Object Oriented Programing

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

A class is a user identifier/Defined prototype which is blueprint before the object is created. Using an object we can create different objects. Class contains properties and methods which are same for all objects. In the declaration of the class we use modifiers private (which can be only accessible within the class) and public (Which can be accessible outside of the class and the last one is body of the class in which we can specify modifiers, properties, and methods of the class. While object can be created same as we are declaring variables but here we can declare an object using the class name. The same rules will be applied on object declaration as we are applying on variable declaration. In short object represents some entity in real world.

For Example: A bike is an entity having properties (Name, Model, Price, Color etc.) and Methods (Start, Stop, Speed and so on.)

The following is the program of the above Bike example
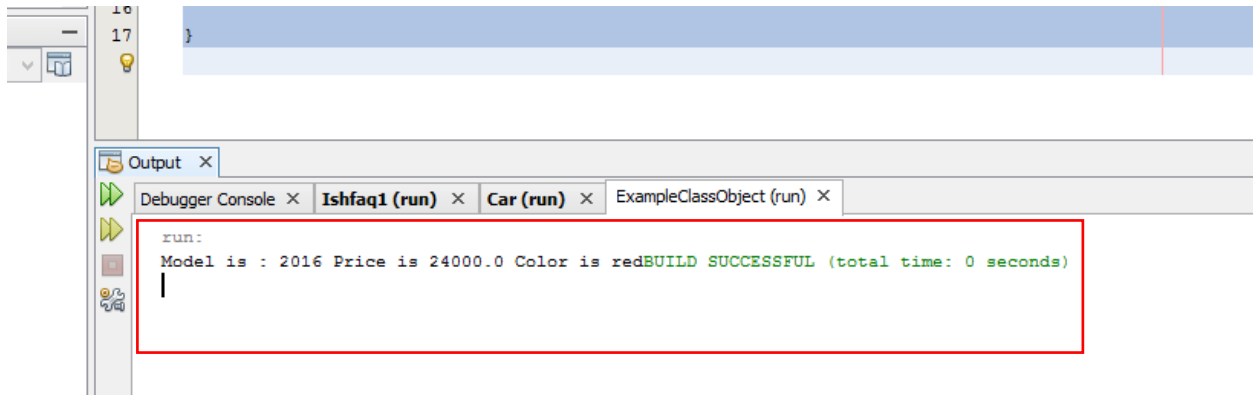
Program Example:

```
package exampleclassobject;

public class ExampleClassObject {

    int model=2016;

    double price=24000;

    String color="red";

  void disply(){

  System.out.print("Model is : "+model+" Price is "+price+" Color is "+color);

  }

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

```
        ExampleClassObject obj=new ExampleClassObject();

        obj.disply();

    }  }
```

Program Output:

--------------------------------Question Number 1 Ended Here-------------------------

Q2. Write a program about table printing which takes input from the user on the basis of OOP and explain in detail.
Program:
```
package ishfaq;
import java.util.Scanner;

public class Ishfaq {

            void msg()
            {
 Scanner s = new Scanner(System.in);
   System.out.println("Enter Start No");
   int Sno = s.nextInt();

    System.out.println("Enter End No");
   int Eno = s.nextInt();

   System.out.println("Enter Table No");
```
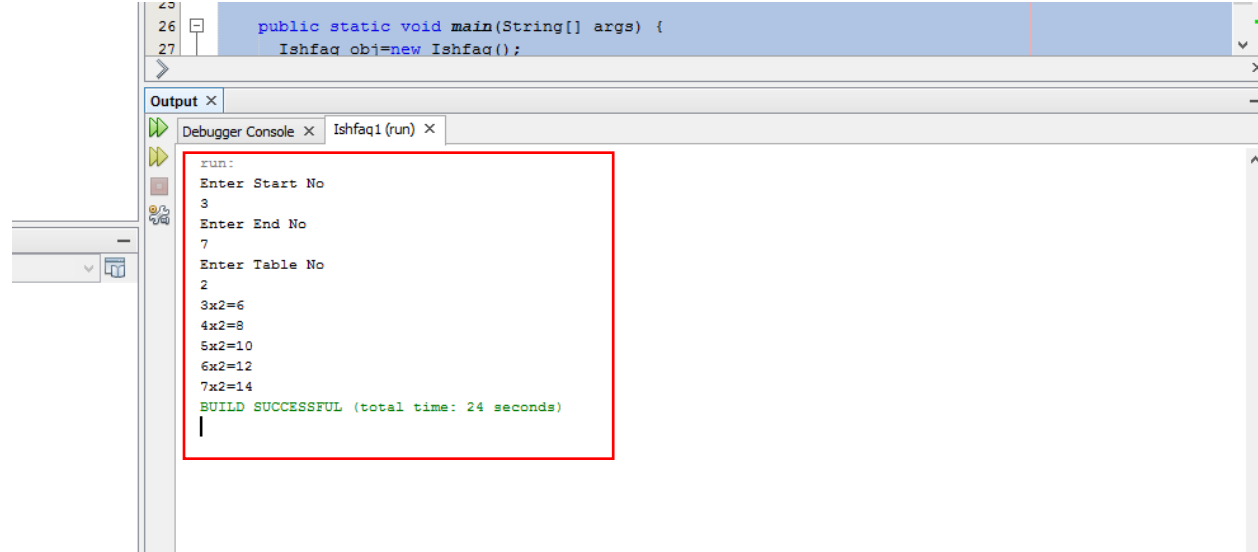
```java
    int TbNo = s.nextInt();
  for(int i=Sno;i<=Eno;i++)
        {
System.out.print(i+"x"+TbNo+"="+i*TbNo+"\n");


        }
}
   public static void main(String[] args) {
     Ishfaq obj=new Ishfaq();
        obj.msg();
   }
}
```

OUTPUT:

Explanation: First of all I created class of my name Ishfaq.Inside of the class a method msg() is declared which takes 3 inputs from the users ,first one is to take Start value(int Sno) of the table from user,Second input is the end value(int Eno) from the user, and the last input is the table number(int TbNo) which can be taken from the user. All these inputs are taken at the execution time.
After taking the input from user there is for loop applied which has counter variable i should be start from Sno and End with Eno, inside the for loop counter variable is displayed corresponding with the multiplication of counter variable and TbNo.

-----------------Question No 3 Ended here---------------

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

Program :

```java
package car1;
import java.util.Scanner;
public class Car1 {
   public Fun(){
      Scanner s = new Scanner(System.in);

            System.out.print("Enter the distance: ");
            double distace = s.nextDouble();
            System.out.print("Enter miles per gallon: ");
            double milesPerGallon = s.nextDouble();
            System.out.print("Enter price per gallon: ");
            double pricePerGallon = s.nextDouble();


            double PerfOfDriving = (distace / milesPerGallon) * pricePerGallon;

            // Display result
            System.out.println("The Performance of car is " + PerfOfDriving);
   }
 public static void main(String[] args) {
   Car1 C1=new Car1();
   Car1 C2=new Car1();
   System.out.print("Taking Input for Car1 : \n");
   C1.Fun();
   System.out.print("\nTaking Input for Car2 : \n");
   C2.Fun();
      }

}
```

OUTPUT:

```
21          Car1 C1=new Car1();
22          Car1 C2=new Car1();
23          System.out.print("Taking Input for Car1 : \n");
24          C1.Fun();
```

Output ×

Debugger Console ×   Ishfaq1 (run) ×   Car (run) ×   Car1 (run) ×

```
run:
Taking Input for Car1 :
Enter the driving distace: 10
Enter miles per gallon: 5
Enter price per gallon: 4
The Performance of car is 8.0

Taking Input for Car2 :
Enter the driving distace: 20
Enter miles per gallon: 10
Enter price per gallon: 8
The Performance of car is 16.0
BUILD SUCCESSFUL (total time: 32 seconds)
```

Explanation:

In the above program there is class with the name of Car1,inside the class there is a method Fun() which consists of the following instructions :

1: Creating object for input which can take value at run time

2: Asking from the user to enter the distance

3: Taking the distance of double type datatype

4: Asking Miles per gallons

5: Accepting 4th Statements from the user

6: Taking Price per Gallon from the user

7: Accepting the 6th instruction from the user

8: Calculating Performance

9: Displaying Performance on the screen

In the main function there are two objects C1 and C2 which are Car1 type's objects. Both Objects are calling the Fun() method and obviously this method is calculating performance of two cars.

---------Question Number 3 Ended here------------