BCA – II Semester- 2025

Object-Oriented Programming with Java- Practical

Part B

1. Write a Java program to implement multiple inheritance through **Interfaces**.

2. Create a package to convert temperature in centigrade into Fahrenheit, and one more package to calculate the simple Interest. Implement both package in the main () by accepting the required inputs for each application**. [packages]**

3. Write a Program that implements a multi-threaded program having three threads. First thread generates a random integer every second, and if the value is even, second thread computes the square of the number and prints. If the value is odd the third thread will print the value of cube of the number**.[Multithreading]**

Part B

1. Write a Java program to implement multiple inheritance through **Interfaces**.

```
        // Defining the Shape interface
interface Shape {
   void draw();
}

        // Implementing the Circle class
class Circle implements Shape {
         //Override
   public void draw() {
      System.out.println("Drawing a Circle");
   }
}

        // Implementing the Rectangle class
class Rectangle implements Shape {
         //Override
   public void draw() {
      System.out.println("Drawing a Rectangle");
   }
}

        // Implementing the Triangle class
class Triangle implements Shape {
        //Override
   public void draw() {
      System.out.println("Drawing a Triangle");
   }
}

        // Main class
public class ShapeDrawing {
   public static void main(String[] args) {
        // Creating objects of Circle, Rectangle, and Triangle
      Shape myCircle = new Circle();
      Shape myRectangle = new Rectangle();
      Shape myTriangle = new Triangle();

         // Calling draw method
      myCircle.draw();
      myRectangle.draw();
```

```
    myTriangle.draw();
    }
}
```

```
C:\Users\HP\Desktop\YenJava>javac ShapeDrawing.java

C:\Users\HP\Desktop\YenJava>java ShapeDrawing
Drawing a Circle
Drawing a Rectangle
Drawing a Triangle
```

2. Create a package to convert temperature in centigrade into Fahrenheit, and one more package to calculate the simple Interest. Implement both package in the Main () by accepting the required inputs for each application**. [packages]**

```
/* Program to Convert Centigrade to Fahrenheit.*/
package pack1;
public class temp
{
   float c,f;
   public void getval(float a)
   {
      c=a;
      System.out.println("Temp in Celsius: "+c+"degree");
   }
   public void ctof()
   {
      f=(float)(c*1.8f)+32;
      System.out.println("Temp in Farenheit: "+f);
   }
}

/*Program to calculate simple interest*/
package pack2;
public class simple
{
   float p,t,r,si;
   public void getdata(float a,float b,float c)
   {
      p=a;
      t=b;
      r=c;
   }
```

```
    public void cal()
    {
        si=p*t*(r/100);
        System.out.println("Simple Interest is="+si);
    }
}

import pack1.temp;
import pack2.simple;
import java.util.Scanner;
class DemoPackage
{
    public static void main(String[] args)
    {
        temp c1=new temp();
        simple s1=new simple();
        Scanner in=new Scanner(System.in);
        int a;
        float b,c,x;
        System.out.println("Enter the Temparature in Centigrades :");
        x=in.nextFloat();
        c1.getval(x);
        c1.ctof();
        System.out.println("Enter the value to calculate Simple Interest");
        System.out.println("Enter the Amount :");
        a=in.nextInt();
        System.out.println("Enter the Duration :");
        b=in.nextFloat();
        System.out.println("Enter the Rate :");
        c=in.nextFloat();
        s1.getdata(a,b,c);
        s1.cal();
    }
}
```

```
C:\Users\HP\Desktop\YenJava>javac DemoPackage.java

C:\Users\HP\Desktop\YenJava>java DemoPackage
Enter the Temparature in Centigrades :
28
Temp in celsius28.0degree
Temp in Farenheit82.399994
Enter the value to calculate Simple Interest
Enter the Amount :
5000
Enter the Duration :
5
Enter the Rate :
3.6
Simple Interest is=899.99994
```

3. Write a Program that implements a multi-threaded program having three threads. First thread generates a random integer every second, and if the value is even, second thread computes the square of the number and prints. If the value is odd the third thread will print the value of cube of the number**.[Multithreading]**

```
import java.io.*;
import java.util.*;
class First extends Thread
{
   public void run()
   {
      for(;;)
      {
         int r;
         Random d = new Random();
         r = d.nextInt(200)+1;
         try
         {
            Thread.sleep(1000);
            if(r%2==0)
            {
               Thread t2 = new Second(r);
               t2.start();
            }
            else
            {
               Thread t3 = new Third(r);
               t3.start();
            }
         }
         catch(InterruptedException e)
         {}
      }
   }
}
class Second extends Thread
{
   int r1;
   Second(int r)
   {
      r1 = r;
   }
   public void run()
   {
      System.out.println("The square of number"+r1+"is :"+r1*r1);
```

```
    }
}
class Third extends Thread
{
    int r1;
    Third(int r)
    {
        r1 = r;
    }
    public void run()
    {
        System.out.println("The cube of the Number"+r1+"is :"+r1*r1*r1);
    }
}
class labB3
{
    public static void main(String[] args)
    {
        Thread t1 = new First();
        System.out.println("press Ctrl+c to stop.....");
        t1.start();
    }
}
```

```
C:\Users\HP\Desktop\YenJava>java labB3
press Ctrl+c to stop.....
The cube of the Number31is :29791
The cube of the Number59is :205379
The square of number44is :1936
The cube of the Number133is :2352637
The square of number10is :100
The square of number42is :1764
The square of number76is :5776
The cube of the Number151is :3442951
The cube of the Number71is :357911
The square of number142is :20164
The cube of the Number39is :59319
The cube of the Number183is :6128487
The cube of the Number129is :2146689
The cube of the Number95is :857375
The cube of the Number15is :3375
The square of number186is :34596
The cube of the Number5is :125
The square of number6is :36
The square of number112is :12544
The cube of the Number131is :2248091
The cube of the Number165is :4492125
The cube of the Number163is :4330747
The square of number118is :13924
The cube of the Number187is :6539203
The square of number32is :1024
^C
```