EAST WEST UNIVERSITY

Course Title: CSE110

Section: 06

Semester: Summer 22

LAB-07

SUBMITTED TO

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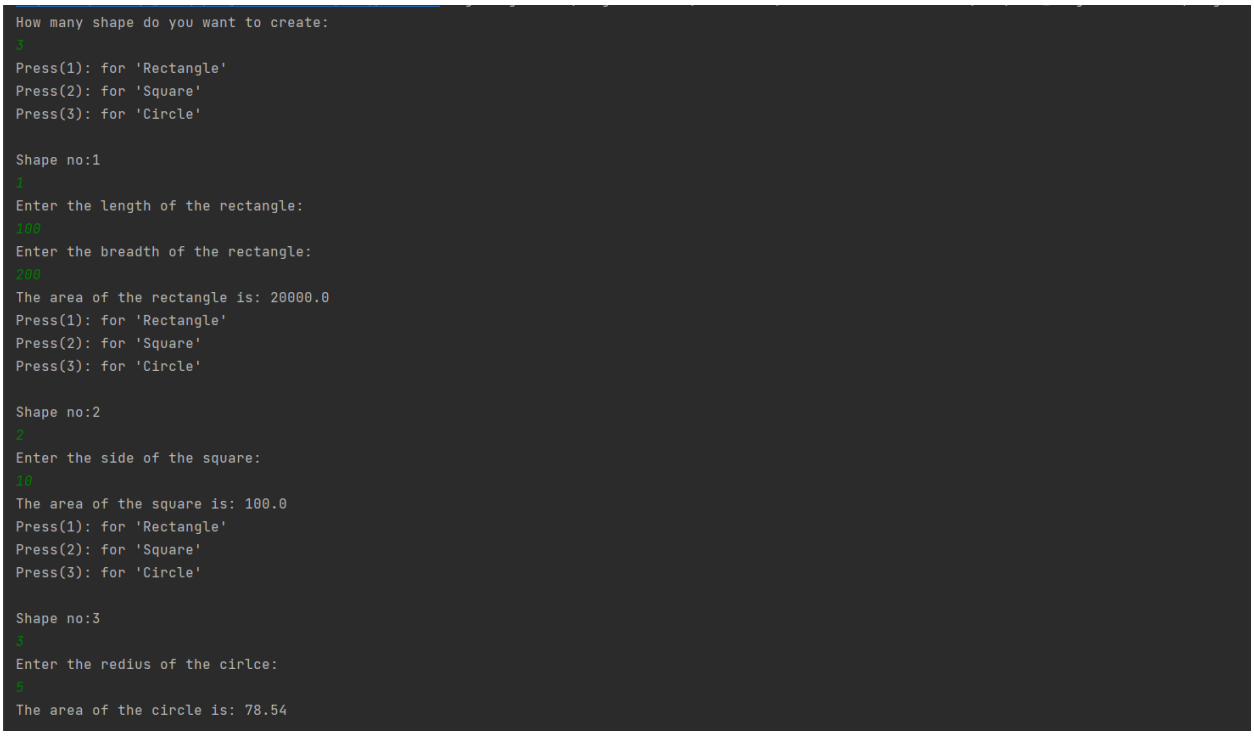
A)

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

abstract class Shape {
private double area ;

public void setArea(double area)
{
   this.area=area;
}

public double getArea()
 {
    return area;
 }

 abstract void rectangleArea(double length, double breadth);
 abstract void squareArea(double side);
 abstract void circleArea(double radius);

}

class Area extends Shape
{
```

```
    void rectangleArea(double length, double breadth)
    {
        double area=length * breadth;
        this.setArea(area);
        System.out.println("The area of the rectangle is: "+this.getArea());
    }

    void squareArea(double side)
    {
        double area= side * side;
        this.setArea(area);
        System.out.println("The area of the square is: "+this.getArea());
    }

    void circleArea(double radius)
    {
        double area= 3.1416 * radius * radius;
        this.setArea(area);
        System.out.println("The area of the circle is: "+this.getArea());
    }
}


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

```
{
Scanner in=new Scanner(System.in);
ArrayList<Shape>scapearray= new ArrayList<>();
   System.out.println("How many shape do you want to create:");
   int n=in.nextInt();
   for(int i=0;i<n;i++)
   {
      System.out.println("Press(1): for 'Rectangle'");
      System.out.println("Press(2): for 'Square'");
      System.out.println("Press(3): for 'Circle'");
      System.out.println("\nShape no:"+(i+1));
      int x=in.nextInt();
      if(x==1)
      {
         System.out.println("Enter the length of the rectangle:");
         double lenght= in.nextDouble();
         System.out.println("Enter the breadth of the rectangle:");
         double breadth= in.nextDouble();
         Shape area=new Area();
         scapearray.add(area);
         scapearray.get(i).rectangleArea(lenght,breadth);
      }
      else if(x==2)
      {
         System.out.println("Enter the side of the square:");
```

```
            double side= in.nextDouble();
            Shape area=new Area();
            scapearray.add(area);
            scapearray.get(i).squareArea(side);
        }
        else if(x==3)
        {
            System.out.println("Enter the redius of the cirlce:");
            double redius= in.nextDouble();
            Shape area=new Area();
            scapearray.add(area);
            scapearray.get(i).circleArea(redius);
        }
    }
  }
}
```



B)

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

public class ArrayListTest {
   public static void main(String[] args)
   {
      Scanner in=new Scanner(System.in);
      ArrayList<ArrayList>List= new ArrayList<ArrayList>();
      System.out.println("Enter the number of lines:");
      int x=in.nextInt();
      System.out.println("Enter the number of integer:");
      for(int i=0; i<x;i++)
      {
         ArrayList<Integer>intList= new ArrayList<Integer>();
         int y=in.nextInt();
         for(int j=0;j<y;j++)
         {
            intList.add(in.nextInt());
         }
         List.add(intList);
      }
      ArrayList<Integer>line= new ArrayList<>();
      ArrayList<Integer>index= new ArrayList<>();
      System.out.println("Enter the number of queries:");
```

```
        int q=in.nextInt();
        for(int i=0;i<q;i++)
        {
           int a=in.nextInt();
           int b=in.nextInt();
           line.add(a);
           index.add(b);
        }
        System.out.println("Output:");
        for(int i=0; i<q;i++)
        {
           if(index.get(i)>List.get(line.get(i)-1).size())
           {
              System.out.println("ERROR!");
           }
           else
           {
              System.out.println(List.get(line.get(i)-1).get(index.get(i)-1));
           }
        }
     }
}
```