WEB TECHNOLOGY

UNIT 2

Multiple Choice Questions:

1. ADO Full form –
   A. Available Data Object
   B. Available Data Operator
   C. ActiveX Data Object
   D. Active Data Operator

2. Which SqlCommand execution returns the number of affected records in the table?
   A. ExecuteNonQuery
   B. ExecuteReader
   C. ExecuteXmlReader
   D. ExecuteScalar

3. Which SqlCommand execution returns the value of the first column of the first row from a table?
   A. ExecuteNonQuery
   B. ExecuteReader
   C. ExecuteXmlReader
   D. ExecuteScalar

4. Which data provider gives the maximum performance from a connection to SQL Server?
   A. The OLE DB data provider.
   B. The JDBC data provider.
   C. The SqlClient data provider
   D. The Oracle data provider

5. In a SQL Statement while working with SqlCommand it returns a single value, at that time which method of Command Object will be used?
   A. ExecuteNonQuery
   B. ExecuteReader
   C. ExecuteScalar
   D. All of the above

6. When should you use the OleDbConnection object?
   A. When connecting to an Oracle database.
   B. When connecting to an Office Access database
   C. When connecting to SQL Server 2000
   D. None of the above

7. What datatype is returned when calling the ExecuteScalar method of a command object?
   A. System.Int32
   B. Object
   C. No. of affected records
   D. None of the above

8. If you want that command object should returns XML data then which method of Command Object will be used?
   A. getXMLData
   B. getXML
   C. ExecuteXMLReader
   D. None of the above

9. What are the Command Object Methods?
   A. ExecuteNonQuery
   B. ExecuteReader
   C. ExecuteScalar
   D. All of the above

10. Choose the correct option about DataSet object.

A. Provides Disconnected mode
B. Can store multiple table simultaneously
C. Consumer Object
D. All of the above

11. Choose the correct option about the DataReader object.

A. DataReader object is a forward-only object.
B. It provides a connection-oriented environment.
C. DataReader is a read-only object.
D. All of the above

12. Which ADO.NET class provides a Connected Environment?

A. DataReader
B. DataSet
C. Command
D. one of the above

13. Which ADO.NET class provides a Disconnected Environment?

A. DataReader
B. DataSet
C. Command
D. None of the above.

14. What are the three main objects of DataSet?

A. DataTable, DataColumn, and type.
B. DataTable, DataRelation, and DataAdapter.
C. DataTable, DataColumn, and DataRelation..
D. DataReader,DataAdapter, and Command.

15. Which file you should write for the connection string, so that you can access it on all the web pages for the same application?

A. In the App_Data folder
B. In Web. config file
C. In MasterPage file
D. None of the above

16. Which of the following denotes the property in every validation control?

A. ControlToValidate property
B. Text property
C. Both A. and B
D. None of the Above

17. Which method do you invoke on the DataAdapter control to load your generated dataset with data?

A. Load ( )
B. Fill( )
C. DataList
D. DataBind

18. Which of the following is not a member of ADOBCommand object?

A. ExecuteReader
B. ExecuteScalar
C. ExecuteStream
D. Open

19. DTD Stands for –

A. Data Type Declaration
B. Data Type Definition
C. **Document Type Declaration**
D. Document Type Defination

20.Binding control to the information stored in data base is called-

A. Data Reader
C. Data Binding
B. Data Class
D. Data Control

21. Which one is not an building blocks of XML-

A. Element
C. Attribute
B. Entity
D. HTML

22.PC Data is a text that will be parsed by –

A. Command
C. Character
B. Parser
D. Compiler

23. Which control is not an example for Single bounded Data Control-

A. Text Box
C. Image Control
B. Lable
D. List Box

24. Which control is not an example for Multi- item Data bound Control-

A.
List Box
D.Dropdown list box
B. Lable
C. Bulleted Lis tBox

Long Answer Questions:

1. What is the use of ADO.NET? Explain the advantages of it.

ADO.NET is the database technology of the .NET platform, and it builds on ADO(ActiveX Data Objects). ADO.NET is an object-oriented set of libraries that allows you to interact with data sources. Commonly, the data source is a database, but it could also be a text file, an Excel spreadsheet, or an XML file.

Advantages:

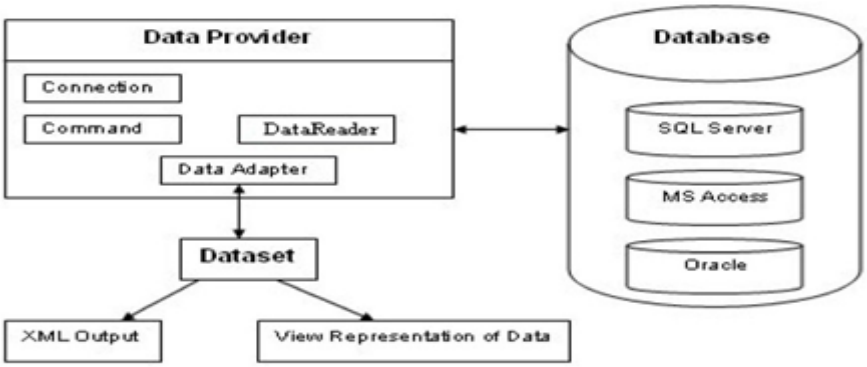
Interoperability - All data in ADO.NET is transported in XML format, meaning it's simply a structured text document that can be read by anyone on any platform.

Scalability - The client/server model is out. ADO.NET promotes the use of disconnected datasets, with automatic connection pooling bundled as part of the package.

Productivity - You can't just pick it up and run, but ADO.NET can certainly improve your overall development time. For example, "Typed DataSets" help you work quicker and produce more bug-free code.

Performance - Because ADO.NET is mainly about disconnected datasets, the database server is no longer a bottleneck and hence applications should incur a performance boost.

2. Explain ADO.Net Architecture.



ADO.NET is a data access technology from Microsoft .Net Framework, which provides communication between relational and non-relational systems through a common set of components. ADO.NET consists of a set of Objects that expose **data access services** to the .NET environment. Data Access in ADO.NET relies on two components: **Dataset and Data Provider.**

3. What is DataSet? Explain.
   - The dataset is a disconnected, in-memory representation of data.
   - It can be considered as a local copy of the relevant portions of the database.
   - The DataSet is persisted in memory and the data in it can be manipulated and updated independent of the database. When the use of this DataSet is finished, changes can be made back to the central database for updating.
   - The data in DataSet can be loaded from any valid data source like Microsoft SQL server database, an Oracle database or from a Microsoft Access database. As with all disconnected data classes, the DataSet isn't specific to any data provider.
   - The structure of a ‒**System.Data.DataSet**‖ is similar to that of a relational database. Itis organized in a hierarchical object mode of tables, rows, columns, constraints, and relationships

   The DataSet object is made up of two objects:
   - DataTableCollection‖ object containing null or multiple _DataTable‘ objects(Columns, Rows, Constraints).
   - DataRelationCollection‖ object containing null or multiple _DataRelation‘ objects which establish a parent/child relation between two _DataTable‘objects.

4. What is DataProvider? Explain.
   - The Data Provider is responsible for providing and maintaining the connection to the database.
   - A DataProvider is a set of related components that work together to provide data in an efficient and performance driven manner.
   - The data provider consists of a number of data source-specific components that allow us to connect to and communicate with individual data sources.
   - Each dataprovider resides in its own namespace within the “System.Data” namespace.
     - The data provider for SQL Server- This resides in the “System.Data.SqlClient” namespace you and need to use the OLE DB provider.
     - The data provider for OLE DB- This is used to connect to data sources through OLEDB and resides in the “System.Data.OleDb” namespace.
     - The data provider for ODBC-The ODBC provider can be used to connect to databases which have ODBC drivers. The ODBC data provider namespace is “Microsoft.Data.Odbc”.
     - The data provider for ORACLE- This resides in the “System.Data.Oracle”namespace, and is used to connect to Oracle database server.

5. What DataAdapter? Explain.

- The DataAdapter class serves as a bridge between a DataSet and a data source.
- TheDataAdapter both retrieves a DataSet from a data source and updates any changes made to the DataSet back to the data source.

Dataadapter has four different properties which controls database updates. The properties are "Select Command","Updat eCommand","Insert Command"and "Delete Command".

These commands are used to read, update, add and delete records from a database respectively.

DataAdapter has several methods associated with it. Most commonly used methods among them are listed below:

Fill: Fill method is used to fetch records from the database and update them into the datatables of dataset. Uses Select Command for execution. Syntax for

Fill method is :

sampleAdapter.Fill(employeeset,‖Employee‖);

Here sample Adapter is a SqlDataAdapter containing select query for Employee, employee set is the dataset and Employee is the database table.

FillSchema: Fill Schema method is used to create an empty table in dataset containing the same schema as that of a specific table in the database. Constraints of the corresponding database table is also copied and reflected in the data table of dataset. Uses Select Command for execution but copies only the schema of the table and not the data. Syntax for this method is shown
below:
sampleAdapter.FillSchema(empDataSet, SchemaType.Source, "Employee");

Here emp DataSet is the dataset and Employee is the database table name.

Dispose: This method is used to release all resources used by the data adapter. Here is the syntax:

sampleAdapter.Dispose();

6. Explain the difference between DataSet and DataReader.

'Dataset' and 'Datareader' are the two main objects of ADO.NET that are used to read and manipulate data from data store. Differences between them are tabulated below:

Data Set	Data Reader
1. The data store whose records have to be manipulated can be disconnected.	1. You can read data from datareader only if the connection to data store exists.
2. You have the provision to cache data fetched from data store when using dataset.	2. Caching of data is not possible.
3. Dataset objects have XML Support.	3. XML Support is not provided by datareader.
4. A single 'dataset' object can contain collection of 'datatable' objects wherein each 'datatable' object refers to a table in the 'datastore'. Hence you can manipulate on multiple tables using a dataset.	4. Datareader can read records fetched by a command object containing a single query. If you have to fetch data from multiple tables, then datareader is not advantageous when compared to dataset.
5. Using dataset, you can read the records fetched in any order.	5. While reading records, you can iterate only in forward direction.
6. Performance wise, dataset is slow because it has multiple tables which in turn include multiple rows, columns and constraints.	6. Datareader gives high performance and records can be fetched faster when compared to dataset.

7. What is the use of Command Object? Explain the methods and properties.

- The Command class is provided by all standard ADO.NET providers, and it almost alwaysencapsulates a SQL statement or a stored procedure call that can be executed against a data source.
- Command objects can retrieve rows; directly insert, delete, or modify records;calculate totals and averages; alter the structure of a database; or fill a disconnectedDataSet when used with a DataAdapter.
- To execute a Command, you use one of the Command object methods, including **ExecuteNonQuery( )**, **ExecuteReader( ),** and **ExecuteScalar( ),** depending on the type of Command.

  Command objects commonly provide three methods that are used to execute commands on the database:

ExecuteNonQuery:	Executes commands that have no return values such as INSERT, UPDATE or DELETE
ExecuteScalar:	Returns a single value from a database query (return first column of the first row in the resultset.)
ExecuteReader:	Returns a result set by way of a DataReader object

8. What is the use of DataReader ? Explain how to use DataReader in ADO.NET.

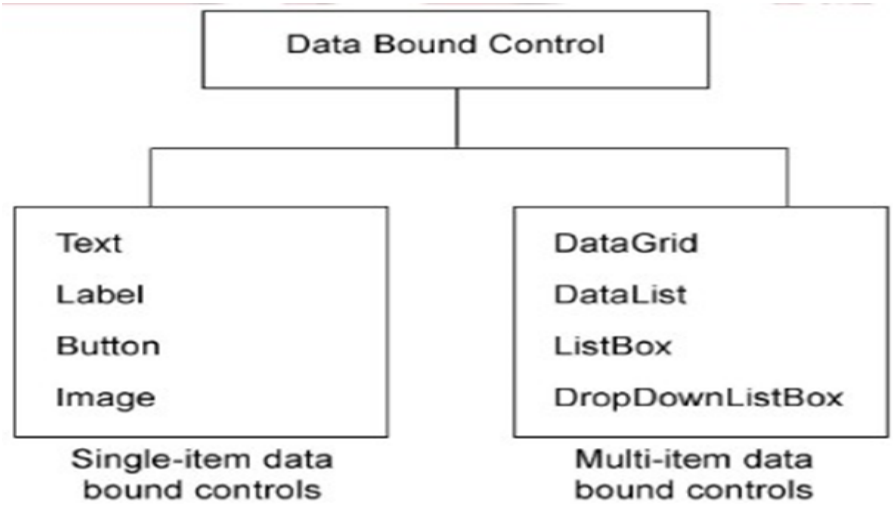
- The DataReader object represents a read-only, forward-only stream of data, which is ideal for quickly retrieving query results.
- Best of all, because the DataReader loads only a single row into memory at a time, it has a small in-memory footprint.
- You can't create a **DataReader** directly. Instead, you must use the **ExecuteReader( )**method of a **Command** object that returns a **DataReader.**

Imagine these lines of code in a console application:

```
// create connection object for Microsoft Access OLE DB Provider
OleDbConnection myConnection = new OleDbConnection(@"Provider=Microsoft.Jet.OLEDB.4.0;" +
                                                   @"Data Source=C:\Test.MDB");
// open connection object
myConnection.Open();

// create SQL command object on this connection
OleDbCommand myCommand = myConnection.CreateCommand();

// initialize SQL SELECT command to retrieve desired data
myCommand.CommandText = "SELECT Column1 FROM Table1";

// create a DataReader object based on previously defined command object
OleDbDataReader myReader = myComman\d.ExecuteReader();

while (myReader.Read())
{
        Console.WriteLine("{0}", myReader["Column1"]);
}
myReader.Close();
myConnection.Close();
```

9. Write a note on Data Binding?

Data binding means binding controls to the information stored in a data store. Here, the term "data" is used in a very broad sense. When we talk about data binding, it implies binding any control property to almost any kind of data store. A data store can be as simple as a public property on a page, or as complex as a database stored on a server.



ASP.NET provides a rich set of data-bound server controls. These controls are easy to use and provide **Rapid Application Development** (RAD) Web development. You can categorize these controls into two groups: —

- **single-item data-bound control**
- **multi-item data-bound controls**.

You use the **single-item data-bound** controls to display the value of a single item of a database table. These controls don't provide direct binding with the data source. You use the **Text, Caption,** or **Value** property of these controls to show the data in a field.
Examples of single-item data-bound controls are **textboxes, buttons, labels, images**, and so on.

You use the **multi-item data-bound controls** to display the entire or partial table. These controls provide direct binding to the data source. You use the **_Data Source** property of these controls to bind a database table to these controls.
Some examples of multi-item data-bound controls are DataGrid, List Box, Data List, Dropdown List, and so on.

10. What are List data-bound Controls? Explain.

List controls are used to display simple option lists. The ASP.NET 2.0 Framework includes the following five list controls:

- BulletedList- Displays a bulleted list of items. Each item can be displayed as text, a link button, or a hyperlink.
- CheckBoxList- Displays a list of checkboxes. Multiple checkboxes in the list can be selected.
- DropDownList Displays a drop-down list. Only one item in the drop-down list can be selected.
- ListBox- Displays a list box. You can configure this control so that only one item in the list can be selected or multiple items can be selected.
- RadioButtonList- Displays a list of radio buttons. Only one radio button can be selected. All five controls inherit from the same base List Control class.

The bulleted list control includes a DataSourceID attribute, which points to the ID of the SqlDataSource control. The data sourced attribute associates a data-bound control with a data source control.

11. What are tabular data-bound Controls? Explain.

The tabular Data Bound controls are the main set of controls that you use when working with database data. These controls enable you to display and, in some cases, modify data retrieved from a database or other type of data source.

There are five tabular Data Bound controls. These controls can be divided into two types: those that display multiple data items at a time and those that display a single data item at a time.

First, you can use any of the following controls to display a set of data items:

- Grid View- Displays a set of data items in an HTML table. For example, you can use the Grid View control to display all the records contained in the Movies database table. This control enables you to display, sort, page, select, and edit data.
- Data List- Displays a set of data items in an HTML table. Unlike the Grid View control, more than one data item can be displayed in a single row.
- Repeater- Displays a set of data items using a template. Unlike the Grid View and Data List controls, a Repeater control does not automatically render an HTML table.

You can use either of the following two controls to display a single data item at a time:

- Details View- Displays a single data item in an HTML table. For example, you can use the Details View control to display a single record from the Movies database table. This control enables you to display, page, edit, and add data.
- Form View- Uses a template to display a single data item. Unlike the Details View, a Form View enables you to lay out a form using templates.

12. Write a note on XML?

XML stands for **E**xtensible **M**arkup **L**anguage. It is a text-based markup language derived from Standard Generalized Markup Language (SGML).

XML tags identify the data and are used to store and organize the data, rather than specifying how to display it like HTML tags, which are used to display the data. XML is not going to replace HTML in the near future, but it introduces new possibilities by adopting many successful features of HTML.

There are three important characteristics of XML that make it useful in a variety of systems and solutions −

- **XML is extensible** − XML allows you to create your own self-descriptive tags, or language, that suits your application.
- **XML carries the data, does not present it** − XML allows you to store the data irrespective of how it will be presented.
- **XML is a public standard** − XML was developed by an organization called the World Wide Web Consortium (W3C) and is available as an open standard.

XML Usage

A short list of XML usage says it all −

- XML can work behind the scene to simplify the creation of HTML documents for large websites.
- XML can be used to exchange information between organizations and systems.
- XML can be used for offloading and reloading of databases.
- XML can be used to store and arrange the data, which can customize your data handling needs.

13. What are the difference between XML and HTML?

XML	**HTML**
Describes the data	Displays the data
Tags are not pre-defined	Tags are pre-defined
Case sensitive	Not case sensitive
Displays error message if there is error in the code	Doesn't display error message if there is error in the code
XML designed to transport and store data	HTML designed only to display data
Uses XML parser to execute the program	No additional software required to run the program

14 Write a note on XML Document.

All XML documents should contain a root element. This element is the parent of other elements. The elements in a XML document forma document tree, The tree starts at the root and branches to the lowest level of the tree. All elements that have sub elements are called parents. The sub elements are called children. All children at the same level are called siblings.

Syntax:

```
<root>
  <child>      <subchild>.....</subchild>
</child>
 </root>
```

Example:

```
 <employee>
<details>
        <fname> Jahnavi </fname>
        <lname> Achar  </lname>
   </details>
 <employee>
```

15. What are the building blocks of XML document?

All XML documents are made up of the following building blocks:

- ✓ Elements
- ✓ Attributes
- ✓ Entities
- ✓ PCDATA
- ✓ CDATA

Elements

Elements are the basic building blocks of XML. Elements can contain text, other elements

or be empty

Example:

<body>some text</body>

<message>some text</message>

Attributes

Attributes provide extra information about elements. They provide characteristics of an element. Attributes are always placed inside the opening tag of an element. Attributes always come in name/value pairs.

Example:

<body bgcolor= “pink”>

Entities

Some characters have a special meaning in XML, like the less than sign (<) that defines the start of an XML tag.

Most of you know the HTML entity: " ". This "no-breaking-space" entity is used in HTML to insert an extra space in a document. Entities are expanded when a document is parsed by an XML parser.

The following entities are predefined in XML:

Entity References	**Character**
&lt;	<
&gt;	>
&amp;	&
&quot;	"
&apos;	'

PCDATA

PCDATA means parsed character data. . PCDATA is text that WILL be parsed by a parser. Think of character data as the text found between the start tag and the end tag of an XML element The text will be examined by the parser for entities and markup. Tags inside the text will be treated as markup and entities will be expanded. However, parsed character data should not contain any &, <, or > characters; these need to be represented by the & < and > entities, respectively.

CDATA

CDATA means character data. CDATA is text that will NOT be parsed by a parser. Tags inside the text will NOT be treated as markup and entities will not be expanded.