Gebze Technical University
Computer Engineering

CSE 344 - 2021 Spring

HOMEWORK 1 REPORT

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1 INTRODUCTION

1.1 Problem Definition

Advanced file search with some parameters:

-Size(bytes)

-Type

-Name(with "+" regexp parsing)

-Permissions

-Number of links

1.2 System Requirements

Any computer with Ubuntu 14.04 LTS 32-bit Operating System.

2 METHOD

2.1 Problem Solution Approach

Firstly,my program reads the all parameters using getopt(). If there are more than one same parameter, the program exits with error.The user must enter at least 2 parameter and one of parameter must be path(-w).My program reads the path using opendir() and gets the information via fstatat() and then compares the parameters with the entries. If the entry is a directory, the function calls itself (Recursively). It checks the name of the file one by one. If "+" symbol is used, it checks with before the "+" symbol. The size of file and number of links check with stat struct. Permissions and type of the file check with st_mode variable. The st_mode variable is parsing into two part, last 9 bit is used for permission and the other part is used for type of the file. If the conditions are met, the program prints the path and continues the loop until there are no path remain. If a signal sent(ctrl+c), the program exits.

3 RESULT

3.1 Test Cases

I used some test path with the all parameters and checked with valgrind for memory leaks. Also the CTRL+C signal is tested.

3.2 Running Results

All inputs test:

```
madtracks@PC-MADTRACKS:/mnt/c/Users/MadTracks/Desktop/CSE344/Hw1$ ./hw1 -w /mnt/c/Users/MadTracks/Desktop/CSE344 -f file.txt -b 8 -t f -p rwxrwxrwx -l 1
/mnt/c/Users/MadTracks/Desktop/CSE344
|--example
|----rest
|------asfasf
|--------rex
|----------file.txt
madtracks@PC-MADTRACKS:/mnt/c/Users/MadTracks/Desktop/CSE344/Hw1$
```

Regular expression test:

```
madtracks@PC-MADTRACKS:/mnt/c/Users/MadTracks/Desktop/CSE344/Hw1$ ./hw1 -w /mnt/c/Users/MadTracks/Desktop/CSE344 -f te+st
/mnt/c/Users/MadTracks/Desktop/CSE344
|--example
|----test

|--example
|----test
|------gsadg
|--------teeeeeeeeeeeeeeest
madtracks@PC-MADTRACKS:/mnt/c/Users/MadTracks/Desktop/CSE344/Hw1$
```

Signal test:

```
madtracks@PC-MADTRACKS:/mnt/c/Users/MadTracks/Desktop/CSE344/Hw1$ ./hw1 -w /mnt/c/Users/MadTracks/Desktop -f file.txt -b 8 -t f -p rwxrwxrwx -l 1
^CEXITING.
madtracks@PC-MADTRACKS:/mnt/c/Users/MadTracks/Desktop/CSE344/Hw1$
```