

CMSI 387/587
OPERATING SYSTEMS
Spring 2010

Assignment 0204

This assignment seeks to give you a little command line practice, plus some supplemental reading.

Not for Submission

Supplemental reading for what has been (and will be, shortly) covered so far includes the conceptual parts of Sections 3.1–3.3, 8.1–8.2, and 9.1–9.2 in SGG. The implementation material also previews what’s coming.

For Submission

Process Survey

Login to a computer that has *bash* and *ps* (most likely one of the Keck Lab Linux or Mac OS X computers; your own computer will also do, if it has *bash* and *ps*) and answer the following questions about it.

1. How many *root*-owned processes are running at the time that you’re using the computer?
2. How many processes on *your* account are running at that time?
3. Which *root*-owned process is using the most real memory? The most virtual memory?
4. Run a typical working set of applications on the computer (e.g., web browser, chat program, text editor, etc.). Which process is using the most real memory? The most virtual memory?
5. Login to *keck.cs.lmu.edu*. Who else, other than *root* and yourself (i.e., your Keck account), has processes running at that time?

For your response to each question, include:

- (a) Your answer
- (b) The command(s) entered to obtain this answer (including any commands that you invoked to figure out what to do), and
- (c) A screen or text dump showing the computer’s responses to these command(s).

Commit your answers as a LaTeX document (including image files if necessary) under */homework/cmsi387/process-survey* or */homework/cmsi587/process-survey*, as applicable.

Linux System Calls

Look up the list of Linux system calls (most kernel versions will do; the current kernel is at 2.6.x) and scan what each system call does. Then, for each of these commands or functions, make an educated guess on which system calls they might be using, and why:

1. *cd*
2. *pwd*
3. I/O redirection
4. Running an executable program from the shell
5. *kill*

Commit your answers as a LaTeX document under */homework/cmsi387/system-call-guesses* or */homework/cmsi587/system-call-guesses*, as applicable.