

CS 470 - Operating Systems

Spring 2006 - Shell Project

Out: January 25, 2006

Due: February 3, 2006 (Friday)

The purpose of this project is provide experience with process manipulation in Unix.

Problem Statement

Complete the shell project described on pages 121–125 in the textbook. As explained in the text, this project is organized into two parts:

1. Creating a child process that executes the given command
2. Implementing a history feature

Assignment (40 points)

(20 points) Implementation. This project is to be done individually. The C code described in the text is available in the directory `/home/hwang/cs470/project1`. However, this project may be written in any language as long as it runs on `csserver`.

Create a tarfile containing the source code for your project and makefile that will make your project. Submit this tarfile by emailing it to the instructor. Also hand in a printout of **well-documented code** for your shell, preferably 2-up in landscape mode. On `csserver` this can be accomplished using the `a2ps` command.

(10 points) Provide a high-level functional analysis and design of the program describing the functionality of the major components of the program and how they interact with each other, and a more detailed analysis and design for the data structures and algorithms used in the history feature portion of the program.

(10 points) Provide a test plan for your project. I.e., give a list of commands that will demonstrate the features of your shell. Annotate this list with notes regarding what result is expected. The grade for this portion of the project will depend on how thorough the test plan is.

In addition, answer the following questions:

1. What aspect of process manipulation did you find most difficult to understand?
2. What aspect of process manipulation did you find least difficult to understand?
3. What, if anything, would you change in your current design?
4. What, if anything, did you find interesting or surprising about process manipulation that you did not know before doing this project?