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| **LAB211 Assignment** | **Type:** | **Short Assignment** |
| **Code:** | **J1.S.P0061** |
| **LOC:** | **42** |
| **Slot(s):** | **1** |

**Title**

Create a program to calculate perimeter and area.

**Background**

N/A

**Program Specifications**

Create a program to calculate the perimeter and the area of ​​a Circle, a Rectangle and a Triangle.

***Function details:***

### Function 1: Display GUI And Input Data.

* Users run the program. The program prompts users for the input Data.
* Auto next **Function** **2**.

**Function 2:** Perform function

* The program calculates the area and the perimeter of the input circle, the rectangle and the triangle
* Display the information on the screen and Exit the program.

***Expectation of User interface:***

=====Calculator Shape Program=====

Please input side width of Rectangle:

11

Please input length of Rectangle:

32

Please input radius of Circle:

12

Please input side A of Triangle:

5

Please input side B of Triangle:

5

Please input side C of Triangle:

5

-----Rectangle-----

Width: 11.0

Length: 32.0

Area: 352.0

Perimeter: 86.0

-----Circle-----

Radius: 12.0

Area:452.3893421169302

Perimeter:75.39822368615503

-----Triangle-----

Side A: 5.0

Side B: 5.0

Side C: 5.0

Area:10.825317547305483

Perimeter:15.0

1

2

**Guidelines**

**Student must implement the methods**

* getPerimeter
* getArea
* printResult

**in startup code.**

**Example:**

* Createan abstract class Shape contains three methods printResult, getPerimeter and getArea.
* Create classes Triangle, Rectangle, Circle that extend from class Shape.
* Construct the shapes that consists the properties of a circle (radius), a rectangle (width, length), a triangle (sideA, sideB, sideC) and generate their getter and setter methods.
* Override the methods of the Shape class.
* Calculate the area of ​​a circle using the formula Heron:



Use Math.sqrt()

* Calculate the area of ​​a circle with Pi = Math.PI

**Function 1: Calculate the perimeter**

* Must create function: public double getPerimeter ()
  + Return: the perimeter of the shape.

**Function 2: Calculate the area.**

* Must create function: public double getArea ()
  + Return: The area of ​​the shape.

**Function 3: Display the shape information.**

* Must create the function: public void printResult ()
  + Return: void.