



IQRA National University, Peshawar

Name	Muhammad hashim khan
ID	16001
Teacher	sir ayub
Assignment	mid term
Subject	oops
Samester	2 nd

Q no 1: What is Class and role of object in a Class, explain in detail with the help of a suitable program ?

Ans:

Class:

- It is template or blueprint from which object are created.
- It is a logical entity.it can't be physical.
- A class in java can contain.
 - Fields (variable)
 - Methods
 - Constructors
 - Block
 - Nested class and interface

Object:

- An entity has state and behavior is known as an objects an object has three characteristics.

1. **State:**represents data (value)of an objects.
2. **Bahavior:** represents the behavior (functionality)of an object such as deposite, withdraw etc...
3. **Identity:** object identy is a typically implemented via a unique id. The value of the id is not visiable to the external user .but, it is used internally by the jvm to identity each object uniquely.

Relation between class and objects.

- **Obects:** is an instance of a class .
- **Class:**is a template or blueprint from which objects are created.
- So objects is the instance (result)of a class .
- In another way,we can say that objects are variables of type class.

Instance variable in java: A variable which is created inside the class but outside the method is known as instance variable

Method in java:

- In java, a method is like a function i.e used to expose behavior of an object.

Advantage of method

- Code reusability .
- Code optimization.

For example:

```
package all;

public class Main {

    public static void main(String[] args) {
        student roll = new student();
        System.out.println("this is the student id" + roll.id);
    }
}

class student {
    int id = 16001;
}
```



The screenshot displays an IDE window with a project named 'untitled10'. The main editor shows the following Java code:

```
1 package all;
2
3 public class Main {
4
5     public static void main(String[] args) {
6         student roll = new student();
7         System.out.println("this is the student id" + roll.id);
8     }
9 }
10 class student {
11     int id = 16001;
12 }
13
```

Below the editor, the 'Run' console shows the execution of the 'Main' class. The command executed is:

```
"C:\Program Files\Java\jdk-13.0.2\bin\java.exe" "-ja
this is the student id16001
```

Q no 2: Write a program about table printing which takes input from the user on the basis of OOP and explain in detail.

This is a Java Program to Print Multiplication Table for any Number.

Enter any integer number as input of which you want multiplication table. After that we use for loop from one to ten to generate multiplication of that number.

Here is the source code of the Java Program to Print Multiplication Table for any Number. The Java program is successfully compiled and run on a Windows system. The program output is also shown below.

Program

```
package multi;

import java.util.Scanner;

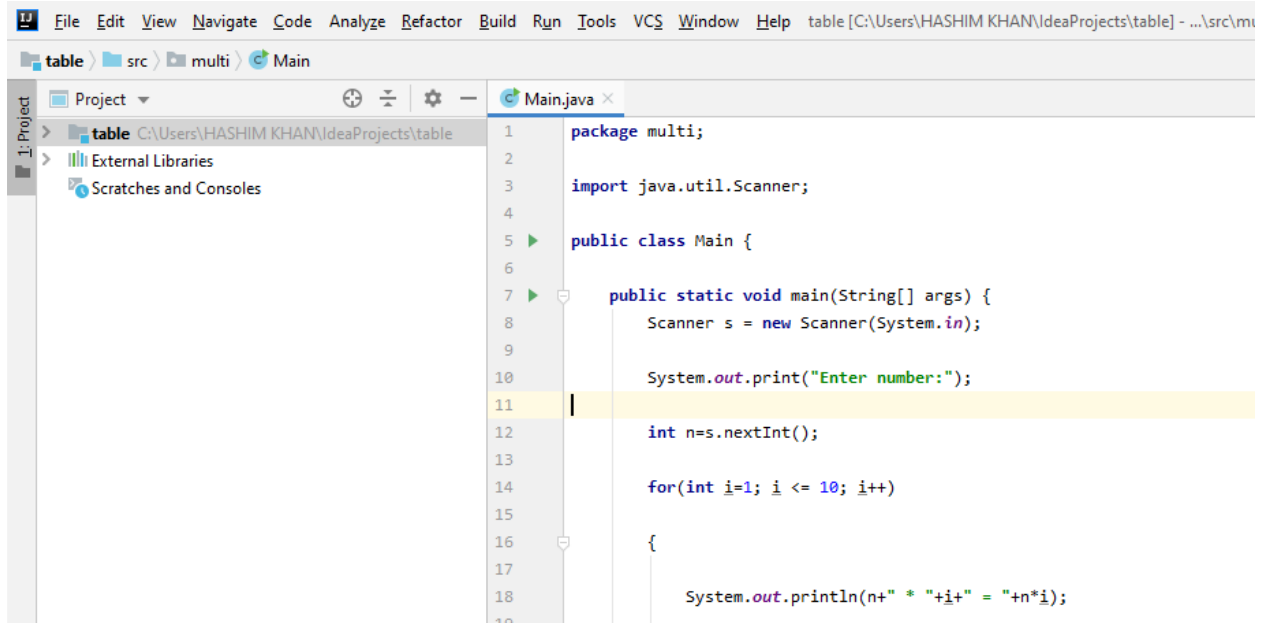
public class Main {

    public static void main(String[] args) {
        Scanner s = new Scanner(System.in);

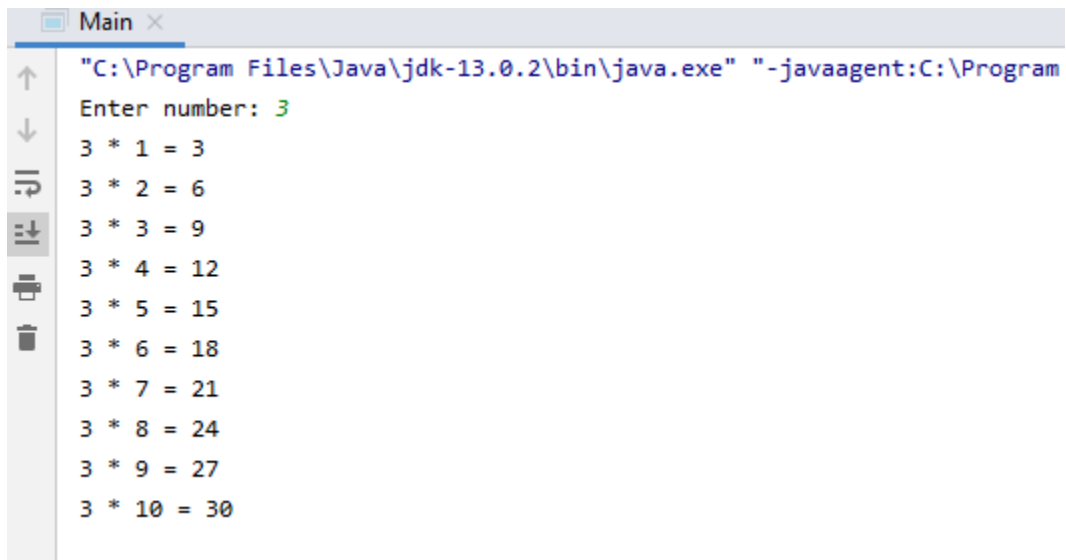
        System.out.print("Enter number:");

        int n=s.nextInt();

        for(int i=1; i <= 10; i++)
        {
            System.out.println(n+" * "+i+" = "+n*i);
        }
    }
}
```



```
1 package multi;
2
3 import java.util.Scanner;
4
5 public class Main {
6
7     public static void main(String[] args) {
8         Scanner s = new Scanner(System.in);
9
10        System.out.print("Enter number:");
11
12        int n=s.nextInt();
13
14        for(int i=1; i <= 10; i++)
15
16        {
17
18            System.out.println(n+ " * "+i+ " = "+n*i);
19
20        }
```



```
Main x
"C:\Program Files\Java\jdk-13.0.2\bin\java.exe" "-javaagent:C:\Program
Enter number: 3
3 * 1 = 3
3 * 2 = 6
3 * 3 = 9
3 * 4 = 12
3 * 5 = 15
3 * 6 = 18
3 * 7 = 21
3 * 8 = 24
3 * 9 = 27
3 * 10 = 30
```

Q no 3: Write a program about any 2 cars which can calculate the performance of both of them and explain in detail.

Ans:

```
package farari;

public class Main {

    public static void main(String[] args) {
        //this is the program of any car performance
        khancar altu=new khancar();
        khancar honda=new khancar();
        altu.maximumspeed=260;
        altu.minimumspeed=220;
        altu.fuelcapsity=120;
        altu.fuelconsuming=20.3;
        honda.maximumspeed=240;
        honda.minimumspeed=200;
        honda.fuelcapsity=110;
        honda.fuelconsuming=15.2;
        System.out.println("this is the maximum speed of altu="+altu.maximumspeed +
"km/hour");
        System.out.println("this is the minimum speed of altu="+altu.minimumspeed +
"km/hour");
        System.out.println("this is the maximum speed of honda="+honda.maximumspeed +
"km/hour");
        System.out.println("this is the minimum speed of honda="+honda.minimumspeed +
"km/hour");
        System.out.println("this is the altu car performance");
        altu.carperformance();
        System.out.println("this is the honda car performance");
        honda.carperformance();
    }
}

class khancar {
    int maximumspeed;
    int minimumspeed;
    double fuelcapsity;
    double fuelconsuming;
    void carperformance()
    {
        double p;
        p = minimumspeed/fuelconsuming;
        System.out.println("this is the car performance"+ p);
    }
}
```

```

1 package farari;
2
3 public class Main {
4
5     public static void main(String[] args) {
6         //this is the program of any car performance
7         khancar altu=new khancar();
8         khancar honda=new khancar();
9         altu.maximalspeed=260;
10        altu.minimalspeed=220;
11        altu.fuelcapsity=120;
12        altu.fuelconsuming=20.3;
13        honda.maximalspeed=240;
14        honda.minimalspeed=200;
15        honda.fuelcapsity=110;
16        honda.fuelconsuming=15.2;
17        System.out.println("this is the maximum speed of altu="+altu.maximalspeed + "km/hour");
18        System.out.println("this is the minimum speed of altu="+altu.minimalspeed + "km/hour");
19        System.out.println("this is the maximum speed of honda="+honda.maximalspeed + "km/hour");
20        System.out.println("this is the minimum speed of honda="+honda.minimalspeed + "km/hour");
21        System.out.println("this is the altu car performance");
22        altu.carperformance();
23        System.out.println("this is the honda car performance");
24        honda.carperformance();
25    }
26 }
27 class khancar {
28     int maximalspeed;
29     int minimalspeed;

```

```

int minimalspeed;
double fuelcapsity;
double fuelconsuming;
void carperformance()
{
    double p;
    p = minimalspeed/fuelconsuming;
    System.out.println("this is the car performance"+ p);
}
}

```

```
int minimumspeed;  
double fuelcapsity;  
double fuelconsuming;  
void carperformance()  
{  
    double p;  
    p = minimumspeed/fuelconsuming;  
    System.out.println("this is the car performance"+ p);  
}  
}
```

So this is the program to print the performance of car .

So first of all we open our jdk intelli j. After open intelli j

We take a class which name is khanscar. We take four interger of this program .

In this program we use void function .

In this program is print out the altu and honda car performance .

They program print the maximum speed . minimum speed .

Car performance.