTable.RejectChanges method, the rows that are in edit-mode will cancel their edit. It will remove the new added rows. It will also return back all modified and deleted rows to its original state.

---

54 How to access database using ADO.Net
1. Create a connection to the database using a connection object
2. Invoke a command to create a DataSet object using an adapter object
3. Use the DataSet object in code to display or to change items in the database
4. Invoke a command to update the database from the DataSet object using an adapter object
5. Close the database connection (if you explicitly opened it)

---

55 What is the Use of Connection Object ?
Inorder to interact with any database we need a Connection . This connection enables us to know the Server Name, User-Id,Password,Database Name. These are the main requirements to connect to a Database.

So in our Connection string we provide all those above mentioned properties as parameters.

Different Connection objects : **SqlConnection, OleDbConnection, OdbcConnection**

. **OleDbConnection** object is used with an OLE-Db Provider

```
OleDbConnection cnn ;
```

```
connetionString = "Provider=Microsoft.Jet.OLEDB.4.0;
Data Source=DatabaseName;";
cnn = new OleDbConnection(connetionString);
```

. **SqlConnection** object used the Tabular Data Services (TDS) With MS Sql Server.

```
SqlConnection con;
con = new SqlConnection("server=SERVER NAME;user id=ID;password=PASSWORD;database=DB NAME");
SqlCommand cmd;
cmd = new SqlCommand("DB Query Here",con);
```

. Using the **OdbcConnection** , we will create an OdbcCommand. From that command we can issue a Query and create an OdbcDataReader.

```
OdbcConnection DbConnection = new OdbcConnection("Connection String");
OdbcCommand DbCommand = DbConnection.CreateCommand();
DbCommand.CommandText = "Db Query Here";
OdbcDataReader DbReader = DbCommand.ExecuteReader();
```

---

56 Which of these ADO.NET classes is an abstract class ?

1. SqlConnection
2. DbConnection
3. DataView
4. None of these

Correct Ans : 2 DbConnection is the abstract class.We cannot create instances of DbConnection class, but SqlConnection and DataView are instantiated.

---

57 Which event of the SqlConnection class can be used to retreive error information from a database ?

1. StateChanged
2. MessageReceived
3. InfoMessage
4. None of these

Correct Ans : 3 InfoMessage is the event. More details on this http://www.codeproject.com/KB/database/infomessage.aspx StateChanged occurs when the state of the event changes from open to closed or viceversa There is no event like MessageReceived.

---

58 Which of these is the fastest way of returning the total number of sales figures from a database table?

1. Write adhoc query and call the SqlCommand.ExecuteScalar() method
2. Writing stored procedure in the SqlDataAdapter constructor
3. Writing stored procedure and call the SqlCommand.ExecuteScalar() method
4. none of these

Correct Ans : 3 3 is correct. For retreiving the aggregate results, creating a stored procedure and calling the ExecuteScalar method is the fastest way. 1 is wrong as using an adhoc query is slower than using a stored procedure 2 is wrong as we will have to use DataTable/DataSet that might create memory overhead.

---

59 From which Interface the sqlconnetion class is derived
IDbconnection is the interface which is exposed for SQLConnection Class. It has following types defined
> ConnectionString
> ConnectionTimeout
> Database
> State

---

60 What type of Architecture is a Dataset in .Net Framework

1. Connected Architecure
2. Disconnected Architecture
3. Neutral Architecture

Correct Ans : 2 The DataSet is the main component in the Disconnected Data Access Architecture in ADO.net A DataSet is an in-memory data that can hold multiple tables.

---

61 What is the use of SqlCommandBuilder?
It is a class defined by System.Data.SqlClient namespace and is used to generate commands(insert,delete,update) that can be used

to reflect DataSet changes back to a sql server database

Update method of SqlDataAdapter uses the SqlCommandBuilder's commands
to reflect DataSet changes back to a sql server database.

example:

```
//save a record in a database using the Update method of SqlDataAdapter
using System.Data;
using System.Data.SqlClient;

class dd
{
```

```
static void Main()
{
SqlConnection cn=new SqlConnection("server=.;uid=sa;pwd=1234;database=employee");
SqlDataAdapter da=new SqlDataAdapter("select * from emp",cn);
DataTable dt=new DataTable();
da.Fill(dt);
//emp has 2 columns known as eno and ename.

//Initialize the SqlCommandBuilder.
SqlCommandBuilder cd=new SqlComandBuilder(da);

//create a DataRow
DataRow dr=dt.NewRow();
dr["eno"]=100;
dr["ename"]="king";
//the row is temporarily saved
dt.Rows.Add(dr);

//save the Row permanently
da.Update(dt);

}
}
```

---

62 Differences between SqlCommand and SqlDataAdapter.
SqlCommand:
1) Represents a Transact-SQL statement or stored procedure to
execute against a SQL Server database.
2)It can be initalized by any T-SQL satement
3)we have to explicitly initalize SqlDataReader when we use SqlCommand
4)database connections have to be manually opened and closed.

SqlDataAdapter:
1)Represents a set of data commands and a database connection that
are used to fill the DataSet/DataTable and update a SQL Server database.
2)It can be initialized using Select command either directly in its constructor
or by assigning an object of SqlCommand containing a select statement
to its SelectCommand property.

3)SqlDataReader is internally used in SqlDataAdapter.
4)database connections are automatically opened and closed.

---

63 What are the Differences between OleDb and SqlClient ?
OleDb and SqlClient are both called as Data Providers in .net

They are basically namespaces which contain specific classes used for connectivity and for

data handling.

OleDb is referred to as System.Data.OleDb

SqlClient is referred to as System.Data.SqlClient

OleDb: Object linking and Embedding database.

Differences:

OleDb is used for connecting to any database like SQL Server, Access, Oracle, Excel.
We have to mention the appropriate provider to connect with the particular database.
This adds an extra layer for connetion and has performance impacts.

SqlClient is used for SQL Server only. (for SQL Server 7.0 onwards)
We do not have to mention the SQL Server provider.
For SQL Server 6.5 or lower we will have to use OleDb

SqlClient is faster than OleDb.

---

64 ADO.NET uses a disconnected architecture, where users work on the dataset rather than the database. What do you think are the advantages of this architecture?

1. Scalability
2. Data source and dataset independence
3. Strong typing

Correct Ans : 1 Scalability---> The disconnected nature of ADO.NET means users spend less time connected to the database, allowing more users to work with the same data. Data source and dataset independence---> The dataset in ADO.NET is completely separate from the data source. This means it's not limited by the source's functionality, and a change in the data source shouldn't require much change in the code used to access it. Strong typing---> ADO uses the Variant type as standard, because it was the only type understood by scripting languages, but this type is memory intensive. ADO.NET allows strong typing, which means the compiler will detect type mismatches.

---

65 What is the difference between Typed and UnTyped DataSets?
1)Typed DataSets use explicit names and DataTypes for their members.
example:
northwindDataSet.Products.ProductNameColumn.Caption = "pnames";

2)They have .xsd file (Xml Schema definition) file associated with them and do error checking regarding their schema at design time using the .xsd definitions.

UnTyped DataSets:
1)UnTyped DataSets use table and column collections for their members
ex:
ds.Tables["emp"].Columns["eno"].ReadOnly=true;

2)They do not do error checking at the design time as they are filled at run time when the code executes.

---

66 What is the difference between a toolstrip drop-down button and a toolstrip split button? What is the use of toolstrip container?
The difference between these two is that a toolstrip split button is a combination of two controls that is a push button and a drop-down button where a toolstrip drop-down is a single control.

Basically this is used to contain controls such as ToolStrip, MenuStrip, and statusStrip, so that these controls can be docked and moved at the run time.

---

67 Which of these is a connected architecture?

1. DataTable
2. DataView
3. DataRelation
4. None of these

Correct Ans : 4 None of the above mentioned classes has got a connected architecture. They are never connected with the database.

---

68 Differences between DataSet and DataReader
Differences of DataSet and DataReader:

DATASET

1)DataSet is always disconnected from the database.

2)DataSet is like a memory resident database.

3)DataSet can contain temporary tables (DataTables), temporary Views(DataViews), temporary primary keys, temporary Foreign keys

4)DataSet supports forward, backward data navigation.

5)DataSets is used to return data from web service methods since it can be serialized.

6)It can be added in a ToolBox

7)Built in XML support.

DATAREADER

1)DataReader is connected with database(connected architecture)

2)DataReader is likw a forward only cursor used for reading data.

3)DataReader has no temporary tables, views etc,

4)It supports only forward data navigation.

5)It is not returned from web service method as it cannot be searialized.

6)cannot be added in toolbox

7)No built in XML features.

---

69 Which provider ADO.NET uses by default?
There is no default provider in ADO.NET.
Providers are the namespaces defining the classes for connectivity, providing queries,Data Reading
We have to mention the provider like **System.Data.SqlClient** or **System.Data.OleDb** in the top of the code window.

---

70 Difference between LINQ to SQL and ADO.NET
LINQ TO SQL

1)Used for data handling with SQL Server databases only.

2)Uses the extension methods of System.Linq.Queryable class.

3)Introduced in .net Framework 3.0

4)DataContext is used for Database connectivity.

5)Syntax and coding is somewhat complex.

6)Uses Entity classes.

ADO.NET

1)Used for data handling with any database: SQL Server/Access/Oracle/Excel etc.

2)Does not use the extension methods of System.Linq.Queryable class.

3)There since the .net Framework 1.0

4)SqlConnection/OleDbConnection are used for database connectivity

5)Easier syntax and coding.

Note: Both LINQ TO SQL and ADO.NET have connexted/disconnected modes of data handling

---

71 ADO.NET uses a disconnected architecture, where users work on the dataset rather than the database. What do you think are the advantages of this architecture? 1. Scalability 2. Data source and dataset independence 3. Strong typing 4. Ability to read both SQL and Oracle databases

1. Option 1
2. Option 2
3. Option 1, 2 and 3
4. Option 1, 2,3 and 4

Correct Ans : 3 Scalability is correct. The disconnected nature of ADO.NET means users spend less time connected to the database, allowing more users to work with the same data. Data source and dataset independence is correct. The dataset in ADO.NET is completely separate from the data source. This means it's not limited by the source's functionality, and a change in the data source shouldn't require much change in the code used to access it. Strong typing is correct. ADO uses the Variant type as standard, because it was the only type understood by scripting languages, but this type is memory intensive. ADO.NET allows strong typing, which means the compiler will detect type mismatches. Ability to read both SQL and Oracle databases is incorrect. Actually, both ADO.NET and ADO are capable of interacting with different types of databases

---

72 What are the advantages of integrating ADO.NET with XML? Options: 1. A disconnected architecture 2. An improvement of processing time 3. Bypassing of firewalls

1. Option 1
2. Option 2
3. Option 2 and 3

4. None of above

Correct Ans : 3 The two main advantages of integrating ADO.NET with XML are an improvement of processing time and the bypassing of firewalls A disconnected architecture is incorrect beacuse , The main difference between ADO.NET and its earlier version, ADO (ActiveX Data Object), is that ADO.NET uses a disconnected architecture and doesn't work directly on the information in the database but on a local copy of that information. An improvement of processing time is correct because , ADO uses COM to manage the transmission of data, which means that all data has to be translated into the types recognized by COM before being translated back to the database types. This involves a large processing overhead, which ADO.NET avoids by using XML. Bypassing of firewalls is correct. Because ADO.NET uses XML, which is transmitted over HTML port 80, it passes through most company firewalls.

---

73 How can you sort a DataSet?
DataView provides us with the **Sort** property

example:

```
private void button1_Click(object sender, EventArgs e)
       {
           DataView dv = new DataView(ds.Tables["demo"]);
           dv.Sort = "productname";
           dataGridView1.DataSource = dv;

       }
   }
```

Note:

ds is the object reference of the DataSet
"demo" is the DataTable an stores a copy of the poducts table from the
Northwind database.
This example will sort the DataGridView on the basis of productname column.
first we have to connect using SqlConnection and use SqlDataAapter for the
query

---

74 Which of these namespaces deals with SQL Server mobile databases?

1. System.Data.SqlClient
2. System.Data.SqlServerCe
3. System.Data.SqlTypes
4. None

Correct Ans : 2 System.Data.SqlServerCe is the namespace for SQL Server compact(mobile phones) databases. System.Data.SqlClient provides classes for connectivity and queries but not for the mobile databases. System.Data.SqlTypes provides types for better performance when using SQL Server as the back end: example: SqlInt32, SqlInt64

---

75 Which of these objects must be there when storing data in a disconnected state?

1. DataSet
2. DataTable
3. DataView
4. None of these

Correct Ans : 2 DataTable : at least one DataTable must be there. DataTable is used for storing data in a disconnected state. It can be with or without a DataSet. DataSet is like a temporary database, but its data is stored in a DataTable. DataView does not provide data storage, It is for query simplification of the DataTable data,

---

76 Which parameters define the database server in the connection string?
These are the parameters which define the database server through its name or IP address. We can use any one of them.
1) Data Source
2) server
3) addr
4) address
5) network address

---

77 What is the name of the data source when we use SQL Server Express Edition?
It is **.\SQLEXPRESS**
It is specified in the connection string.
The complete connection is like this:

Data Source=.\SQLEXPRESS;AttachDbFileName=c:\abc.mdf;Integrated Security=True;
User Instance=True

It is presumed that abc.mdf file exists in c drive. abc.ldf must also be there.
Integrated Security is used to authenticate SQL Server Express Edition.
User Instance=true. It starts SQL Server Express Edition using the current user's
account.

---

78 Which data-related class do you use to help prevent SQL injection attacks?

1. Sqlparameter
2. SqlTransaction
3. SqlCommand
4. SqlConnection

Correct Ans : 1 We need to avoid Dynamic SQL like this string strQry = "SELECT Count(*) FROM Users WHERE UserName='" + txtUser.Text + "' AND Password='" + txtPassword.Text + "'"; because if user enter Username name value likely ' Or 1=1 -- then it return true what's ever the value we have in password.

---

79 What is the namespace in which .NET has the data functionality class?

Answer: -
Following are the namespaces provided by .NET for data management:-

System. Data

This contains the basic objects used for accessing and storing relational data, such as DataSet, DataTable, and Data Relation. Each of these is independent of the type of data source and the way we connect to it.

System.Data.OleDB

It contains the objects that we use to connect to a data source via an OLE-DB provider, such as OleDbConnection, OleDbCommand, etc. These objects inherit from the common base classes, and so have the same properties, methods, and events as the SqlClient equivalents.

System.Data.SqlClient

This contains the objects that we use to connect to a data source via the Tabular Data Stream (TDS) interface of Microsoft SQL Server (only). This can generally provide better performance as it removes some of the intermediate layers required by an OLE-DB connection.

System.XML

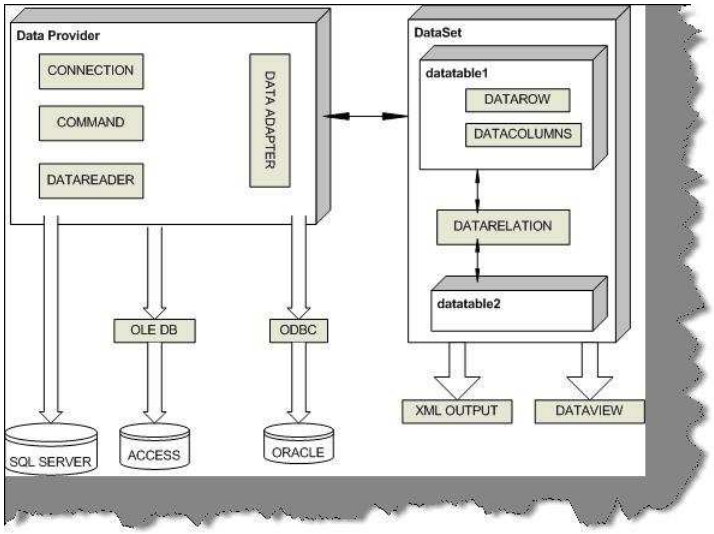
This Contains the basic objects required to create, read, store, write, and manipulate XML documents according to W3C recommendations.

---

80 Can you give an overview of ADO.NET architecture?

Answer: -
The most important section in ADO.NET architecture is "Data Provider". Data Provider provides access to data source (SQL SERVER, ACCESS, ORACLE).In short it provides object to achieve functionalities like opening and closing connection, retrieve data, and update data. In the below figure, you can see the four main sections of a data provider:-

• Connection
• Command object (This is the responsible object to use stored procedures)
• Data Adapter (This object acts as a bridge between data store and dataset)
• Data reader (This object reads data from data store in forward only mode).
• Dataset object represents disconnected and cached data. If you see the diagram, it is not in direct connection with the data store (SQL SERVER, ORACLE etc) rather it talks with Data adapter, who is responsible for filling the dataset. Dataset can have one or more Data table and relations.



• Data View" object is used to sort and filter data in Data table.

Note:- This is one of the favorite questions in .NET. Just paste the picture in your mind and during interview try to refer that image.

---

81 What are the two fundamental objects in ADO.NET?

Answer: -
Data reader and Dataset are the two fundamental objects in ADO.NET.

---

82 What is difference between dataset and data reader?

Answer: -
Following are some major differences between dataset and data reader:-

• Data Reader provides forward-only and read-only access to data, while the Dataset object can hold more than one table (in other words more than one row set) from the same data source as well as the relationships between them.

• Dataset is a disconnected architecture while data reader is connected architecture.

• Dataset can persist contents while data reader cannot persist contents, they are forward only.

---

83 What are major difference between classic ADO and ADO.NET?

Answer: -
Following are some major differences between both :-

• In ADO we have recordset and in ADO.NET we have dataset.

• In recordset we can only have one table. If we want to accommodate more than one tables we need to do inner join and fill the recordset. Dataset can have multiple tables.

• All data persist in XML as compared to classic ADO where data persisted in Binary format also.

---

84 What is the use of connection object?

Answer: -
They are used to connect a data to a Command object.

• An OleDbConnection object is used with an OLE-DB provider.

• A SqlConnection object uses Tabular Data Services (TDS) with MS SQL Server.

---

85 What is the use of command objects?

Answer: -
They are used to connect connection object to Data reader or dataset. Following are the methods provided by command object:-

• **ExecuteNonQuery: -**

Executes the command defined in the Command Text property against the connection defined in the Connection property for a query that does not return any row (an UPDATE, DELETE, or INSERT). Returns an Integer indicating the number of rows affected by the query.

• **ExecuteReader: -**

Executes the command defined in the Command Text property against the connection defined in the Connection property. Returns a "reader" object that is connected to the resulting row set within the database, allowing the rows to be retrieved.

• **ExecuteScalar: -**

Executes the command defined in the Command Text property against the connection defined in the Connection property. Returns only single value (effectively the first column of the first row of the resulting row set any other returned columns and rows are discarded. It is fast and efficient when only a "singleton" value is required

---

86 What is the use of data adapter?

Answer: -
These objects connect one or more Command objects to a Dataset object. They provide logic that would get data from the data store and populates the tables in the Dataset, or pushes the changes in the Dataset back into the data store.
• An OleDbDataAdapter object is used with an OLE-DB provider.

• A SqlDataAdapter object uses Tabular Data Services with MS SQL Server.

---

87 What are basic methods of Data adapter?

Answer: -
There are three most commonly used methods of Data adapter:-

Fill: -

Executes the Select Command to fill the Dataset object with data from the data source. It an also be used to update (refresh) an existing table in a Dataset with changes made to the data in the original data source if there is a primary key in the table in the Dataset.

FillSchema: -

Uses the SelectCommand to extract just the schema for a table from the data source, and creates an empty table in the DataSet object with all the corresponding constraints.Update:- Calls the respective InsertCommand, UpdateCommand, or DeleteCommand for each inserted, **updated**,or deleted row in the DataSet so as to update the original data source with the changes made to the content of the DataSet. This is a little like the UpdateBatch method provided by the ADO Recordset object, but in the DataSet it can be used to update more than one table.

---

88 What is Dataset object?

Answer: -
The Dataset provides the basis for disconnected storage and manipulation of relational data. We fill it from a data store, work with it while disconnected from that data store, then reconnect and flush changes back to the data store if required.

---

89 What are the various objects in Dataset?

Answer: -
Dataset has a collection of Data Table object within the Tables collection. Each Data Table object contains a collection of Data Row objects and a collection of Data Column objects. There are also collections for the primary keys, constraints, and default values used in this table, which is called as constraint collection, and the parent and child relationships between the tables. Finally, there is a Default View object for each table. This is used to create a Data View object based on the table, so that the data can be searched, filtered, or otherwise manipulated while displaying the data.

Note: - Look back again to the main diagram for ADO.NET architecture for visualizing this answer in pictorial form.

---

90 How can we connect to Microsoft Access, FoxPro, and Oracle etc?

Answer: -
Microsoft provides System.Data.OleDb namespace to communicate with databases like success , Oracle etc. In short, any OLE DB-Compliant database can be connected using System.Data.OldDb namespace.

Note :- Small sample of OLEDB is provided in "WindowsAppOleDb" which uses "Nwind.mdb" in bin directory to display data in Listbox.

```
Private Sub loadData()
Dim strPath As String
strPath = AppDomain.CurrentDomain.BaseDirectory
Dim objOLEDBCon As New OleDbConnection("Provider=Microsoft.Jet.OLEDB.4.0;Data Source =" & strPath & "Nwind.mdb")
Dim objOLEDBCommand As OleDbCommand
Dim objOLEDBReader As OleDbDataReader
Try

objOLEDBCommand = New OleDbCommand("Select FirstName from Employees")
objOLEDBCon.Open()
objOLEDBCommand.Connection = objOLEDBCon
```

```
objOLEDBReader = objOLEDBCommand.ExecuteReader()
Do While objOLEDBReader.Read()
lstNorthwinds.Items.Add(objOLEDBReader.GetString(0))
Loop
Catch ex As Exception
Throw ex
Finally
objOLEDBCon.Close()
End Try

End Sub
```

The main heart is the "Load data ()" method which actually loads the data in list box.

Note: - This source code has the connectionstring hard coded in the program itself which is not a good programming practice. For windows application the best place to store connectionstring is "App.config". Also note that "AppDomain.CurrentDomain.BaseDirectory" function gives the current path of the running exe which is "BIN" and the MDB file is in that directory. Also note that the final block which executes irrespective that there is error or not. Thus ensuring that all the connection to the datastore is freed. Its best practice to put all clean up statements in finally block thus ensuring that the resources are deallocated properly.

---

91 How do we connect to SQL SERVER, which namespace do we use?

Answer: -
Below is the code, after the code we will try to understand the same in a more detailed manner. For this sample, we will also need a SQL Table setup, which I have imported, using the DTS wizard.

```
Private Sub LoadData()
' note :- with and end with makes your code more readable
Dim strConnectionString As String
Dim objConnection As New SqlConnection
Dim objCommand As New SqlCommand
Dim objReader As SqlDataReader
Try
' this gets the connectionstring from the app.config file.
' note if this gives error see where the MDB file is stored in your pc and point to thastrConnectionString = AppSetting
' take the connectiostring and initialize the connection object
With objConnection
```

```
.ConnectionString = strConnectionString
.Open()
End With
objCommand = New SqlCommand("Select FirstName from Employees")
With objCommand
.Connection = objConnection
objReader = .ExecuteReader()
End With
' looping through the reader to fill the list box
Do While objReader.Read()
lstData.Items.Add(objReader.Item("FirstName"))
Loop
Catch ex As Exception
Throw ex
Finally
objConnection.Close()
End Try
```

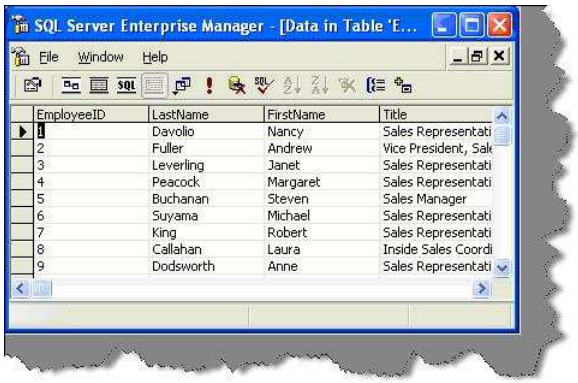
```
<appSettings>
<add key="Connectionstring" value="Server=ERMBOM1-IT2;User ID=sa;Database=Employees"/>
</appSettings>
```

Note: - The above code is provided in CD in folder WindowsAppSqlClient". Comments in the code do explain a lot but we will again iterate through the whole code later. "LoadData" is the main method which loads the data from SQL SERVER. Before running this code you have to install SQL SERVER in your machine. As we are dealing with SQLCLIENT we need to setup database in SQL SERVER. For this sample I have imported access "Nwind.mdb" in "SampleAccessDatabase" folder in CD in to SQlSERVER. Depending on computer you will also have to change the connectionstring in Web.config file.

For setting up the sample SQL table, we can use the DTS import wizard to import the table. See the below figure which is using data source as Microsoft Access. While importing the database author had, give the database name as "Employees".

Load only the Employee table.

To make it simple we will only import the employee table as that is the only thing needed in our sample code.



View of loaded Employee table

Now from interview point of view definitely you are not going to say the whole source code, which is given in the book. Interviewer expects only the broader answer of what are the steps needed to connect to SQL SERVER. For fundamental sake author has explained the whole source code. In short, you have to explain the "Load Data" method in broader way. Following are the steps to connect to SQL SERVER:-

• First imports the namespace "System.Data.SqlClient".

• Create a connection object as shown in "Load Data" method.

With objConnection
.Connection String = strConnectionString
.Open ()
End With

• Create the command object with the SQL. Also, assign the created connection object to command object and execute the reader.
ObjCommand = New SqlCommand ("Select First Name from Employees")

```
With objCommand
.Connection = objConnection
Breeder = .Execute Reader ()
```

```
End With
```

• Finally loop through the reader and fill the list box. If old VB programmers are expecting the move next command it is replaced by Read () which returns true if there is any data to be read. If the .Read () return is false that means that it's end of data reader and there is no more data to be read.

```
Do while objReader.Read ()
lstData.Items.Add (objReader.Item ("First Name"))
Loop
```

• Do not forget to close the connection object.

Note: - In "LoadData" you will see that connectionstring is stored in Web.config file and is loaded using "AppSettings.Item("ConnectionString")". While running this sample live on your database do not forget to change this connectionstring accordingly to your machine name and SQL SERVER or else the source code will not run.

---

92 How do we use stored procedure in ADO.NET and how do we provide parameters to the stored procedures?

Answer: -
ADO.NET provides the SqlCommand object, which provides the functionality of executing stored procedures.

Note :- Sample code is provided in folder "WindowsSqlClientCommand". There are two stored procedures created in same database "Employees" which was created for the previous question.

```
CREATE PROCEDURE SelectByEmployee @FirstName nvarchar(200) AS
Select FirstName from Employees where FirstName like @FirstName + '%'
CREATE PROCEDURE SelectEmployee AS
Select FirstName from Employees
If txtEmployeeName.Text.Length = 0 Then
objCommand = New SqlCommand("SelectEmployee")
Else
objCommand = New SqlCommand("SelectByEmployee")
objCommand.Parameters.Add("@FirstName", Data.SqlDbType.NVarChar, 200)
objCommand.Parameters.Item("@FirstName").Value = txtEmployeeName.Text.Trim()
End If
```

In the above sample, not much has been changed only that the SQL is moved to the stored procedures. There are two stored procedures one is "Select Employee" which selects all the employees and the other is "SelectByEmployee" which returns employee name starting with a specific character. As you can see to provide parameters to the stored procedures, we are using the parameter object of the command object. In such question interviewer expects two simple answers one is that we use command object to execute stored procedures and the parameter object to provide parameter to the stored procedure. Above sample is provided only for getting the actual feel of it. Be short be nice and get a job.

---

93 How can we force the connection object to close after my data reader is closed?

Answer: -
Command method Execute reader takes a parameter called as Command Behavior where in we can specify saying close connection automatically after the Data reader is close.

```
PobjDataReader = pobjCommand.ExecuteReader (CommandBehavior.CloseConnection)
```

---

94 I want to force the data reader to return only schema of the data store rather than data?
Answer: -
PobjDataReader = pobjCommand.ExecuteReader (CommandBehavior.SchemaOnly)

---

95 How can we fine-tune the command object when we are expecting a single row?

Answer: -
Again, CommandBehaviour enumeration provides two values Single Result and Single Row. If you are expecting a single value then pass "CommandBehaviour.SingleResult" and the query is optimized accordingly, if you are expecting single row then pass "CommandBehaviour.SingleRow" and query is optimized according to single row.

---

96 Which is the best place to store connection string in .NET projects?

Answer: -
Config files are the best places to store connection strings. If it is a web-based application "Web.config" file will be used and if it is a windows application "App.config" files will be used.

---

97 What are the steps involved to fill a dataset? OR How can we use data adapter to fill a dataset?

Answer: -
Sample code is provided in "WindowsDataSetSample" folder in CD."LoadData" has all the implementation of connecting and loading to dataset. This dataset is finally bind to a List Box. Below is the sample code.

```
Private Sub LoadData()
Dim strConnectionString As String
strConnectionString = AppSettings.Item("ConnectionString")
Dim objConn As New SqlConnection(strConnectionString)
objConn.Open()
Dim objCommand As New SqlCommand("Select FirstName from Employees")
```

```
objCommand.Connection = objConn
Dim objDataAdapter As New SqlDataAdapter()
objDataAdapter.SelectCommand = objCommand
Dim objDataSet As New DataSet
End Sub
```

In such type of questions interviewer is looking from practical angle, that have you worked with dataset and datadapters. Let me try to explain the above code first and then we move to what steps should be told during interview.

```
Dim objConn As New SqlConnection(strConnectionString)
objConn.Open()
```

First step is to open the connection. Again, note the connection string is loaded from config file.

```
Dim objCommand As New SqlCommand("Select FirstName from Employees")
objCommand.Connection = objConn
```

Second step is to create a command object with appropriate SQL and set the connection object to this command.

```
Dim objDataAdapter As New SqlDataAdapter()
objDataAdapter.SelectCommand = objCommand
```

Third steps is to create the Adapter object and pass the command object to the adapter object.

```
objDataAdapter.Fill(objDataSet)
```

Fourth step is to load the dataset using the "Fill" method of the data adapter.

```
lstData.DataSource = objDataSet.Tables(0).DefaultView
lstData.DisplayMember = "FirstName"
lstData.ValueMember = "FirstName"
```

Fifth step is to bind to the loaded dataset with the GUI. At this moment sample has list box as the UI. Binding of the UI is done by using Default View of the dataset. Just to revise every dataset has tables and every table has views. In this sample, we have only loaded one table i.e. Employees table so we are referring that with an index of zero.
Just say all the five steps during interview and you will see the smile on the interviewer's face and appointment letter in your hand.

---

98 What are the various methods provided by the dataset object to generate XML?

Note: - XML is one of the most important leap between classic ADO and ADO.NET.

So this question is normally asked more generally how can we convert any data to XML format. Best answer is convert in to dataset and use the below methods.

• ReadXML
Read's a XML document in to Dataset.

• GetXML
This is a function, which returns the string containing XML document.

• Writexml
This writes a XML data to disk.

---

99 How can we save all data from dataset?

Dataset has "Accept Changes" method, which commits all the changes since last time "Accept changes" has been executed.

Note: - This book does not have any sample of Acceptchanges. We leave that to readers as homework sample. But yes from interview aspect that will be enough.

---

100 How can we check that some changes have been made to dataset since it was loaded? OR How can we cancel all changes done in dataset? OR How do we get values, which are changed in a dataset?

For tracking down changes, Dataset has two methods, which comes as rescue "Get Changes "and "Has Changes".
Get Changes

Returns dataset, which are changed since it, was loaded, or since Accept changes was executed.
Has Changes

Or abandon all changes since the dataset was loaded use “Reject Changes This property indicates that has any changes been made since the dataset was loaded or accept changes method was executed.

Note: - One of the most misunderstood things about these properties is that it tracks the changes of actual database. That is a fundamental mistake; actually the changes are related to only changes with dataset and have nothing to with changes happening in actual database. As dataset are disconnected and do not know anything about the changes happening in actual database.

---

101 How can we add/remove row is in “Data Table” object of “Dataset”?

“Data table” provides “NewRow” method to add new row to “Data Table”. “Data Table” has “DataRowCollection” object that has all rows in a “Data Table” object.

Following are the methods provided by “DataRowCollection” object:-

Add
Adds a new row in Data Table

Remove
It removes a “Data Row” object from “Data Table”

Remove At
It removes a “Data Row” object from “Data Table” depending on index position of the “Data Table”.

---

102 What is basic use of “Data View”?

“Data View” represents a complete table or can be small section of rows depending on some criteria. It is best used for sorting and finding data with in “data table”.

Data view has the following methods:-

Find
It takes an array of values and returns the index of the row.

Find Row
This also takes array of values but returns a collection of “Data Row”.

If we want to manipulate data of “Data Table” object create “Data View” (Using the “Default View” we can create “Data View” object) of the “Data Table” object and use the following functionalities:-

Add New
Adds a new row to the “Data View” object.

Delete
Deletes the specified row from “Data View” object.

---

103 What is the difference between “Dataset” and “Data Reader”? OR Why is Dataset slower than Data Reader is?

Note: - This is my best question and we expect everyone to answer it. It is asked almost 99% in all companies....Basic very Basic cram it.

Following are the major differences between “Dataset” and “Data Reader”: -

• “Dataset” is a disconnected architecture, while “Data Reader” has live connection while reading data. If we want to cache data and pass to a different tier “Dataset” forms the best choice and it has decent XML support.

• When application needs to access data from more than one table “Dataset” forms the best choice.

• If we need to move back while reading records, “data reader” does not support this functionality.

• However, one of the biggest drawbacks of Dataset is speed. As “Dataset” carry considerable overhead because of relations, multiple table’s etc speed is slower than “Data Reader”. Always try to use “Data Reader” wherever possible, as it is meant especially for speed performance.

---

104 How can we load multiple tables in a Dataset?

```
objCommand.CommandText = "Table1"
objDataAdapter.Fill(objDataSet, "Table1")
objCommand.CommandText = "Table2"
objDataAdapter.Fill(objDataSet, "Table2")
```

Above is a sample code, which shows how to load multiple “Data Table” objects in one “Dataset” object. Sample code shows two tables “Table1” and “Table2” in object ObjDataSet.

```
lstdata.DataSource = objDataSet.Tables("Table1").DefaultView
```

In order to refer “Table1” Data Table, use Tables collection of Datasets and the Default view object will give you the necessary output.

---

105 How can we add relation between tables in a Dataset?

```
Dim objRelation As DataRelation
objRelation=New
DataRelation("CustomerAddresses",objDataSet.Tables("Customer").Columns("Custid")
,objDataSet.Tables("Addresses").Columns("Custid_fk"))
objDataSet.Relations.Add(objRelation)
```

Relations can be added between “Data Table” objects using the “Data Relation” object.

Above sample, code is trying to build a relationship between “Customer” and “Addresses” “Data table” using “Customer Addresses” “Data Relation” object.

---

106 What is the use of Command Builder?

Command Builder builds “Parameter” objects automatically. Below is a simple code, which uses command builder to load its parameter objects.

```
Dim pobjCommandBuilder As New OleDbCommandBuilder(pobjDataAdapter)
pobjCommandBuilder.DeriveParameters(pobjCommand)
```

Be careful while using “Derive Parameters” method as it needs an extra trip to the Data store, which can be very inefficient

---

107 What’s difference between “Optimistic” and “Pessimistic” locking?

In pessimistic locking when user wants to update data it locks the record and till then no one can update data. Other user's can only view the data when there is pessimistic locking.

In optimistic locking multiple users can open the same record for updating, thus increase maximum concurrency. Record is only locked when updating the record. This is the most preferred way of locking practically. Now a days in browser based application it is very common and having pessimistic locking is not a practical solution.

---

108 How many ways are there to implement locking in ADO.NET?

Following are the ways to implement locking using ADO.NET: -

• When we call "Update" method of Data Adapter it handles locking internally. If the Dataset values are not matching with current data in Database, it raises concurrency exception error. We can easily trap this error using Try. Catch block and raise appropriate error message to the user.

• Define a Date time stamp field in the table. When actually you are firing the UPDATE SQL statements, compare the current timestamp with one existing in the database. Below is a sample SQL which checks for timestamp before updating and any mismatch in timestamp it will not update the records. This I the best practice used by industries for locking.

Update table1 set field1=@test where Last Timestamp=@Current Timestamp

• Check for original values stored in SQL SERVER and actual changed values. In stored procedure check before updating that the old data is same as the current Example in the below shown SQL before updating field1 we check that is the old field1 value same. If not then some one else has updated and necessary action has to be taken.

Update table1 set field1=@test where field1 = @oldfield1value
Locking can be handled at ADO.NET side or at SQL SERVER side i.e. in stored procedures. For more details of how to implementing locking in SQL SERVER read "What are different locks in SQL SERVER?" in SQL SERVER chapter.

---

109 How can we perform transactions in .NET?

• Open a database connection using the Open method of the connection object.

• Begin a transaction using the Begin Transaction method of the connection object. This method provides us with a transaction object that we will use later to commit or rollback the transaction. Note that changes caused by any queries executed before calling the Begin Transaction method will be committed to the database immediately after they execute. Set the Transaction property of the command object to the above mentioned transaction object.

• Execute the SQL commands using the command object. We may use oneormorecommand objects for this purpose, as long as the Transaction property of all the objects is set to a valid transaction object.

• Commit or roll back the transaction using the Commit or Rollback method of the transaction object.

• Close the database connection.

---

110 What is difference between Dataset? Clone and Dataset. Copy?

Clone: - It only copies structure, does not copy data.
Copy: - Copies both structure and data.

---

111 Can you explain the difference between an ADO.NET Dataset and an ADO Record set?

There two main basic differences between record set and dataset: -

• With dataset you an retrieve data from two databases like oracle and sql server and merge them in one dataset , with record set this is not possible.

• All representation of Dataset is using XML while record set uses COM.

• Record set cannot be transmitted on HTTP while Dataset can be.

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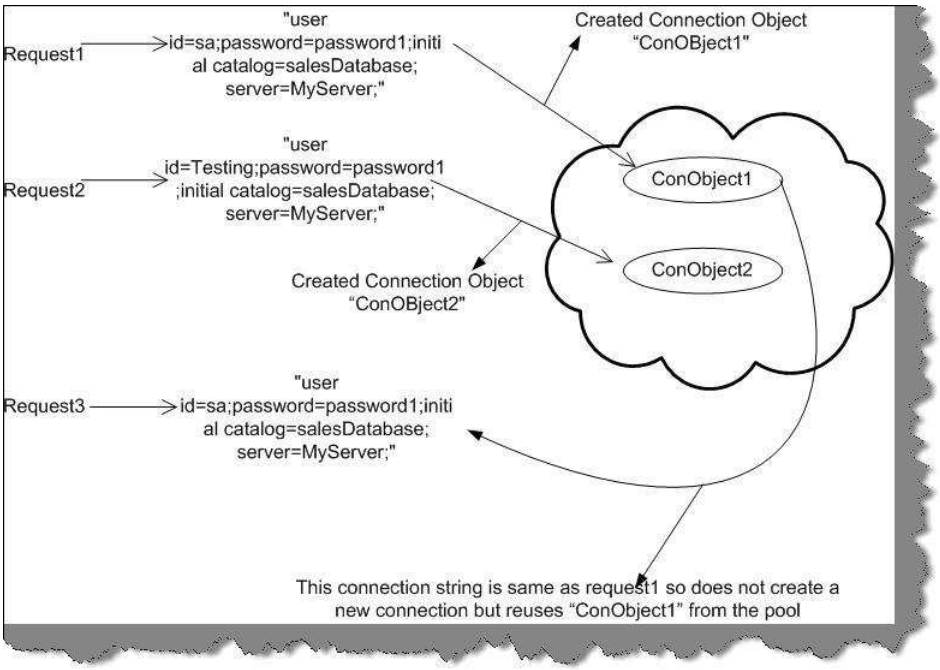
112 Explain in detail the fundamental of connection pooling?

When a connection is opened first time, a connection pool is created and is based on the exact match of the connection string given to create the connection object. Connection pooling only works if the connection string is the same. If the connection string is different, then a new connection will be opened, and connection pooling will not be used.



Connection Pooling action.

Let us try to explain the same pictorially. In the above figure, you can see there are three requests "Request1", "Request2", and "Request3". "Request1" and "Request3" have same connection string so no new connection object is created for "Request3" as the connection string is same. They share the same object "ConObject1". However, new object "ConObject2" is created for "Request2" as the connection string is different.

Note: - The difference between the connection string is that one has "User id=sa" and other has "User id=Testing".

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113 What is Maximum Pool Size in ADO.NET Connection String?

Maximum pool size decides the maximum number of connection objects to be pooled. If the maximum pool size is reached and there is no usable connection available the request is queued until connections are released back in to pool. So it's always a good habit to call the close or dispose method of the connection as soon as you have finished work with the connection object.

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114 How to enable and disable connection pooling?

For .NET it is enabled by default but if you want to just make sure set Pooling=true in the connection string. To disable connection pooling set Pooling=false in connection string if it is an ADO.NET Connection. If it is an OLEDBConnection object set OLE DB Services=-4 in the connection string.

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115 What extra features does ADO.Net 2.0 have?

Bulk Copy Operation
Bulk copying of data from a data source to another data source is a newly added feature in ADO.NET 2.0. ADO.NET inrtoduces bulk copy classes which provide fastest way to transfer\ data from once source to the other. Each ADO.NET data provider has bulk copy classes. For example, in SQL .NET data provider, the bulk copy operation is handled by SqlBulkCopy class, which can read a DataSet, DataTable, DataReader, or XML objects.

Data Paging
A new method is introduced ExecutePageReader which takes three parameters - CommandBehavior, startIndex, and pageSize. So if you want to get rows ony from 10 - 20, you can simply call this method with start index as 10 and page size as 10.

Batch Update
If you want to update large number of data on set ADO.NET 2.0 provides UpdateBatchSize property, which allows you to set number of rows to be updated in a batch. This increases the performance dramatically as round trip to the server is minimized.

Load and Save Methods
In previous version of ADO.NET, only DataSet had Load and Save methods. The Load method can load data from objects such as XML into a DataSet object and Save method saves the data to a persistent media. Now DataTable also supports these two methods. You can also load a DataReader object into a DataTable by using the Load method.

New Data Controls
In toolbox you can see three new controls - DataGridView, DataConnector, and DataNavigator.

DataReader's New Execute Methods
Some new execute methods introduced are ExecutePageReader, ExecuteResultSet, and ExecuteRow.
