SHREE H. N. SHUKLA COLLEGE OF I.T & MGMT

(Affiliated to Saurashtra University)

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PGDCA – SEM-2 - C#.NET

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CS – 09: PROGRAMMING WITH C#		
Unit No.	**Topics**	**Details**
1	**Introduction**	Introduction to visual studio 2008 Visual studio editions Visual studio IDE
	C# Basics	▪ Variables, Constants, Strings ▪ Data types ▪ Arrays ▪ Decision statements ▪ Loop statements ▪ Exception using try-catch-finally ▪ NameSpace ▪ Class ▪ Object ▪ Struct
2	**Inheritance**	▪ Inheriting a class ▪ Sealed class ▪ Overloading an operator ▪ Overloading a method ▪ Overloading an Indexer ▪ Creating an Interface ▪ Implementing an Interface ▪ Inheriting an Interface
	Pointers and Delegates	▪ Pointers ▪ Pointers to Arrays ▪ Pointers to Structures ▪ Delegate ▪ Declaring and Instantiating Delegate ▪ Multicast delegate ▪ Creating events ▪ Chaining events ▪ Firing an event

3	Threading in C#	- Introduction - Difference between process and thread - The thread class - Multithreading - Thread Priorities - Thread Synchronization
	Collection and Generics	**Understanding Collections:** ArrayList, BitArray, HashTable, Queue, SortedList, Stack, Generics, Generic List, Generic Stack, Generic Queue, GenericHashSet
4	Reflection in C#	Reflection, Why we need Reflection?, Using Reflection, Dynamic loading and reflection
	Windows Forms and Control Programming	Windows Forms: MsgBox, DialogBox, Handling Mouse, Events, Handling Key Events Basic Control Programming For Following: Controls, Button, Label, TextBox, RichTextBox, RadioButton, CheckBox ListBox, CheckedListBox, ComboBox, ListView, TreeView, ImageList, PictureBox Panel, GroupBox, TabControl, ScrollBar ToolTip, NotifyIcon, Timer, ProgressBar
5	ADO.NET Programming	Architecture of ADO. NET Data providers in ADO.NET: Connection Command DataReader DataAdapter DataSet: DataTable DataView DataColumn DataRow DataRelation DataReader DataGridView Control Introduction to LINQ Using LINQ to Dataset Example

Chapter-5 :- ADO.NET Programming

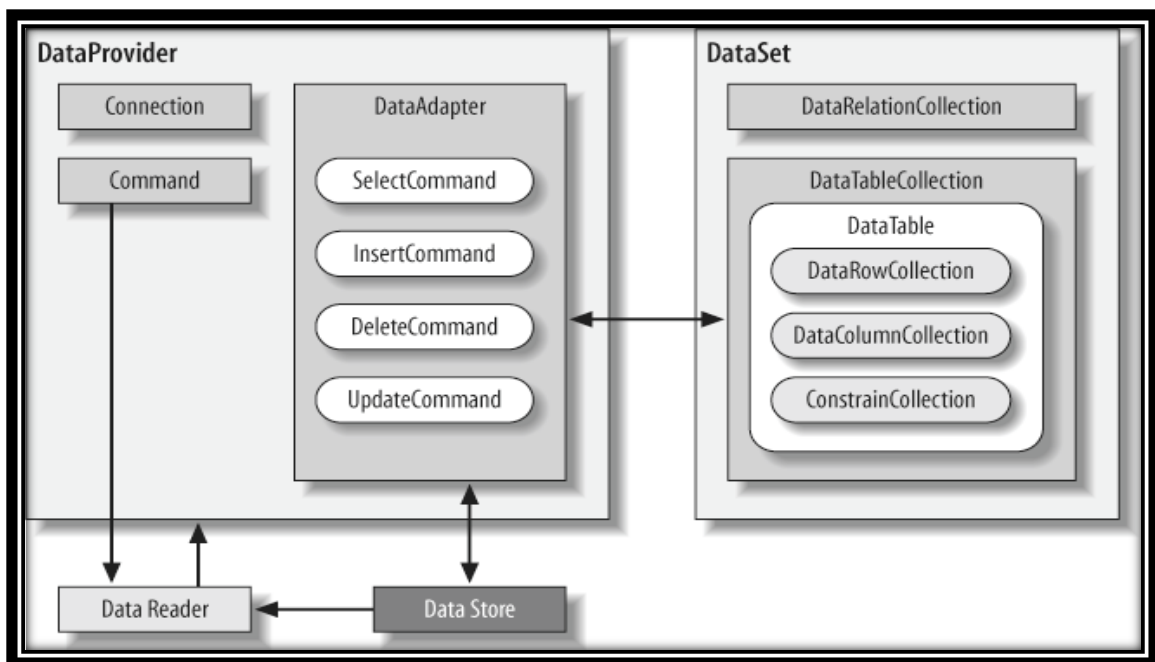| Topics	
ADO.NET Programming	Architecture of ADO. NET Data providers in ADO.NET: Connection Command DataReader DataAdapter DataSet: DataTable DataView DataColumn DataRow DataRelation DataReader DataGridView Control Introduction to LINQ Using LINQ to Dataset Example

Topic: What is ADO.Net? Explain ADO.Net architecture

Ans:

- ADO stands for Active X Data Object
- ADO is used to connect application with database in Visual Basic
- ADO.Net is the extension of ADO which is used to connect application with database in Microsoft .Net Platform
- ADO.Net is the collection of classes, interfaces that manage data access from relational data stores within .Net framework.
- Namespace to be included is: using System.Data.SqlClient

ADO.Net Architecture:

A

🐾 ADO.Net architecture provides two main components:
  - o Data Provider
  - o Data set

Topic: Write a short note on Data Provider

Data Provider:

🐾 .Net data provider acts as a bridge between the application and the data source to execute the commands and retrieve the results.

🐾 There are 4 core components:
  * Connection Object
  * Command Object
  * Data Reader Object
  * Data Adapter Object

Connection Object:

🐾 To transfer the data between the application and the database, we must connect to the database.

🐾 ADO.Net provides the connection object which enables us to establish and manage the connection with database.

Command Object:

🐾 After establishing the connection with database, we can use command object for processing request in the form of command and returning the results of those requests from the database.

Data Reader Object:

🐾 It is helpful to read the data in sequential manner. It allows only one row of data to be stored in the memory at any point of time.

DataAdapter Object:

🔴 This object facilitates communication between data source and dataset. It is used to transfer the data from database to dataset and vice versa.
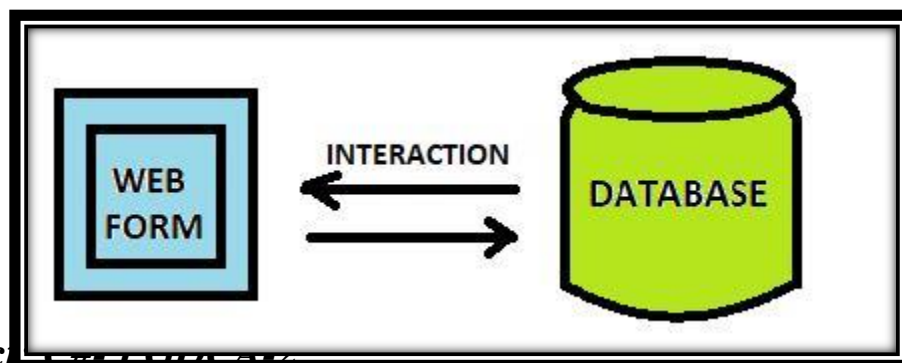
Types of .Net data providers are:

1) System.Data.Oledb (Object Linking and Embedding Database): It allows you to access any type of database like access, SQL Server etc.
2) System.Data.Odbc (Object Database Connectivity): It allows you to access only Microsoft Access database but you have to create DSN (Data source name)
3) System.Data.SqlClient: It allows you access only SQL Server

Topic: Write a short note on connected and disconnected architecture

Ans:

Connected Architecture:

🔴 The architecture of ADO.Net in which connection must be opened to access the data retrieved from the database is known as connected architecture.

🔴 Connected architecture is used when you constantly make trips to the database for any operations.
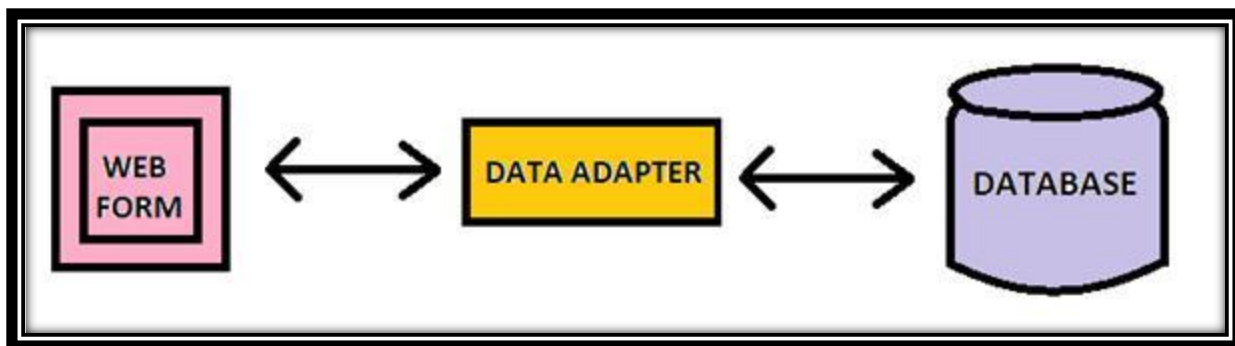
🔴 Data Reader is used in connected architecture

Disconnected Architecture:

- 🌱 In this architecture, data retrieved form database can be accessed when the connection to the database was closed.
- 🌱 In this architecture, connection does not remain alive throughout the application
- 🌱 Data Adapter is used in disconnected architecture

- 🌱 Data Adapter class acts as an mediator between application and database. It provides the data to the Dataset which helps the user to perform the operations and finally the modifications are done in the Dataset which is passed to the Data Adapter which updates the database.
- 🌱 Data Adapter takes the decision for the establishment and termination of the connection.

Difference between Connected and Disconnected Architecture:

Connected Architecture	Disconnected Architecture
1) It is connection oriented that is connection remains alive throughout the application	1) It is not connection oriented that is Connection does not remains alive throughout the application
2) In this, Data reader is used	2) In this, data adapter is used
3) It can read data of single table only	3) Data of multiple tables can be read
4) Data is read only	4) Data is not read only. Modifications can be done

Topic: Explain Data Table, Data set, Data Row, Data Column, Data view?

Ans:

Data Table:

🦋 Data table is a class which is a representation of single database table which has collection of rows and columns.

Data Row and Data Column:

🦋 Data row and Data column are the primary components of Data table.

🦋 Data row object represents a table row and the Data column object represents column of the table.

Data set:

🦋 Data set is the collection of data tables.

Data View:

- The main function of data view object is to allow data binding on both windows forms and web forms.
- Data view enables you to create different views of the data stored in data table, the feature that is used for data binding applications.

Topic: Write a short note on Data Gridview

Ans:

- The data Gridview control provides a powerful and flexible way to display the data in tabular format.
- Data Gridview allows you to display and edit tabular data from many different kinds of data sources.
- It is generally used for data binding.
- Data Gridview provides many properties, methods, appearance, and behavior.

Topic: Differentiate Data set and Data reader

Data set	Data Reader
Data set is used in disconnected architecture	Data reader is used in connected architecture
Data set is used to hold tables with data	Data reader is used to retrieve a read only data from data source
Dataset can persist the data	Data reader can not persist the data

Data set is the collection of data table objects	Data reader points to a single table
It occupies more memory	It occupies less memory
Data set keeps record of data row	Data reader keeps the record of data rows.

Topic: Write a short note on LINQ

Ans:

- 🦋 LINQ stands for Language Integrated Query
- 🦋 LINQ is a set of extensions to the .Net framework that merge language integrated query set and transform operations.
- 🦋 LINQ defines standard query operators that are available in namespace System. LINQ. With these query operators, you can perform selection, filtering, partitioning of data from any data type.
- 🦋 LINQ to SQL allows you to bind the data to many of the common controls such as combo box, grid controls etc.