CMPUT 379 – Operating System Concepts **Fall 2019**

Assignment 1 – A simple UNIX Shell in C/C++

Category	Mark
`Support for built-in commands` • **Marks will be deducted for:** not printing the error messages as described (-5).	/20 marks
`Launching external programs` • **Marks will be deducted for:** not returning back to the shell after program execution completes (-5), failing to run a program found in the shell path, specified path, or current working directory (-5). • **No marks will be given to solution that uses `system()` or the PATH environment variable**.	/10 marks
`Running multiple commands in a single line` • **Marks will be deducted for:** returning control to user before all commands finish execution (-5).	/10 marks
`Running programs in the background` • **Marks will be deducted for:** not returning control to user (-5).	/10 marks
`Support redirecting the output from one program to a file` • **Marks will be deducted for:** failing to redirect the output to the user-specified file (-5).	/10 marks
`Support piping the output of one program to another program` • **Marks will be deducted for:** failing to pipe from one program to another (-5). • **No marks will be given to solution that uses `popen()` or `pclose()`**.	/10 marks
`Handling signals` • **Marks will be deducted for:** failing to capture Ctrl-C and/or Ctrl-Z and returning back to bash (-5).	/10 marks
`Makefile` • **Marks will be deducted for:** Makefile does not have the required targets (-5).	/10 marks
`Readme file`	/10 marks

Note: Deductions (to the entire grade) may be applied at the grader's discretion if the submission:

- Does not meet the requirements or does not support all the features listed in the assignment description;
- Does not compile or run correctly;
  - And to a lesser extent not compile cleanly with `-Wall` flags.
- Uses glibc functions instead of system calls.
- Has memory leaks (`valgrind` will be used to check for memory leaks).
- Has extremely poor code structure, style, or modularity.
- Does not have correct function/file names, or submission is not tar.gz or zip.
- Does not kill any background programs when the shell exits gracefully.