Course COMP-8567
Assignment 01
Summer 2024
Due Date: Jun/11/2024, 11 PM

Write a C program **dftw** that performs actions based on various command line arguments as listed below:

dftw -nf [*root_dir*]

- Lists the count of all files present in the entire subtree rooted at *root_dir*
- *root_dir* is a valid absolute path of a directory that belongs to the subtree rooted at ~ (home directory)

Example: $dftw -nf /home/pranga/chapter2 should list the count of all files in the **entire subtree rooted at /home/pranga/chapter2** , i.e not only the files in the chapter2 folder but also all of its subdirectories, further subdirectories(if any) , and so on.

dftw -nd [*root_dir*]

- Lists the count of **all directories** present in the entire subtree rooted at *root_dir*

dftw -sf [*root_dir*]

- Lists the size of **all files (in bytes)** present in the entire subtree rooted at *root_dir*

dftw -cpx [*source_dir*] [*destination_dir*] [*file extension*]

Copy the entire subdirectory rooted at *source_dir* to *destination_dir* and <u>do not delete</u> the directory (and contents) rooted at <u>*source dir*</u>.

- Exclude files of type denoted by the *file extension*
- The sub-directory structure at the destination must match the subdirectory structure at the source.
- *file extension*: .c, .txt, .pdf (one of the three)
- If *file extension* is not provided, all files must be copied

Example: ==$dftw -cpx /home/pranga/chapter2 /home/pranga/Documents .txt== must copy the entire subdirectory rooted at chapter2 to Documents (minus the .txt files).

dftw -mv [*source_dir*] [*destination_dir*]

Move the entire subdirectory directory rooted at *source_dir* to *destination_dir* and <u>delete</u> the directory (and contents) rooted at <u>*source dir*</u>.

Mandatory Requirement:

You must use the system call nftw() that allows you to traverse a file tree. This system call will recursively visit all the files/directories present in the tree and will call you own function (a function that you pass as a parameter). You need to read the manual of nftw() before you start working on your assignment.

Submission Instructions (Note: Plagiarism Detection Tool: MOSS)

You need to submit the following:
1. a1_firstname_lastname_SID.c
3. Zoom/Google Drive recording link explaining the following (not more than 15 minutes)
   - Overall working of the code and various modules (around 8-9 minutes)
   - Execution of the code under various inputs/conditions as per the requirements of the assignment (around 6-7 minutes)
   - Other form of links/MP4 files will NOT be acceptable.
   - Include the link in the COMMENTS section.