```
import java.util.Scanner;
abstract class Shape {
  int dim1;
  int dim2;
  Shape(int dim1, int dim2) {
    this.dim1 = dim1;
    this.dim2 = dim2;
  }
  abstract void printArea();
}
class Rectangle extends Shape {
  Rectangle(int length, int width) {
    super(length, width);
  }
  void printArea() {
    int area = dim1 * dim2;
    System.out.println("Area of Rectangle: " + area);
  }
class Triangle extends Shape {
  Triangle(int base, int height) {
    super(base, height);
  }
  void printArea() {
    double area = 0.5 * dim1 * dim2;
    System.out.println("Area of Triangle: " + area);
  }
class Circle extends Shape {
  public Circle(int radius) {
    super(radius, 0);
```

```
}
  public void printArea() {
    double area = Math.PI * dim1 * dim1;
    System.out.println("Area of Circle: " + area);
  }
}
class Calc {
  public static void main(String[] args) {
    Scanner scanner = new Scanner(System.in);
    System.out.println("Select a shape:");
    System.out.println("1. Rectangle");
    System.out.println("2. Triangle");
    System.out.println("3. Circle");
    int choice = scanner.nextInt();
    Shape shape=null;
    switch (choice) {
      case 1:
         System.out.println("Enter length of rectangle:");
         int length = scanner.nextInt();
         System.out.println("Enter width of rectangle:");
         int width = scanner.nextInt();
         shape = new Rectangle(length, width);
         break;
       case 2:
         System.out.println("Enter base of triangle:");
         int base = scanner.nextInt();
         System.out.println("Enter height of triangle:");
         int height = scanner.nextInt();
         shape = new Triangle(base, height);
         break;
       case 3:
```

```
System.out.println("Enter radius of circle:");
  int radius = scanner.nextInt();
  shape = new Circle(radius);
  break;
  default:
    System.out.println("Invalid choice");
  return;
}
shape.printArea();
}
```

```
C:\1BM23CS321>java Calc
Select a shape:

    Rectangle

2. Triangle
Circle
Enter length of rectangle:
12
Enter width of rectangle:
11
Area of Rectangle: 132
C:\1BM23CS321>java Calc
Select a shape:

    Rectangle

2. Triangle
Circle
Enter base of triangle:
12
Enter height of triangle:
Area of Triangle: 72.0
C:\1BM23CS321>java Calc
Select a shape:

    Rectangle

2. Triangle
Circle
Enter radius of circle:
12
Area of Circle: 452.3893421169302
C:\1BM23CS321>_
```

Develop a java program to create an abstract class named Shape that contains two integers and an empty method named PrintArea (). Provide three classes named Rectangle, Triangle and circle such that each one of the class extends class Shape-Each one of the classes contain only the mothod print Area () that prints area of the given shape. import java util Samuer; abstract class Shape {

int dim1, dim2;

public Shape (int dim 1, int dim 2) { this. dim1 = dim13 this dim2 = dim2; Holls set fotail (

abstract voi double printArea ();

class Rectangle extends Shape & public Rectangle (dim1, dim2) & Super (dim1, dim2); Enter the number of probase

Enter the name of the 13 () arthurgmentous character Factory double area din 1 + din 2; System out printly (area); Exten the sumber of gods 12 500

class Triangle extends Bhape food wit to small public Triangle (dim t, dm2) 2 super (dim 1, dim 2); void printarea () f

doubte area = 0.5 * dim 1 * dim 2; S:out. prindln (area);

```
Class Circle extends Shape (1959)
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                            the block of account provided sawings and thegother scornest account for sawing account provides
                                                                                          double area = Math. PI * dim 1 * dim 1;
                      sodmun cook surph sanoteur System. dat : printing (Area) is or create or
                                   create a cooperate. From this derive classes afor sacety
                               public class ShapeArea (Vinglarge) {
                                       (a) Accept deposit from oustone: signify, other balance.
                                                                          Se. Scanner - next Interdent pulgid (d)
                                                                         switch ( chitice) fogst aut angress (2)
                                                         complete auf at policie : "Entir dimerions of Red"
                                                                                                                              int a = next Int();
                                                                                                                              int b = Sc. next Int();
                                                                                                                               Rectangle & = new Rectanglela,
                                                                ; () dominit Area () ;
                                                                                                                   : 35 Abreak 3 Gunb
                                                                                                      case 2: 10 Triongle
                                                                                                                                    int base = snextInt();
                 not a stoling austomianome, string acords,
                                                                                                                                   int height= sc. mext Int ();
             String Accountlype, double balance)
                                                                                                                                  Triangle t = new Triangle
                            this, customen Name = customen Name;
                                                                                                                                                                               (base, height)
                this account lumber = account Numbers
                                                                                                                                     t. print Area ();
                            this. accounting - accountings;
                                                                                                                                      break;
                                                this balance = balance :
     Output >
                      Select a Shape: 1. Rectangle & Triangle 3.

Enter length of Rectangle: 12

Enter length of Rectangle: 12
                                                                                                                   2. Triangle 3. Circle 1.
                          Avea 9 1329 the motions
                                                                                                                  + 92/9
signiferm out production ("Town Will Deposit").
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