

Gebze Technical University
Computer Engineering

CSE344 – System Programming
HOMEWORK #1
REPORT

JIN HUSSEIN
151044079

1 INTRODUCTION

1.1 Problem Definition

The homework is about a file search program for POSIX compatible operating systems. The program searches for files satisfying the given criteria, and print out the results.

Explanation :

the program starts with parsing the input line and checking if there is any missing commands ,I used the getopt() function to solve this problem.

Then the program calls the find() function which search for the desired file

In the find() function : the program firstly checks if it can open the given directory or not, if not it prints an error message to stderr and exits the program.

Then it starts searching , in a while loop it check if either the given entry name is a directory or not , if so it gets into the directory and calls findchild function.

Then depending on a flag the it gets from the findchild() function or the return value that it gets from compare() function , it either prints that folder's name or ignore it and calls itself to be searching in all the other files and directory inside it .

If the given entry name is a file then it calls the compare function to compare the criteria of that file with the given criteria , if it match then it prints that files name.

2 HELPER FUNCTIONS

Compare() : It compares the given file criteria with the entry file criteria depending on the available criteria it returns '0' in case the criteria are not the same , '1' otherwise .

filePermStr() ; it finds the permissions of the file and compares it with the given permissions , it returns 1 in case of equality ,-1 otherwise.

Findchild() : it search in the the subdirectories of a directory for the given file , this function is to decide whether to print that directories name or not .

RemoveChar(): it removes a single character from the given string .

3 RUNNING RESULTS

```
cse312@ubuntu: ~/Desktop
cse312@ubuntu:~/Desktop$ ./myfind -w /home/cse312 -f 'tar+get'
Desktop
----system
-----system2
-----1
-----4
-----5
-----tarrrrrrget
-----tarrrrrget
cse312@ubuntu:~/Desktop$

cse312@ubuntu: ~/Desktop
cse312@ubuntu:~/Desktop$ make
gcc -c 151044079.c -Wall -Wextra
gcc -o myfind 151044079.o -Wall -Wextra
cse312@ubuntu:~/Desktop$ valgrind ./myfind -w /home/cse312/Desktop -f 'jin.txt'
==5010== Memcheck, a memory error detector
==5010== Copyright (C) 2002-2013, and GNU GPL'd, by Julian Seward et al.
==5010== Using Valgrind-3.10.1 and LibVEX; rerun with -h for copyright info
==5010== Command: ./myfind -w /home/cse312/Desktop -f jin.txt
==5010==
system
----sistem1
-----2
-----Untitled Folder
-----1
-----3
-----jin.txt
-----6565e6y
-----trshsrthtr
-----trhstrhtr
-----trshtrhrth
-----jin.txt
==5010==
==5010== HEAP SUMMARY:
==5010==   in use at exit: 0 bytes in 0 blocks
==5010==   total heap usage: 104 allocs, 104 frees, 3,410,784 bytes allocated
==5010==
==5010== All heap blocks were freed -- no leaks are possible
==5010==
==5010== For counts of detected and suppressed errors, rerun with: -v
==5010== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
cse312@ubuntu:~/Desktop$
```

```
cse312@ubuntu: ~/Desktop
cse312@ubuntu:~/Desktop$ sudo ./myfind -w / -f 'tar+get'
[sudo] password for cse312:
home
----cse312
-----Desktop
-----system
-----system2
-----1
-----4
-----5
-----tarrrrrrget
-----tarrrrget
usr
----src
-----linux-headers-4.4.0-31
-----drivers
-----target
-----include
-----target
-----linux-headers-4.4.0-31-generic
-----include
-----config
-----ip6
-----nf
-----target
-----netfilter
-----xt
-----target
-----ip
-----nf
-----target
-----target
-----target
-----linux-headers-4.4.0-64
-----drivers
-----target
-----include
-----target
-----linux-headers-4.4.0-64-generic
-----include
-----config
-----ip6
-----nf
-----target
-----include
-----target
-----linux-headers-4.4.0-64-generic
-----include
-----config
-----ip6
-----nf
-----target
-----include
-----target
-----linux-headers-4.4.0-64-generic
-----include
-----config
-----ip6
-----nf
-----target
-----netfilter
-----xt
-----ip
-----nf
-----target
-----target
-----target
-----include
-----X11
-----bitmaps
-----target
-----share
-----icons
-----whiteglass
-----cursors
-----target
-----DMZ-Black
-----cursors
-----target
-----DMZ-White
-----cursors
-----target
lib
----modules
-----4.4.0-64-generic
-----kernel
-----drivers
-----target
-----4.4.0-31-generic
-----kernel
-----drivers
-----target
cse312@ubuntu:~/Desktop$
```

```
cse312@ubuntu: ~/Desktop
cse312@ubuntu:~/Desktop$ valgrind ./myfind -w /home/cse312/Desktop -f 'ji+n'
==5036== Memcheck, a memory error detector
==5036== Copyright (C) 2002-2013, and GNU GPL'd, by Julian Seward et al.
==5036== Using Valgrind-3.10.1 and LibVEX; rerun with -h for copyright info
==5036== Command: ./myfind -w /home/cse312/Desktop -f ji+n
system
----sistem1
-----2
-----Untitled Folder
-----1
-----jin
-----jiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiin
==5036==
==5036== HEAP SUMMARY:
==5036==   in use at exit: 0 bytes in 0 blocks
==5036==   total heap usage: 104 allocs, 104 frees, 3,410,784 bytes allocated
==5036==
==5036== All heap blocks were freed -- no leaks are possible
==5036==
==5036== For counts of detected and suppressed errors, rerun with: -v
==5036== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
cse312@ubuntu:~/Desktop$
```