Programming Fundamentals II

Lab 6: Assignment

Lab Guidelines:

- Feel free to utilize **any IDE** for completing this laboratory assignment.
- This lab comprises **One problem** that necessitates resolution.
- Please ascertain that your code adheres to proper formatting and is adequately commented.
- Submit the code for each problem under its corresponding exercise number in a .java.(e.g Exercise1.java). No need for compression (.zip or .rar); submit only the code file (e.g Exercise1.java)

- Make sure to attach the output files of your code run when submitting your assignment.

Note: *If you have any inquiries, please feel free to reach out to us via the discussion platform accessible to participants of this lab.*

Exercise 1: Area Calculator

Objective

Create a Java program that calculates the area of squares and rectangles using method overloading. The program should prompt the user to select the shape, input the necessary dimensions, and display the computed area.

Instructions

1. Create a Class: Create a class named `AreaCalculator`.
2. Implement Overloaded Methods:
    - Implement a method to compute the area of a square.
    - Implement an overloaded method to compute the area of a rectangle.
3. Implement Main Method:
    - Prompt the user to choose between calculating the area of a square or a rectangle.
    - Based on the user's choice, prompt for the necessary dimensions.
    - Call the appropriate method to compute the area.
    - Display the computed area.

Requirements

1. Use method overloading to implement the `computeArea` methods.
2. Handle user input using the `Scanner` class.
3. Ensure the program can handle invalid inputs gracefully.

Example Output

```
Choose the shape to compute the area:
1. Square
2. Rectangle
1
Enter the length of one side of the square: 5
The area is: 25.0
```

Submission

Submit your Java file named `AreaCalculator.java`. Ensure your code is well-commented and follows best practices for readability and maintainability.

End of Lab!