

CSC171 — Homework 14

Collections

The goal of this assignment is to give you experience with Java Collections. These are very versatile classes that you will find in almost any non-trivial application. All modern programming languages have something equivalent, so knowing how to use collections effectively will help you no matter what kind of programming you're doing. These questions only scratch the surface of what you can do with collections. Look at the javadoc and the Java tutorial for more.

Questions

1. Write a program that reads in a series of numbers from the user until they enter "0" and stores the numbers in a `List of Integers`. Then ask the user for a number and report whether it is one of the numbers that was read in.
2. Write a program that reads a series of strings from the user and stores them in a `List of Strings`. Then read another string from the user, and iterate over the elements of the `List` and report whether the target string is equal (as in `equals`) to any element of the list. That is, report whether the list contains the final string. Use the "colon" (":") syntax for your loop.
3. Similar to the previous question, write a program that reads a `List of Strings` and a final target string. This time iterate over the elements of the list and report the index of any element that is equal (as in `equals`) to the target string. Use a `for` loop over the indexes of the list elements.
4. Write a program with a static boolean method that takes as parameter a `List` and two integer indexes and reports whether the elements at the two indexes in the `List` are equal (as in `equals`). You may assume that the indexes are within range. Include code to demonstrate your method in your `main` method.
5. Write a program that reads in a series of names and eliminates duplicates by storing them in a `Set of Strings`. Then ask the user for a name and report whether it was one of the names that was read in.
6. Write a simple phonebook program that reads in a series of name-number pairs from the user (that is, name and number on one line separated by whitespace) and stores them in a `Map from Strings to Integers`. Then ask the user for a name and return the matching number, or tell the user that the name wasn't found.

Grading Scheme

Equal weight for each part.

Doesn't compile or is trivial	< 50%
Compiles and is non-trivial	≥ 50%
Complete and correct with good style and comments	100%
Incomplete, incorrect, bad style, no comments	< 100%

Submission Requirements

Your submission **MUST** include a file named “README.txt” with your name, your NetID, the assignment number, and your lab section. This file should explain anything we need to know about how to build and run your project. In particular, be sure to explain how to run what parts of your submission for each question in the assignment.

Submit your solution as a single ZIP archive to BlackBoard before the deadline.

Late homeworks will not be graded and will receive a grade of 0.

All assignments and activities associated with this course must be performed in accordance with the University of Rochester's Academic Honesty Policy.