Assignment 1 [6 points]

Apply the Java concepts that you learned (OOP, polymorphism, interfaces, packaging, …) to design your own ***Geometric*** library architecture and implement this package using the java programming language. This library handle drawing **2D shapes** with different styles. The designed library must handle the following functions:

- Draw ***Circle, Rectangle, Square***
- User can change these shapes dimensions, positions, colors, label.
- The shapes are moveable. You can use methods such as methods goUp(), goDown(), goLeft() and goRight() in your design for each point/shape.
- Help the user to calculate the area and the perimeter for those shapes.
- Make your shapes resizable by factors (e.g. 50%, 200%, …)
- The library is extensible to 3D shapes. Apply the basic skeleton code that can be easily implemented later.
- Enrich your library with the capability to handle a set of exceptions that can happen during the user interaction, and through any other calculations. The displayed error messages for exceptional behavior should be descriptive.

General Guidelines

- This assignment is individual.
- Use GitHub to control your work in this assignment.
- Applying Java code style and comments is essential.

You should use the object-oriented concepts that you learned, in both the lectures and the labs, as needed.

Deliverables

You need to submit one zip file that includes all of the source code files of your assignment.

Grading Criteria

- The correctness of the features.
- The correctness of your library's design as per the explained object-oriented concepts from a software engineering perspective.
- The continuous use of Git.
- Applying Java code style and comments.

Due date and submission

Assignment 1 is due on Saturday, April 10th at 11:55 PM (Cairo Local time). Submission needs to be done through the course's Google classroom only.