Matthew Horton

CS470 Operating Systems

Shell Project Report

(10 points) Provide a high level discussion of the program design describing the functionality of the major components of the program and how they interact with each other, and a more detailed discussion for the data structures and algorithms used in the history feature portion of the program. If the program does not meet all of the project requirements, describe which parts are missing and what you think should be done to implement them.

The shell takes user input, parses it into a command and its parameters, and passes that into a newly forked process.

Input is taken as an array of characters then tokenized into a 2d array with strtok. Then the first argument is checked for whether its one of the two internally handled commands: ‘history’ or ‘exit’. If its ‘history’ then the program iterates through its 3d array printing each command from 0 to 9. If the argument is ‘exit’ then the ‘should\_run’ variable is set to 0 and the program returns 0.

If neither of those special commands were entered then the last outstanding case is whether an ampersand is present. If it is then the forking tree used excludes the parent ‘wait’ case. Otherwise the standard fork procedure is followed from page 118.

(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. Note that the test plan should cover all of the project requirements whether or not the program actually implements them.

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?