**Basics of ADO .NET**

**Ques 1:Describe all the data provider objects with sample code?**

**Answer:**Database providers are used to provide us database connectivity.

There are four types of data provider objects:

Connection, Command, Datareader and Data Adapter.

**Connection:** when we have to connect with the database first we have to make a connection string which consists of the server name, database name and authentication which is windows authentication or sql server authentication.

<connectionStrings>

<add name="sqlconn" connectionString="Data Source=DESKTOP-222DMDH\SQLEXPRESS;database=BootCamp2020;user id=sa;password=xxxxx" providerName="System.Data.SqlClient"/>

</connectionStrings>

**Command:** As the name suggested that command to give order to do something. In this command we perform the Sql Query give Query to the connection object to perform the query.

**Data Reader:** Data reader is used to read data from the database.No manipulation can be done using data reader.Before entering the reader we can modify the data,after entering into reader no changes are allowed

**Data Adapter:** Data Adapter is generally used for disconnected architecture.

Note: Sample Code Refer to the project.

**Ques 2:Difference between connected and disconnected architecture?**

**Answer: Connected Architecture:**  Connected Architecture is the architecture in which connection with the database is available all the time. To execute any query connection needs to be open.

**Disconnected Architecture:** Disconnected architecture means connection is not always established with the database. In this first we fetch the data from the database then perform the operation on the database then reestablish the connection with the database.

**Ques 3:Describe how to improve system performance with the use of database caching?**

**Answer:**When connecting with the database it may take time to render the information from the database every time.Using caching once the data is fetched from the database it is saved in the cache and in future the data is fetched through cache thus increasing the speed of execution.

If we are using cache,even if the database is not running in the same machine we can use the data stored in cache.

**Ques 4:What are the differences between DataReader, DataAdapter and DataSet?**

**Answer:**

**DataReader:**It is used to fetch records from the database through SQL queries or stored procedures.It holds the connection till the operations are not completed.It fetches one row at a time and returns true if row is not read then it returns false.It can be traversed only in forward direction.

**DataAdapter:**It is used to fetch the data into a DataSet or DataTable.It fetches all rows at once and due to this reason it is slower than DataReader.It can be traversed both in forward and backward direction.The connection is closed as soon as the data is fetched.

**DataSet:**It can hold one or more data tables.It is a disconnected architecture.It contains constructors and methods to perform operations on the data.

**Ques 5:What are the methods of XML dataset objects.**

**Answer:**

1. **GetXml():**Retrieves XML representation in DataSet in a single string.
2. **ReadXml():**Reads XML data from a file,XmlReader or StreamObject to configure data into DataSet.
3. **WriteXml():**Write the contents of the DataSet to a file, XmlWriter, or Stream object.