

Advance Programming Techniques (APT)

Lecture # 5

Ehtisham Rasheed

Department of Computer Science
University of Gurjat, Gujrat

UNIVERSITY OF GUJRAT



Object Oriented Programming

- Procedural programming
 - Writing procedures or methods to perform specific operations on data
- Object Oriented Programming
 - Creating objects that contain both data and methods
- Advantages of OOP
 - Faster and easier to execute
 - It provides clear structure for the programs
 - With OOP code is easier to maintain, modify and debug
 - It provides code reusability and shorter development time

Object Oriented Programming

- Class
 - Class is a template for objects
 - For Example: Fruit, Car
- Object
 - Object is an instance of a class
 - Banana, Apple, Mango are instances of class **Fruit**
 - Picanto, City, Corolla are instances of class **Car**

Classes in C#

- Create class and object in C#
- Multiple objects
- Accessing class members
- Using multiple classes
- Constructors
- Constructor parameters

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Access Modifiers in Classes

- Public
- Private
- Protected
- Internal

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C# Properties and Encapsulation

- Encapsulation is a technique to make sure that “sensitive” data is hidden from users. To achieve this, we must
 - Declare variables as **private**
 - Provide public **get** and **set** methods, through **properties**

Properties

```
class Person
{
    private string name; // field

    public string Name    // property
    {
        get { return name; }    // get method
        set { name = value; }    // set method
    }
}
```

Properties (Short Hand)

```
class Person
{
    public string Name // property
    { get; set; }
}

class Program
{
    static void Main(string[] args)
    {
        Person myObj = new Person();
        myObj.Name = "Liam";
        Console.WriteLine(myObj.Name);
    }
}
```