Assignment 8: Reading and Programming Assignment due 4/11

Reading Assignment

Read Section 6.4 from the textbook, and read the Handout on Sorting carefully; make sure you understand and can reproduce how each algorithm works on a given array of numbers as well as the analysis of the running time.

Programming Project

VideoLibrary: Sort and search the titles of a local VideoLibrary due 11:00 p.m. on 11/14, Friday worth 12 points

This week’s programming assignment focuses on Sorting and Searching arrays. You may use the code for SelectionSort from Savitch’s text, or the code for InsertionSort developed in class, or create your own implementation. However, if starting off with the existing implementation, you would have to adapt (i.e. modify) it to handle an array of Strings rather than integers. (Hint: re-read the Programming Tip block on page 113 to find a way of determining which string comes first alphabetically.)

In this assignment you will have to use a predefined class that I will supply, just like you did with the Hangman projects. The class is defined in VideoCollection.java and it defines a single method, movieTitles(), that returns an array of movie titles. You need to call that method to obtain the String array containing the list of titles stored in the local VideoLibrary.

The VideoLibrary program is required to implement the following functionality that is demonstrated in the interaction below. After printing a brief greeting to the user, it should print all available titles in alphabetic order. Then the program should ask the user to enter a search string, and print out all video titles that start with that exact search string (the match should be case insensitive). This should continue until the user enters done. Here’s an example of the program in action (note that the movie titles list is shorter than the one that will be supplied.):

Hi! The following movie titles are available from our video library:

********************************************************************************
Amadeus
Amarcord
Brazil
Chicago
Conformist
Forrest Gump
The Ballad of Narayama
The Big Night
The Godfather
The Godfather: Part 2
The Godfather: Part 3
The People versus Larry Flynt

Please enter the next search string: c
The following titles start with <c>:
Chicago
Conformist

Please enter the next search string: z
No movie titles start with <z>:

Please enter the next search string: the godfather
The following titles start with <the godfather>:
The Godfather
The Godfather: Part 2
The Godfather: Part 3

Please enter the next search string: done
Bye!

**Program design:**

You should design your own methods for this program.

Note that 7 points will be awarded to a program that correctly outputs the sorted list and uses good programming style. The rest of the credit will be awarded for implementing the search correctly.