

Class X

Computer Application

Topic - Encapsulation

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Good Morning Student

This lesson is for class X for the Subject of Computer Application and Submitted to you on 07.10.2024. In this lesson we learn about Data hiding, Scope of variables and Class variables.

Before going further let's discuss about the visibility modes.

There are three types of visibility modes:

- * Public Visibility mode: If we derive a subclass from a public base class.

- * Protected visibility mode: if we derive a subclass from a protected base class.

- * Private Visibility mode: if we derive a subclass from a private base class.

and for these visibility modes public members are accessible in all the classes.

Protected members are accessible inside their own class, classes within the package and subclasses.

Private members are accessible inside only their own class

These modes are provided to the users to have flexibility in their programming techniques. Public members are members which can be accessed outside a class's visibility that used out of a class. This is more clear to you with given example.

Class Sum

```
{ public int x, y, z;  
  void add()  
  {  
    Z = x + y;  
  }  
  void display()  
  { System.out.println ("Sum of the 2 number" + Z);  
  }  
}
```

Class Abc

```
{ public static void main (String args[])  
  {
```

```
    Sum ob = new Sum();
```

```
    ob.x = 5;
```

```
    ob.y = 8;
```

Accessing public data members x, y and z outside the class Sum.

```
    ob.add();
```

```
    ob.display();
```

```
  }
```

```
}
```

In this data members x , y and z are the public members of class Sum. These instance variables are obviously used within the class but can also be accessed outside the class's visibility if required.

A class member that is data or function not declared under any visibility mode are by default said to be public.

Use of Private Data Members

Private members of a class are not accessed outside the resident class. The data or function declared under private visibility can only be used within the same class. If a data member is private, then it can only be used within the member functions of that class. you can better understand with given example

Class Sum

```
{ private int x,y,z;  
  void getvalue()  
  {  
    x=5;  
    y=8;  
  }  
  void add()  
  {  
    z=x+y;  
  }  
}
```

Private members are used only within the class Sum

```
void display()
{
    System.out.println("Sum of the numbers : "+z);
}
}

class Abc
{
    public static void main (String args[])
    {
        Sum ob = new Sum();
        ob.getValue();
        ob.add();
        ob.display();
    }
}
```

Private members x, y and z cannot be used in this area

In this program, the data members x, y and z are declared private. Hence, they cannot be used in the main class Abc. The use of these data members is restricted within the class Sum.

Now, the use of `ob.x=5` and `ob.y=8` in the main class Abc is completely invalid. It will result in an error stating x and y are private members of class 'Sum'.

With this I end the topic here. Use of Private Member Method covered in next assignment.

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