

Programming Assignment 1 – Developing a Shell

Assigned: Friday, 9/9/2005, 2pm

Due: Friday, 9/23/2005 before 2pm

Part 1. Read chapters 1, 8 and 9 of the required textbook by Bruce Molay (2002) *Understanding Unix/Linux Programming: A Guide to Theory and Practice (1st Edition)*. Try out (compile and run) all the example codes of chapter 8 and make sure you understand how they work. Sources can be downloaded from the book's companion Web site (link in the CS 446/646 Web page). This part will not be graded, it is only intended to prepare you for Part 2. Do not turn in a report about Part 1.

Part 2. Complete the “Programming Project One” as described in the required textbook by William Stallings (2004) *Operating Systems: Internals and Design Principles (5th Edition)*, on pages 153 to 156, with the following modifications:

Shell Properties

- ✓ Implement only properties 1. (all items from i. to ix.), 2. and 6., as described in the book on pages 153-154. Graduate students only (bonus points for others): implement property 5., too. Everyone: do *not* implement properties 3. and 4.

Project Requirements, Submission & Required Documentation

- ✓ Follow all the guidelines in the book, exactly as prescribed on pages 154 to 156. The only exception is that you may ignore any mention of “i/o redirection” or, for the undergraduate students, “background program execution”, since you are not asked to implement these features in the present assignment.
- ✓ Your code *must* compile without warnings and run properly under Gentoo Linux, the system used in the ECC lab (check their Web site for hours). You may develop and test your code on your own UNIX machine, but it is your responsibility to make sure that it is also going to work properly on Gentoo. There will be a penalty if it doesn't.
- ✓ Place all the necessary files and documents in a compressed tarball using tar and gzip (.tar.gz or .tgz) or, alternatively, a zip file (.zip) and email this file to the instructor doursat@unr.edu within two weeks, before Friday, 9/23/2005 at 2pm. Do not turn in printouts in any form. No late assignment will be accepted.

To complete this assignment you may reuse the source code from Bruce Molay's book as your base code and customize it or, even better, write your own. Keep in mind that you must follow Stallings' requirements, not Molay's features. Do not use code from Molay's book that is not strictly necessary for this assignment (there will be a penalty for using superfluous code). As for the original part of the code that you are going to write, do not show, exchange or copy code with anyone, and do not look for a solution on the Web. Plagiarism *will* be detected and severely penalized. This must remain an individual effort. Please keep clean code organization, layout and coding conventions, these will also be an important part of the grade. Thank you and good luck!