

CSE 344
SYSTEM PROGRAMMING
HOMEWORK 1 REPORT

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When the program is run, user inputs are checked first. If there are invalid inputs among these inputs, the program detects them and terminates itself safely. For example, the program terminates when the user enters a negative file size or link number or enters letters other than 'rwx' in the permission entry or enters their order incorrectly or an invalid file type (not in the homework pdf). Other features except Directory are not taken into account if they are not entered and criteria are not accepted when comparing. Example input is like `./prog.exe -w / home / oguz -f name -t f -b 22 -p rw-rw-r-- -l 1` (don't write '/' at the end of the directory).

Then the program creates a string named leaf. This string is extended with '-' according to the location of the file in the directory. It is then added to the beginning of the filename while it is being printed on the screen.

The "traverse" function makes the process of finding files in the searched properties. This function takes the desired properties and then recursively finds the files that match the properties. First, it goes down to the lowest directories of the files in the given path and starts to compare from the bottom ("compare" function). If the comparison results find the file with the searched property, it adds the "leaf" string to the beginning of the file name and pushes it into the stack and returns 0. In the parent directories of this file, it pushes their names to the stack after the 0 value coming from the subdirectory. If it comes to -1, it is not pushed. After the search is completed, the file names in the stack is popped up and printed on the screen. Since the first in the stack will be the last to come out, the bottom directories are written at the bottom and the top directories are written first. In this way, the searched files are printed on the screen.

If the user presses CTRL + C while the program is running, the signal handler captures the SIGINT signal and increases the "signalCount" variable. While the program is running, it checks this value and if it increases, it realizes that the SIGINT signal has arrived and free the resources it receives and terminates the program safely.

"#Include <dirent.h>" library is used to open the files in the directory and find the files in it. The + regexp was not implemented. When searching by file name, the name must be entered in full. Other than that, other requirements have been fulfilled.