

### Exercise18: Area of a Shape

Write a program to calculate the area of the given shape using a menu driven application.

Create a base class called **Shape**.

**Data members:**

protected String shapeName;

**Methods:**

calculateArea() – Return type of this method is Double. This method should return the value 0.

**Constructor:**

Create a single argument constructor that initializes the shapeName.

Create a class called **Square** that extends **Shape**

**Data members:**

side – of type Integer.

**Methods:**

calculateArea() – calculates and returns the area of the square. The return type of this method is Double.

**Constructor:**

Create a constructor that initializes the side. (1-argument constructor).

Call the super class constructor to initialize the shapeName as "Square".

Create a class called **Rectangle** that extends **Shape**

**Data members:**

length – of type Integer.

breadth – of type Integer.

**Methods:**

calculateArea() – calculates and returns the area of the Rectangle. The return type of this method is Double.

**Constructor:**

Create a constructor that initializes the length and breadth. (2-argument constructor).

Call the super class constructor to initialize the shapeName as "Rectangle".

Create a class called **Circle** that extends **Shape**

**Data members:**

radius – of type Integer.

**Methods:**

calculateArea() – calculates and returns the area of the Circle. The return type of this method is Double.

**Constructor:**

Create a constructor that initializes the radius. (1-argument constructor).

Call the super class constructor to initialize the shapeName as "Circle".

Include appropriate getters and setters in all the given classes.

Create a class **Main** to capture the input details from the user and display the calculated area to the user.

### Input and Output Format:

Refer sample input and output for formatting specifications.

All text in bold corresponds to input and the rest corresponds to output.

Format the output with two decimal points

**Note:** Code submission not required. To be implemented using eclipse IDE and manually verified by the SME.

**Sample Input and Output 1:**

1. Rectangle

2. Square

3. Circle

Area Calculator --- Choose your shape

**1**

Enter length and breadth:

**100**

**40**

Area of Rectangle is:4000.00

**Sample Input and Output 2:**

1. Rectangle

2. Square

3. Circle

Area Calculator --- Choose your shape

**2**

Enter side:

**20**

Area of Square is:400.00

**Sample Input and Output 3:**

1. Rectangle

2. Square

3. Circle

Area Calculator --- Choose your shape

**3**

Enter Radius:

**5**

Area of Circle is:78.54