

(Basic) Methods, Math, Strings, Conditionals

Important Dates:

- Assigned: August 26, 2024
- Deadline: September 11, 2024 at 11:59 PM EST

Objectives:

- Students learn to use basic Java concepts involving different datatypes.
- Students gain experience with the Java mathematics library.
- Students work with certain string manipulation methods.
- Students begin to understand the different types of conditional statements and how they redirect program control flow.
- Students design methods to complete a task and write corresponding unit tests.

What To Do:

For each of the following problems, create a class named `ProblemX`, where `X` is the problem number. E.g., the class for problem 1 should be `Problem1.java`. Write (JUnit) tests for each method that you design in corresponding test files named `ProblemXTest`, where `X` is the problem number. Additionally, write Javadoc comments explaining the purpose of the method, its parameters, and return value. **Do not round your solutions!**

You must write sufficient tests and adequate documentation.

All problems are listed in *Learning Java - A Test-Driven Approach*. This assignment contains fourteen required problems, meaning the maximum possible score on this assignment is 100%/100%.

1. Exercise 1.4 [*Unit conversion*]
2. Exercise 1.6 [*Arithmetic operations*]
3. Exercise 1.10 [*Pyramid surface area*]
4. Exercise 1.13 [*Z-score computation*]
5. Exercise 1.15 [*Law of cosines*]
6. Exercise 1.17 [*Object displacement*]
7. Exercise 1.22 [*Basic string manipulation*]
8. Exercise 2.6 [*Simple comparison logic*]
9. Exercise 2.8 [*More simple comparison logic*]
10. Exercise 2.9 [*More basic string manipulation*]
11. Exercise 2.12 [*Propositional logic schemata*]
12. Exercise 2.14 [*Computational geometry*]
13. Exercise 2.15 [*Carlo's candy problem*]
14. Exercise 2.16 [*IPv4 address parsing*]