Project 1: Shapes

Due 10/30

Write a program in Java which meets the following requirements.

Goal

The Shapes program allows the user to visualize sets of basic 2D shapes. The user must be able to define the size and position of 1 or more circles, rectangles, and triangles in 2D space. An option must be provided to display (i.e. print) the collection of shapes on the screen.

The appearance of the shapes and exactly how the requirements are met are up to you.

Requirements

The program must..

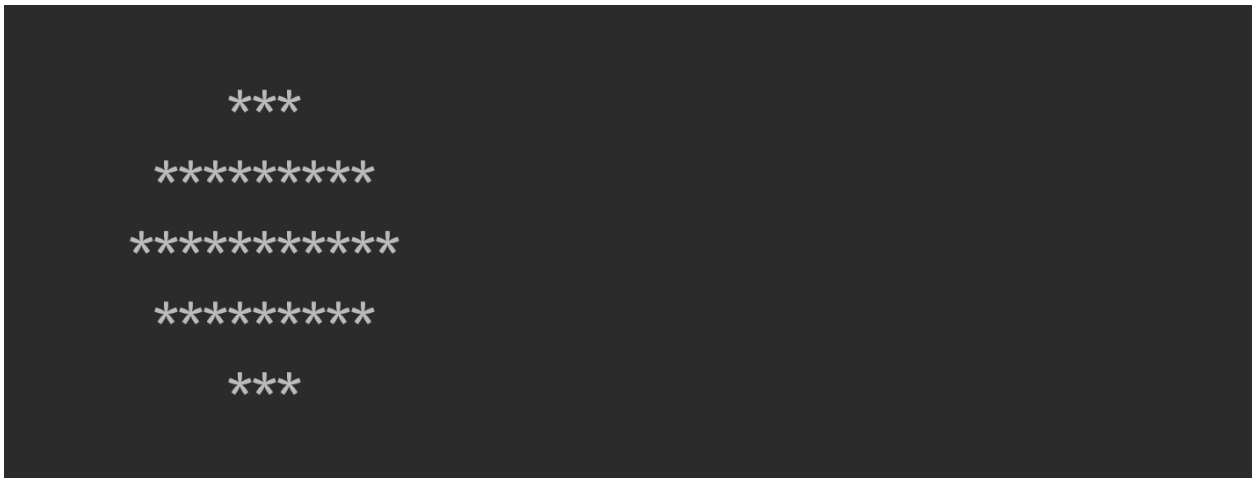
1. Store the values (e.g. x/y coordinates, radius, height) necessary to define circles, rectangles, and triangles.
2. Allow the user to define 1 or more circles, rectangles, or triangles with arbitrary position and size.
3. Provide an option to visualize the set of shapes entered by the user (i.e. print to screen)..
    a. showing only the border/outline of the shapes (e.g. circles appear like a ring).
    b. showing the shapes filled in (e.g. circles appear like a coin).

Test Cases

Each of the following test cases must provide at least similar results compared to those below to receive full credit. The exact appearance of the shapes is unimportant provided the shapes are recognizable and meet the above requirements.

1. The user defines a circle with radius 5. When the user chooses to visualize the circle **with only borders**, an empty circle should be printed to the screen.

2. The user defines a circle with radius 5. When the user chooses to visualize the circle **filled in**, a disc should be printed to the screen.



3. The user defines the following shapes:
    - a circle with radius 5
    - a rectangle with height 5, width 10, and X-coordinate placing it to the right of the circle.

When the user chooses to visualize the shapes with borders only, a similar result should appear:

4. The user defines the following shapes:
    - a circle with radius 5
    - a rectangle with height 5, width 10, an X-coordinate placing it to the right of the circle, and a Y-coordinate placing it below the circle.
    - a triangle with height 5 and an X-coordinate placing to the right of the circle.

When the user chooses to visualize the shapes filled in, a similar result should appear: