

# Web Technologies Lab

**Lab 02****Marks 100****Instructions**

Work on this quiz/lab individually.

You are **NOT** allowed to use internet, mobile phone.

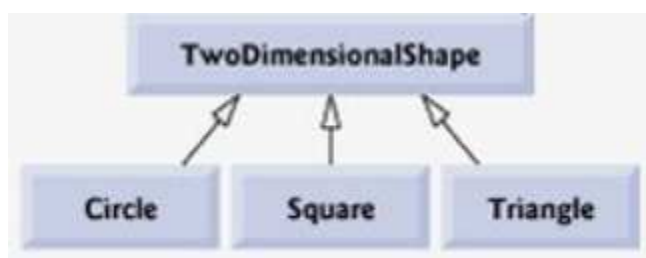
You are **NOT** allowed to borrow anything from your peer student.

**What you have to do**

Program the following tasks. The name of your files will be according to the task given in this lab.

**Task 1****[100]**

Implement the TwoDimensionalShape hierarchy as shown in the following figure.



Each TwoDimensionalShape should contain method `getArea` to calculate the area of the two-dimensional shape.

Write a `Driver` class that uses an **array of TwoDimensionalShape** references to objects of each concrete class in the hierarchy. The program should print a text description of the object to which each array element refers. Also, in the loop that processes all the shapes in the array, determine whether each shape is a `Circle`, `Square` or `Triangle`. Make a call to `area`, polymorphically.

**Instructions:**

- Area of a Circle:  $\pi r^2$
- Area of a Square:  $a^2$  (a is the side length of a square)
- Area of a Triangle:  $\frac{1}{2} (\text{base} * \text{height})$
- You can use `instanceof` operator to determine the type of object e.g., `if(obj instanceof -----){}`
- You can override `String toString()` method in your respective class to print the text description of the object. This method will be invoked whenever you will print the object of that class. e.g., `System.out.println(obj);`
- Take input for all the required parameters (i.e., radius, side-length, etc.).

😊😊😊 **BEST OF LUCK** 😊😊😊