

CS270 - System Software

Lab Assignment #4

Spring 2021

The purpose of this assignment is to give you practice using `make` to control the compilation of a set of C/C++ subroutines.

You are to create a `makefile` to control the compilation of executables for the sort functions that you wrote for assignment #1. You should (re-)write the main program so that it calls a “generic” sort program, (for example: `void sort(int arr[], int n);`). The main program should input an unsorted array, call the sort function, and then output the sorted array. Your `makefile` should build an executable using one of the three sort functions you wrote for assignment #1. For example, the command `make bubble` should build an executable named `bubble` that uses your bubble sort routine to do the sorting. The command `make all` should build all three executables. You may need to modify your functions slightly, so that the same main program is used for any/all of the executables.

The `makefile` you create should separately compile each file (i.e., should create a separate `.o` file for each file), then should create one or more executables by linking the appropriate object files together.

Here are some additional requirements for your `makefile`:

- It should include at least two *macros*.
- It should contain explicit rules for making all the files. That is, it should not rely on `make`'s internal rules for making object files.
- It should include a `clean` rule, that should erase all files other than the original source files. The result should be that the subdirectory should look exactly the same after “clean” as it did prior to any compilations.

For this exercise, you should `cscheckin` a tar file containing a subdirectory containing a single main source file and the three sort source files, along with the `makefile` itself - in other words, the tar file should include everything required to create the three separate programs from source code.