Indiana University
CSCI-C212: Introduction to Software Systems (SP24) Assignment 2
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Strings, Conditionals, Recursion, Loops

Important Dates:

- Assigned: January 31, 2024
- Deadline: February 14, 2024 at 11:59 PM EST

Objectives:

- Students learn to design more complex methods.
- Students understand and describe the differences between recursion, tail recursion, and iteration.
- Students understand the direct correspondence between iteration and tail recursive methods.
- Students design methods that call `private` helper methods to solve a problem.

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 (non-`private`) method that you design in corresponding test files named `ProblemXTest`, where `X` is the problem number. For problems that contain multiple parts, put those in the same class file. 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 *Teaching Java - A Test-Driven Approach*.

1. Page 57-58, Exercise 2.28
2. Page 58-59, Exercise 2.31
3. Page 59, Exercise 2.32
4. Page 61, Exercise 2.38 (for this problem, you **cannot** use any automatic conversion methods for you, e.g., `Integer.parseInt`. The conversion must be done manually!)
5. Page 62, Exercise 2.42 (for this problem, you **cannot** use Java's built-in `compareTo` method. The comparison must be done with a loop or recursion.)
6. Page 62, Exercise 2.49
7. Page 63, Exercise 2.53
8. Page 63-64, Exercise 2.56