

Government Engineering College, Thrissur  
CS331 – System Software Lab  
Documentation -  
Exp3 – File Organization Techniques

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# Experiment 3

Simulate the following file organization techniques

- a) Single level directory                      b) Two level directory                      c) Hierarchical

## Compilation of Code

### Prerequisite

- The code is provided in the **program.c** along with this documentation. You can open the terminal in Linux (Ubuntu 18.04 tested). Then run the command

```
gcc program.c
```

```
./a.out
```

- We can execute the code in console and see the output as soon as we press enter key. There are **two menu drivers**. One for the selection of the technique and one for the doing the operations on the file and directory.

1. *Single Level Directory Structure*: There will be only one main directory here I named it as *Main*. We can create files in this directory. There are no sub directory creation. The operations allowed here are

Create File, Delete File, Search for file, Traverse the directory structure

2. *Two Level Directory Structure*: We will be able to do file as well as folder. The main directory is called the *Main* in this program. We can create folder (directory) as the sibling to the main directory. This brings a user level directory creation ability in the operating system. The operation allowed here are

Create Folder, Create File, Delete File, Search for file, Traverse the directory structure

3. *Hierarchical Directory Structure*: When we use this type of strategy we will be able to bring different type of arrangement in storing the files. We can create file/folder as sibling or child of a parent directory. This does not allow users to create folder inside file. The file is the basic unit of storing data. Operations allowed are same as that of Two Level

- Output of the code will be printed on the **console**
- Note: Please see the my\_machine\_output.txt file for the output I got on my machine.**

## Output / Screenshots

Menu

```
-----Menu-----  
1. Single Level  
2. Two Level  
3. Hierarchy  
4. Exit  
Select menu: █
```

Output of each menu item

### 1. Single Level Directory Structure

Menu

```
-----Single level-----  
-----Single Level menu-----  
1. Create  
2. Delete  
3. Traverse  
4. Search  
5. Exit  
Select Menu: █
```

#### 1. Create file in single level directory structure

```
-----Single Level menu-----  
1. Create  
2. Delete  
3. Traverse  
4. Search  
5. Exit  
Select Menu: 1  
Name: ABC.txt  
Created Date: 05/05/2020  
Size: 20kb  
Permission: R/W/E  
File Created Successfully  
-----Single Level menu-----  
1. Create  
2. Delete  
3. Traverse  
4. Search  
5. Exit  
Select Menu: 3  
-----File Content-----  
Root Directory:ABC.txt->
```

## 2. Delete File in Two Level Directory Structure

```
-----Single Level menu-----
1. Create
2. Delete
3. Traverse
4. Search
5. Exit
Select Menu: 2
Name: ABC.txt
Location: Root Directory
No of files: 1
Count: 0
Created On: 5/6/18
Size: 21kb
Permission: R/W/X

File Deleted Successfully
```

## 3. Search File in Two Level Directory Structure

```
-----Single Level menu-----
1. Create
2. Delete
3. Traverse
4. Search
5. Exit
Select Menu: 4
Name: NOTES
NOTES NOT found in Root Directory directory
```

## 2. Two Level Directory Structure

### Menu

```
-----Menu-----
1. Single Level
2. Two Level
3. Hierarchy
4. Exit
Select menu: 2
-----Two level-----
-----Two Level Menu-----
1. Create Folder
2. Create File
3. Delete File
4. Search File
5. Traverse
6. Exit
Select Menu: █
```

## 1. Create Directory in Two Level Directory Structure

```
-----Two Level Menu-----
1. Create Folder
2. Create File
3. Delete File
4. Search File
5. Traverse
6. Exit
Select Menu: 1
Name: Secondary
Created Date: 06/06/2020
Permission: R/W/E
Directory Created Successfully
-----Two Level Menu-----
1. Create Folder
2. Create File
3. Delete File
4. Search File
5. Traverse
6. Exit
Select Menu: 5
-----File Content-----
Main:
|
v
Secondary:
```

## 2. Create File in Two Level Directory Structure

```
-----Two Level Menu-----
1. Create Folder
2. Create File
3. Delete File
4. Search File
5. Traverse
6. Exit
Select Menu: 2
Parent Folder: Main
Name: ABC.txt
Created Date: 05/08/2020
Size: 20kb
Permission: R/W/E
File Created Successfully
-----Two Level Menu-----
1. Create Folder
2. Create File
3. Delete File
4. Search File
5. Traverse
6. Exit
Select Menu: 5
-----File Content-----
Main: ABC.txt->
|
v
Secondary:
```

### 3. Delete in Two Level Directory Structure

```
-----Two Level Menu-----
1. Create Folder
2. Create File
3. Delete File
4. Search File
5. Traverse
6. Exit
Select Menu: 3
Parent Folder: Main
Name: ABC.txt
ABC.txt deleted from the directory Main
Directory: Main
File Count: 0
Size: 0
Date created: 06/06/2020
Permission: R/W/E

-----Two Level Menu-----
1. Create Folder
2. Create File
3. Delete File
4. Search File
5. Traverse
6. Exit
Select Menu: 5
-----File Content-----
Main:
```

### 4. Search in Two Level Directory Structure

```
-----Two Level Menu-----
1. Create Folder
2. Create File
3. Delete File
4. Search File
5. Traverse
6. Exit
Select Menu: 3
Parent Folder: Main
Name: ABC.txt
ABC.txt deleted from the directory Main
Directory: Main
File Count: 0
Size: 0
Date created: 06/06/2020
Permission: R/W/E

-----Two Level Menu-----
1. Create Folder
2. Create File
3. Delete File
4. Search File
5. Traverse
6. Exit
Select Menu: 5
-----File Content-----
Main:
```

### 3. Hierarchical Directory Structure

#### Menu

```
-----Menu-----
1. Single Level
2. Two Level
3. Hierarchy
4. Exit
Select menu: 3
-----Hierarchy level-----
-----Hierarchy Level Menu-----
1. Create Folder
2. Create File
3. Delete File
4. Search File
5. Traverse
6. Exit
Select Menu: █
```

#### 1. Create Directory in Hierarchical Directory Structure

```
-----Hierarchy Level Menu-----
1. Create Folder
2. Create File
3. Delete File
4. Search File
5. Traverse
6. Exit
Select Menu: 1
Parent Folder: Main
Name: Sec
Created Date: 05/05/2020
Permission: R/W/E
Directory Created Successfully
```

#### 2. Create File in Hierarchical Directory Structure

```
-----Hierarchy Level Menu-----
1. Create Folder
2. Create File
3. Delete File
4. Search File
5. Traverse
6. Exit
Select Menu: 2
Parent Folder: Sec
Name: Hello.txt
Created Date: 06/06/2020
Size: 40kb
Permission: R/W/E
File Created Successfully
-----Hierarchy Level Menu-----
1. Create Folder
2. Create File
3. Delete File
4. Search File
5. Traverse
6. Exit
Select Menu: 5
-----File Content-----
Main ((null))
Sec (Main)
Hello.txt (Sec)
```

### 3. Delete File in Hierarchical Directory Structure

```
-----Hierarchy Level Menu-----
1. Create Folder
2. Create File
3. Delete File
4. Search File
5. Traverse
6. Exit
Select Menu: 3
Parent Folder: Sec
Name: Hello.txt
File Deleted Successfully
-----Hierarchy Level Menu-----
1. Create Folder
2. Create File
3. Delete File
4. Search File
5. Traverse
6. Exit
Select Menu: 5
-----File Content-----
Main ((null))
Sec (Main)
```

### 4. Search Directory in Hierarchical Directory Structure

```
-----Hierarchy Level Menu-----
1. Create Folder
2. Create File
3. Delete File
4. Search File
5. Traverse
6. Exit
Select Menu: 4
Name: Hello.txt
File Hello.txt Found
Location: Sec
Date created: 06/06/2020
Permission: R/W/E
```

### 4. Exit

```
-----Menu-----
1. Single Level
2. Two Level
3. Hierarchy
4. Exit
Select menu: 4
hp@hp-hp:~/Documents/Lab/Exp3/Upload$
```