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CS 283: Systems Programming

L3 – Lab 3

1. General Description of Assignment

In this assignment, we were tasked with creating a program to sync two directories, named A and B. For every file that is in A, the program searches directory B for the corresponding files. If the files are found, the last modified times for both files are compared, and the newer file is replaced in the opposite directory (the newest version is in both directories). If the file is not found in directory B, then the file is copied into B. This is done for all directories within A recursively. After this, B directory is searched, and all files/directories that are not present in A are removed.

1. Hardware/Software Used

This assignment was developed on a 64-bit Windows 10 machine, but also tested on the tux servers. The assignment was completed using the vim editor in the terminal.

1. How to Run

In order to run my program, use the makefile that is provided. The makefile variables DIR1 and DIR2 are used to specify the two directories that will be synced together. Please use the command “DIR1=a DIR2=b make sync” to run the program. This will sync the two directories called a and b. The program corrects the file names based upon the names that are provided. If the directories start with a “/”, then the program assumes that the path is an absolute path, and uses the provided paths. If the directories start with a “./” then the program assumes these are relative paths and don’t need to change the paths at all. If the directory paths don’t start with “./” or “/”, then the program appends “./” to the front of the paths and creates them as relative file paths.

1. Lab Review

This lab was a good introduction for using files and directories in C, as well as getting more practice with using C. I learned how to traverse directories, view information on the various files and directories that are in these directories, and then open/close/remove/add files and directories.

1. Improvements

There are no improvements to this lab that I could suggest. While the lab was a good amount of work, it was definitely manageable and succeeds in making me more confident in using file i/o in C.