

## CS 2433 C/C++ Programming

### Programming assignment 3

10 points

Due date and time: 11:59 PM, September 8, 2016

The objective of this assignment is to familiarize you with calling functions, and passing pointers to functions.

Write a C program, in a file named 'p3.c', to solve the following:

Accept a list of positive integers from the standard input device (stdin) until a non-positive integer is encountered, storing the positive integers in an array of type integer. There will be no more than 100 positive integers, so you may allocate a fixed array of 100 integers. NOTE: The non-positive value used to terminate reading of the input is NOT to be placed in the array.

Upon encountering the non-positive integer, sort the integers received using the qsort() function in the stdlib.h library. This will require you to write a function that compares two array elements and returns a value indicating the relationship between the two elements. The sorted list must be in ascending order: smaller values first, larger values later. The sorted list will be written to the standard output device (stdout) with two blank spaces between them, but without new-line characters between them. After the last integer has been output, write a new-line character to stdout, and terminate the program.

#### REQUIREMENTS:

- 1) Program must compile without errors and start without crashing. (10 points.)
- 2) Program source must be properly documented, with the standard student and assignment information at the start of the file. Documentation includes a block of comments immediately before each function describing the function inputs and outputs, plus "in-line" documentation of the code. (3 points.)
- 3) You may assume you will get at least one integer input, which may be the non-positive integer terminating input. You must handle the case of an empty list. A sorted empty list will produce no output to the stdout device other than the terminating new-line character. You must also support any other length of list from 1 to 100, and correctly output the results. (7 points.)

**CAUTION:** This is an individual programming assignment. All work must be done individually. Sharing (or copying from any source) of code segment will be treated as plagiarism and dealt with accordingly.

Submit the solutions using the "handin" command.

Example submission command is "handin cs2433 program3 p3.c", where p3.c is the file being submitted.

See the following Web page for a description of the qsort() function.

<http://www.cplusplus.com/reference/cstdlib/qsort/>