

CS2050-003

Spring 2018

Homework 5 – Sorts

Deadline: Wednesday March 7 by class time.

Note 1: There will be no late submissions – on time or not at all.

Note 2: Make sure you periodically check the Moodle page for any changes or details.

Note 3: Reminder – no class on Wed, Feb 28 – do your homework.

Read Chp 2.1. Feel free to read more of the chapter, if you'd like. We will cover Chp 2.1, 2.2, 2.3 and 2.4.

Part A - In Sedgewick, Chp 2.1 Exercises 2.1.3, 2.1.5

Part B – Sorts

- 1) In a single program, write the Bubble Sort routine, determine the time (CPU and Wall clock) it takes to sort an input file of plain text, then do the same for Selection Sort then using the built-in Java sort routine. (Three different sorts)
- 2) The same program do the same three sorts and times for numbers (int).
- 3) User enters the file name of a list of words and the list of numbers to sort. Do not hard code the file name in your program.
- 4) Write to an output file the number of words in the file and the times for the Bubble Sort, Selection Sort and the Java sort.
- 5) Because you don't know how many words, nor the length of the words, in the file, use `ArrayList<String>` and `ArrayList<Integer>` as the data structures.

To post to moodle:

- Written answers to the two exercises in S&W in a file named `HW5Questions.txt`
 - Program file named `P5Sort.java`
 - Output file named `P5Output.txt`. Remember to format the times in a readable way, displayed as seconds.
 - Do NOT submit the input data files!
 - Create small test files, then when everything works, use the provided data files.
 - A short write-up of the time you spent programming vs. the amount of time you spent searching on Google for the code
 - A short write-up comparing sort times of strings vs numbers.
 - A brief description of what you learned from this assignment
- 1) Use the data file `words.txt` in the Feb 26-March 4 section of moodle as test data for your program.
 - 2) Use the data file `numbers.txt` in the same section for the integer sorts.