Object Oriented Programming

Homework 3

Given out: *3rd February 2023*
Submission Deadline: *10th February 2023 (11:55 pm)*
Note: *Underlined terms contain links for respective resources*

1   Goal

The purpose of this task is to understand inheritance. You can use the code taught in class but you will need to do a lot of thinking to solve the problems given in this lab.

You can access Java Documentation at this link.

You will also need to understand the Graphics library to solve the problems.

1.1   Problem 1 - Rectangle with a name

In this problem you will create a rectangle that has some text written in the middle. The size of text should scale as according to the size of the rectangle. The bigger the rectangle, the bigger the text.

1.2   Problem 2 - Creating polygons

In this problem you will define the following shapes:

- Triangle (extends from Polygon)
- Quadrilateral (extends from Polygon)
- Pentagon (extends from Polygon)
- Regular Pentagon (extends from Pentagon)
- Pentagram (extends from Pentagon)
- Hexagon (extends from Polygon)
- Regular Hexagon (extends from Hexagon)

All these shapes will extend from the Polygon class given in the Graphics library. You may need to look at the explanation of Pentagon and Pentagram to complete this exercise.

1.3   Problem 3 - Creating shapes from a text file

You will create all the objects defined above but through a text file. The text file will contain all the shapes to be made and the points that define the shapes. You can learn how to read from a text file from this link.