CSE344 System Programming

Homework #1

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1) How did I solve this problem?

Firstly, i checked number of arguments. If it is less than 5, i printed an error and exit. Additionally if it higher than 13, i printed an error and exit. If an argument use more than one, i printed an error and exit.

After i check these conditions, i found the arguments of the flags using getopt() function. I did them in handleCommandLine() function.

While i check the arguments of the flags, i carefully check.

For example;

For -b flag, if the argument is not an integer, i printed an error and exit.

For -l flag, if the argument is not an integer, i printed an error and exit.

For -t flag, if the argument is not any of 'd','s','b','c','f','p','l', i printed an error and exit.

For -p flag, if the argument's length is not 9, i printed an error and exit.

And also, if the -w flag is not exist, i printed an error and exit.

And i sent the arguments to getFiles() function.

In this function, i recursively find all directory and all files using opendir() and readdir() functions. If the file is a directory i check it and i decide whether i print the file. After that, i check also the under directories of the directory to find the requested file. If the requested file is not found, i don't print any of the above directories. And if the file is not a directory i check the stat of the file. If the stat matches the requested file's stat, i print it.

While i use the libraries i need, i had to use string.h library functions but i implemented myself these functions.

These functions are : myStrlen(), myStrcpy(), myStrcat().

I needed also a some other libraries functions. I also implemented myself these functions.

These functions are : isNumber().

And of course, i should have printed these stuff i found. For this, i used write() system call in my functions.

These functions are :

printErrorExit() -> It prints the error to stderr and exit the program.

printWithNewline() -> It prints the output to stdout with new line.

printWithoutNewline() -> It prints the output to stdout without new line.

2) My design decisions

I designed the homework in a way that I can handle possible errors. If the error is possible in a way, I tried to check and handle it. While i design the homework, i was careful for any memory leak problem or such like that.

If the given path is something that should not be reached, i don't printed out any error to stderr because according to my choices, the program should not terminate due to this problem.

3) Requirements I achieved and which I have failed

I achieved almost all requirements, but I might have not achieved some requirements I don't know.

4) My Files

171044014_hw1.c   -> Main program

171044014_hw1.h -> My main functions

171044014_helper_hw1.h -> My helper functions

5) Some screenshots from the program

```
harunalbayrak@harunalbayrak:~/Desktop/system/hw1$ ./myFind -w . -f fil+e
.
|--folder1
|----folder3
|------folderr4
|--------fillLLlle
|--fillLLlle
```

```
harunalbayrak@harunalbayrak:~/Desktop/system/hw1$ ./myFind -w . -f file1saa
.
|--file1saa
|--folder1
|----file1saa
|----folder2
|------file1saa
|------folder6
|--------file1saa
```

```
harunalbayrak@harunalbayrak:~/Desktop/system/hw1$ ./myFind -w . -f asdzxc
.
No file found
```

```
harunalbayrak@harunalbayrak:~/Desktop/system/hw1$ ./myFind -w .
Insufficient parameters: The program does not satisfy parameters.
harunalbayrak@harunalbayrak:~/Desktop/system/hw1$ ./myFind -w . -p zxc
Wrong parameter argument: -p flag's argument has to have length of 9.
harunalbayrak@harunalbayrak:~/Desktop/system/hw1$ ./myFind -w . -t v
Wrong parameter argument: -t flag's argument has to be one of them 'd','s','b','c','f','p','l'.
harunalbayrak@harunalbayrak:~/Desktop/system/hw1$ ./myFind -w . -t v -t 2
Wrong parameter argument: -t flag's argument has to be one of them 'd','s','b','c','f','p','l'.
harunalbayrak@harunalbayrak:~/Desktop/system/hw1$ ./myFind -w . -t d -t s
Each flag can only use one time.
harunalbayrak@harunalbayrak:~/Desktop/system/hw1$ ./myFind -w . -b s
Wrong parameter argument: -b flag's argument has to be number.
harunalbayrak@harunalbayrak:~/Desktop/system/hw1$ ./myFind -w . -l 4s
Wrong parameter argument: -l flag's argument has to be number.
```

```
harunalbayrak@harunalbayrak:~/Desktop/system/hw1$ valgrind ./myFind -w /home -f file
==16263== Memcheck, a memory error detector
==16263== Copyright (C) 2002-2017, and GNU GPL'd, by Julian Seward et al.
==16263== Using Valgrind-3.13.0 and LibVEX; rerun with -h for copyright info
==16263== Command: ./myFind -w /home -f file
==16263==
/home
|--harunalbayrak
|--harunalbayrak
|--harunalbayrak
|----.config
|------Code
|--------Backups
|----------88eeb51b0adcc75830f7e634f70c832b
|------------file
|----Desktop
|------indirilenler
|--------OzURover-master
|----------UI
|------------rover-ui
|--------------node_modules
|----------------@babel
|------------------core
|--------------------lib
|----------------------transformation
|------------------------file
|----Development
|------gtu-rover-web-gui
|--------node_modules
|----------@babel
|------------core
|--------------lib
|----------------transformation
|------------------file
==16263==
==16263== HEAP SUMMARY:
==16263==     in use at exit: 0 bytes in 0 blocks
==16263==   total heap usage: 184,064 allocs, 184,064 frees, 6,040,244,224 bytes allocated
==16263==
==16263== All heap blocks were freed -- no leaks are possible
==16263==
==16263== For counts of detected and suppressed errors, rerun with: -v
==16263== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
```