

### Hands-on Exercise Objective

After completing the hands-on exercises, you will be able to:

- Develop simple Java program using if-else if - else statement.

### Problem Statement:

Develop classes named “**Circle**”, “**Square**”, and “**Triangle**”. Each class should have a method named `calculateArea()` which calculates the area based on the below logic and display the appropriate message

Class Name	Method Name	Variable Name	Variable Type	Logic
Circle	calculateArea	Radius	int	$3.14 * \text{radius} * \text{radius}$
Triangle	calculateArea	Sides	int	$0.433 * \text{sides} * \text{sides}$
Square	calculateArea	Sides	int	$\text{sides} * \text{sides}$

Develop a class “**Shapes**” inside a package “**com.hcl.shapes**”. The class should have one instance variables of type int named “`numberOfSides`” and a method called `calculateShapeArea()`. This method takes two arguments one for identifying the shape and other for side length.

***This method should identify the shape based on the numberOfSides and calculate the area and print it in console as follows***

**If** `numberOfSides` is 1 then invoke the “`calculateArea`” of the Circle Object.

This method will also display the following message in the console.

“The Area of the Circle is”<area>

**If** `numberOfSides` is 3 then invoke the “`calculateArea`” of the Triangle Object.

This method will also display the following message in the console.

“The Area of the Triangle is”<area>

**If** `numberOfSides` is 4 then invoke the “`calculateArea`” of the Square Object.

This method will also display the following message in the console.

“The Area of the Square is”<area>

**If** `numberOfSides` is other than the specified ones then display the message “No Shapes Present”.

**Note:** <area> - The value would be printed based on the above logics of different shapes such as Circle, Triangle and Square.

In the Shapes class add a main method which sets the values and invoke the following methods in the **Shapes** object.

**Test Case 1:** Specify the following values and run the main method

1. Set the value of numberOfSides as 3 and sideLength as 12.
2. Invoke the method calculateShapeArea ().

**Expected Output:** The following messages should be displayed in the console

The Area of the Triangle is 62.3538

**Test Case 2:** Specify the following values and run the main method

1. Set the value of numberOfSides as 4 and sideLength as 15.
2. Invoke the method calculateShapeArea ().

**Expected Output:** The following messages should be displayed in the console

The Area of the Square is 225

**Test Case 3:** Specify the following values and run the main method

1. Set the value of numberOfSides as 5 and sideLength as 15.
2. Invoke the method calculateShapeArea().

**Expected Output:** The following messages should be displayed in the console

No Shapes Present