Operating Systems with C/C++
Semester 1, 2013
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Assessed Exercise 1

Deadline: Friday 18 October, 4pm

The Task

The purpose of this exercise is to write a program that lists all processes belonging to a certain user. Your program should accept one argument, which is the numeric user id. The program will use the `/proc`-directory to obtain the list of all processes, hence it will work only under Linux.

The information about processes is available as follows:

- All subdirectories of `/proc` which are numbers contain information about the process with the corresponding process id. There are other files and directories in the `/proc`-directory which contain information about other parts of the system. Your program must ignore these files and directories.
- Each process directory contains a file `cmdline` where the first word is the program name. Your program should output this program name.
- You read a directory by first opening it with the library function `opendir`, then obtain each directory entry with the library function `readdir`, and when finished, close the directory with the library function `closedir`.
- The `stat`-system call provides information about properties of a file, including the owner.

Note that the command `man <function>` can be used to obtain detailed information about `<function>`.

Marking Scheme

Please use the Canvas system (`http://canvas.bham.ac.uk`) for submitting your code. Please submit only the source files you have written yourself. We will compile and run your code on the virtual machine and mark it accordingly. Please in particular note that we will use the compiler option introduced in the lecture and will deduct 6 marks immediately if there is any compiler error or warning.

We will award marks as follows:

- 5 marks for properly identifying the user
- 5 marks for outputting the program name
- 10 marks for proper usage of library calls to read the directory and identifying all processes.