

**Name: M Omar Masood**

**Id: 14305**

**Subject: Object Oriented Software Engineering**

**Submitted to: Sir Ayub**

Q1. What is Class and role of object in a Class, explain in detail with the help of a suitable program ?

**Ans: Class:**

A class is a set of instruction to build a specific type of object. It is a user-defined data type, which holds its own data members and member functions, which can be accessed and used by creating an instance of that class.

**Role of object:**

Any entity that has state and behavior is known as an object. It can be physical or logical.

An object is an entity which consists of methods and properties to make a particular type of data useful. When you call an object, you are asking the object to invoke or execute one of its methods. An object can be a data structure, a variable or a function. It has a memory location allocated. The object is designed as class hierarchies. Objects can communicate without knowing the details of each other's data or code. The only necessary thing is the type of message accepted and the type of response returned by the objects. When an object is called the concerned class is executed and its functionality is performed then the class returns the result to the object.

**Example:**

```
import java.util.Scanner;  
  
//creating first class  
public class ClassObject {
```

```
    public static void main(String[] args) {  
        int Value;  
        //creating new object for second class  
        Second object = new Second();  
  
        // output of calling object  
        System.out.println(object.w);  
    }  
}  
  
//creating second class for calling object  
class Second{  
  
    //define a Value for output  
    int w=89;  
}
```

**OUTPUT**

```
TablePrinting.java ClassObject.java Car.java
1 import java.util.Scanner;
2
3 public class ClassObject { //creating first class
4
5     public static void main(String[] args) {
6         int Value;
7         Second object = new Second(); //creating new object for second class
8         System.out.println(object.w); // output of calling object
9
10    }
11
12 }
13 class Second { //creating second class for calling object
14     int w=89; //define a Value for output
15 }
```

Problems Javadoc Declaration Console

<terminated> ClassObject [Java Application] C:\Program Files\Java\jdk-13.0.2\bin\javaw.exe (Apr 20, 2020, 3:52:25 PM - 3:52:25 PM)

89

Q2. Write a program about table printing which takes input from the user on the basis of OOP and explain in detail.

**Ans:**

```
import java.util.Scanner;
```

```
public class TablePrinting {
```

```
    public static void main(String[] args) {
        //Here we create an object of class
        Scanner obj = new Scanner(System.in);
        //Here we print the output of taking user input
        System.out.println("Enter the Value =");

        int x = obj.nextInt(); //Read the User input

        for(int y=1;y<=10;y++)
        {
```

```

        }
    }
}

//Table printing of entered user
System.out.println(x*y);
}
}
}

```

## OUTPUT:

The screenshot shows an IDE window titled 'TablePrinting.java' with the following code:

```

1 import java.util.Scanner;
2
3 public class TablePrinting {
4
5     public static void main(String[] args) {
6         //Here we create an object of class
7         Scanner obj = new Scanner(System.in);
8         //Here we print the output of taking user input
9         System.out.println("Enter the Value =");
10
11         int x = obj.nextInt(); //Read the User input
12
13         for(int y=1;y<=10;y++)
14         {
15             //Table printing of entered user
16             System.out.println(x+"x"+y+"="+x*y);
17         }
18     }
19 }
20

```

The console output shows the program execution:

```

Enter the Value =
4
4x1=4
4x2=8
4x3=12
4x4=16
4x5=20
4x6=24
4x7=28
4x8=32
4x9=36
4x10=40

```

Q3. Write a program about any 2 cars which can calculate the performance of both of them and explain in detail.

## ANS:

```

public class Car {

    public static void main(String[] args) {
        //we create object of both class ferrari and fordCar
        Ferrari fer = new Ferrari();
    }
}

```

```
FordCar ford= new FordCar();
```

```
    //Here we compare all attributes for ferrari if ferrari attributes is high  
    if(fer.MaxSpeed>ford.MaxSpeed && fer.Engine>ford.Engine &&  
fer.suspension>ford.Engine)  
    {  
        System.out.println("Ferrari is the fastest");  
        System.out.println("And Ford is slower than Ferrari");  
    }
```

```
    //Here we compare all attributes for ford if ford attributes is high  
    if(fer.MaxSpeed<ford.MaxSpeed && fer.Engine<ford.Engine &&  
fer.suspension<ford.Engine)  
    {  
        System.out.println("Ford is the fastest");  
        System.out.println("And Ferrari is slower than Ford");  
    }
```

```
}
```

```
class Ferrari{ //Here we add some data of first car  
    int MaxSpeed = 251;  
    double Engine = 2.7;  
    double suspension = 57;  
}
```

```
class FordCar{ //Here we add some data of Second car  
    int MaxSpeed = 250;  
    double Engine = 2.6;  
    double suspenson = 56.1;  
}
```

## OUTPUT:

```
TablePrinting.java ClassObject.java Car.java
1
2 public class Car {
3
4     public static void main(String[] args) {
5         //we create object of both class ferrari and fordCar
6         Ferrari fer = new Ferrari();
7         FordCar ford= new FordCar();
8
9         //Here we comapare all atributes for ferrari if ferrari attributes is high
10        if(fer.MaxSpeed>ford.MaxSpeed && fer.Engine>ford.Engine && fer.suspension>ford.Engine)
11        {
12            System.out.println("Ferrari is the fastest");
13            System.out.println("And Ford is slower than Ferrari");
14        }
15
16        //Here we comapare all atributes for ford if ford attributes is high
17        if(fer.MaxSpeed<ford.MaxSpeed && fer.Engine<ford.Engine && fer.suspension<ford.Engine)
18        {
19            System.out.println("Ford is the fastest");
20            System.out.println("And Ferrari is slower than Ford");
21        }
22    }
23
24
25 class Ferrari{ //Here we add some data of first car
26     int MaxSpeed = 251;
27     double Engine = 2.7;
28     double suspension = 57;
```

Problems Javadoc Declaration Console

<terminated> Car [Java Application] C:\Program Files\Java\jdk-13.0.2\bin\javaw.exe (Apr 20, 2020, 3:45:57 PM – 3:45:57 PM)

Ferrari is the fastest  
And Ford is slower than Ferrari