Lab Program

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.

Student.java SGPA.java Shape.java Rectangle.java

```
1  package Shape;
2
3  //Abstract class Shape
4  abstract class Shape {
5   int a, b;
6
7   // Abstract method to be implemented by subclasses
8   abstract void printArea();
9  }
10
11
12
13
```

Student.java SGPA.java Shape.java Rectangle.java Triang

```
1  package Shape;
2
3  //Rectangle class
4  class Rectangle extends Shape {
5   Rectangle(int length, int breadth) {
6       a = length;
7       b = breadth;
8   }
9
10  void printArea() {
11      System.out.println("Rectangle Area: " + (a * b));
12  }
13 }
14
```

Student.java | SGPA.java | Shape.java | Rectangle.java | Triangle.java

Java Files/src/Student/Student.java

```java


//Triangle class
class Triangle extends Shape {
 Triangle(int base, int height) {
      a = base;
      b = height;
 }

 void printArea() {
      System.out.println("Triangle Area: " + (0.5 * a * b));
 }
}

```

Student.java | SGPA.java | Shape.java | Rectangle.java | Triangle.java

```java
package Shape;


//Circle class
class Circle extends Shape {
 Circle(int radius) {
     a = radius;
 }

 void printArea() {
     System.out.println("Circle Area: " + (Math.PI * a * a));
 }
}
```

Student.java | SGPA.java | Shape.java | Rectangle.jav

```java
package Shape;


//Main class to test all shapes
public class main {
 public static void main(String[] args) {
      Rectangle rect = new Rectangle(10, 5);
      Triangle tri = new Triangle(10, 7);
      Circle circ = new Circle(6);

      rect.printArea();
      tri.printArea();
      circ.printArea();
 }
}
```

Problems | Javadoc | Declaration | Console

<terminated> main [Java Application] C:\Users\trupt\.p2\pool\plugi

```
Rectangle Area: 50
Triangle Area: 35.0
Circle Area: 113.09733552923255
```