

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 classes extends the class Shape. Each one of the classes contain only the method printArea() that prints the area of the given shape.

```
abstract class Shape {  
    int dim1 , dim2;  
  
    Shape(int a,int b)  
    {  
        this.dim1=a;  
        this.dim2=b;  
    }  
  
    abstract void printArea();  
}  
  
class Rectangle extends Shape {  
    Rectangle(int l,int b){  
        super(l,b);  
    }  
  
    void printArea()  
    {  
        System.out.println("The area of rectangle:" +dim1*dim2);  
    }  
}  
  
class Triangle extends Shape {
```

```

Triangle(int a, int b){

    super(a,b);

}

void printArea(){

    System.out.println("the area of trinagle" +0.5*dim1*dim2);

}

}

class Circle extends Shape {

    Circle(int r){

        super(r,0);

    }

    void printArea(){

        System.out.println("the area of circle" +3.142*dim1);

    }

}

public class program4 {

    public static void main(String[] args) {

        Rectangle r =new Rectangle(2,4);

        Triangle t = new Triangle(5,3);

        Circle c = new Circle(3);

        r.printArea();

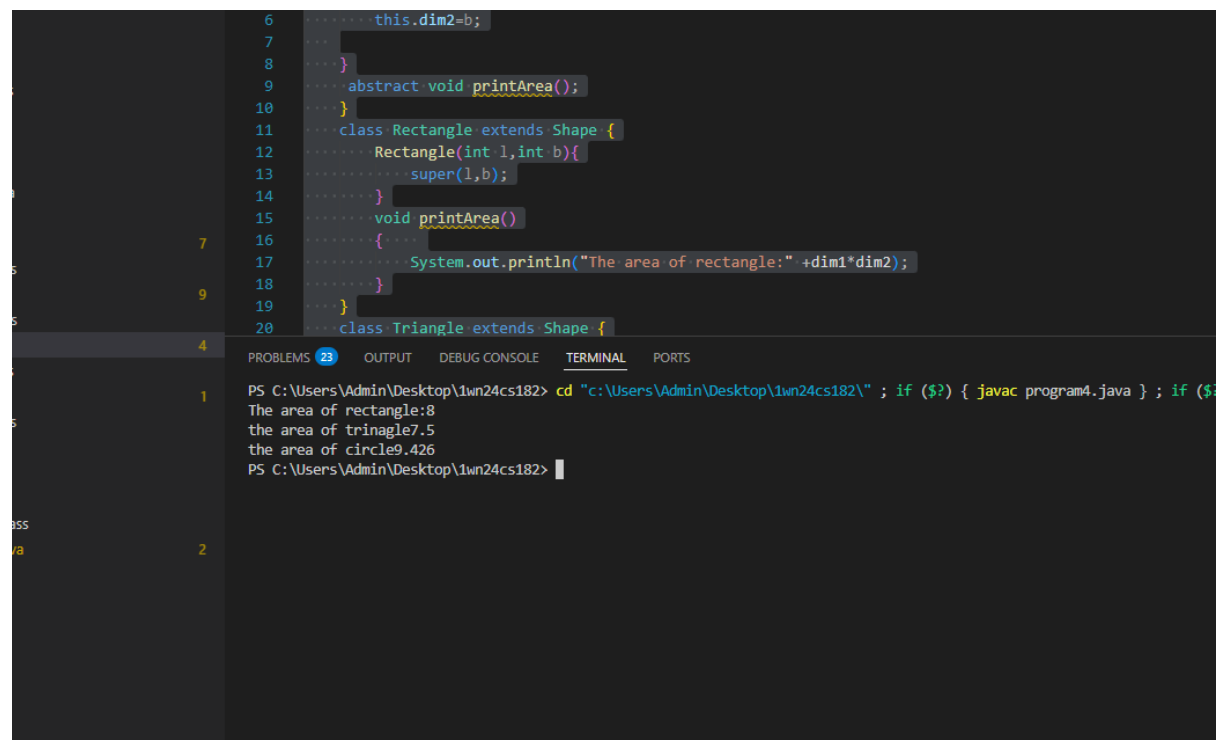
        t.printArea();
    }
}

```

```
        c.printArea();
    }

}
```

OUTPUT:



The screenshot shows an IDE with a Java file editor and a terminal window. The code in the editor defines an abstract class `Shape` with a `printArea()` method, and two subclasses: `Rectangle` and `Triangle`. The `Rectangle` class has a constructor `Rectangle(int l, int b)` and a `printArea()` method that prints the area. The `Triangle` class has a constructor `Triangle(int l, double b)` and a `printArea()` method that prints the area. The terminal window shows the output of the program, which is the area of a rectangle (8), the area of a triangle (7.5), and the area of a circle (9.426).

```
6 ..... this.dim2=b;
7 .....
8 ..... }
9 ..... abstract void printArea();
10 ..... }
11 ..... class Rectangle extends Shape {
12 .....     Rectangle(int l,int b){
13 .....         super(l,b);
14 .....     }
15 .....     void printArea()
16 .....     {
17 .....         System.out.println("The area of rectangle:"+dim1*dim2);
18 .....     }
19 ..... }
20 ..... class Triangle extends Shape {
```

PROBLEMS 23 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
1 PS C:\Users\Admin\Desktop\1wn24cs182> cd "c:\Users\Admin\Desktop\1wn24cs182\" ; if ($?) { javac program4.java } ; if ($?) { java program4 }
The area of rectangle:8
the area of trinagle7.5
the area of circle9.426
PS C:\Users\Admin\Desktop\1wn24cs182>
```