

Government Engineering College, Thrissur  
CS331 – System Software Lab  
Documentation -  
**Exp 3 - File Organization Techniques**

Date of Submission  
5 September 2020

Submitted By  
**SHUAIB ABUBAKKER BAPPUTTY HAJI**  
Roll No 56  
TCR18CS056  
GECT CSE S5

## **AIM:**

Simulate the following file organization techniques

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

## **THEORY:**

The directory structure is the organization of files into a hierarchy of folders. In a single-level directory system, all the files are placed in one directory. There is a root directory which has all files. It has a simple architecture and there are no sub directories. Advantage of single level directory system is that it is easy to find a file in the directory. In the two-level directory system, each user has own user file directory (UFD). The system maintains a master block that has one entry for each user. This master block contains the addresses of the directory of the users. When a user job starts or a user logs in, the system's master file directory (MFD) is searched. When a user refers to a particular file, only his own UFD is searched. This effectively solves the name collision problem and isolates users from one another. Hierarchical directory structure allows users to create their own subdirectories and to organize their files accordingly. A tree is the most common directory structure. The tree has a root directory, and every file in the system has a unique path name. A directory (or subdirectory) contains a set of files or subdirectories.

## **RESULTS:**

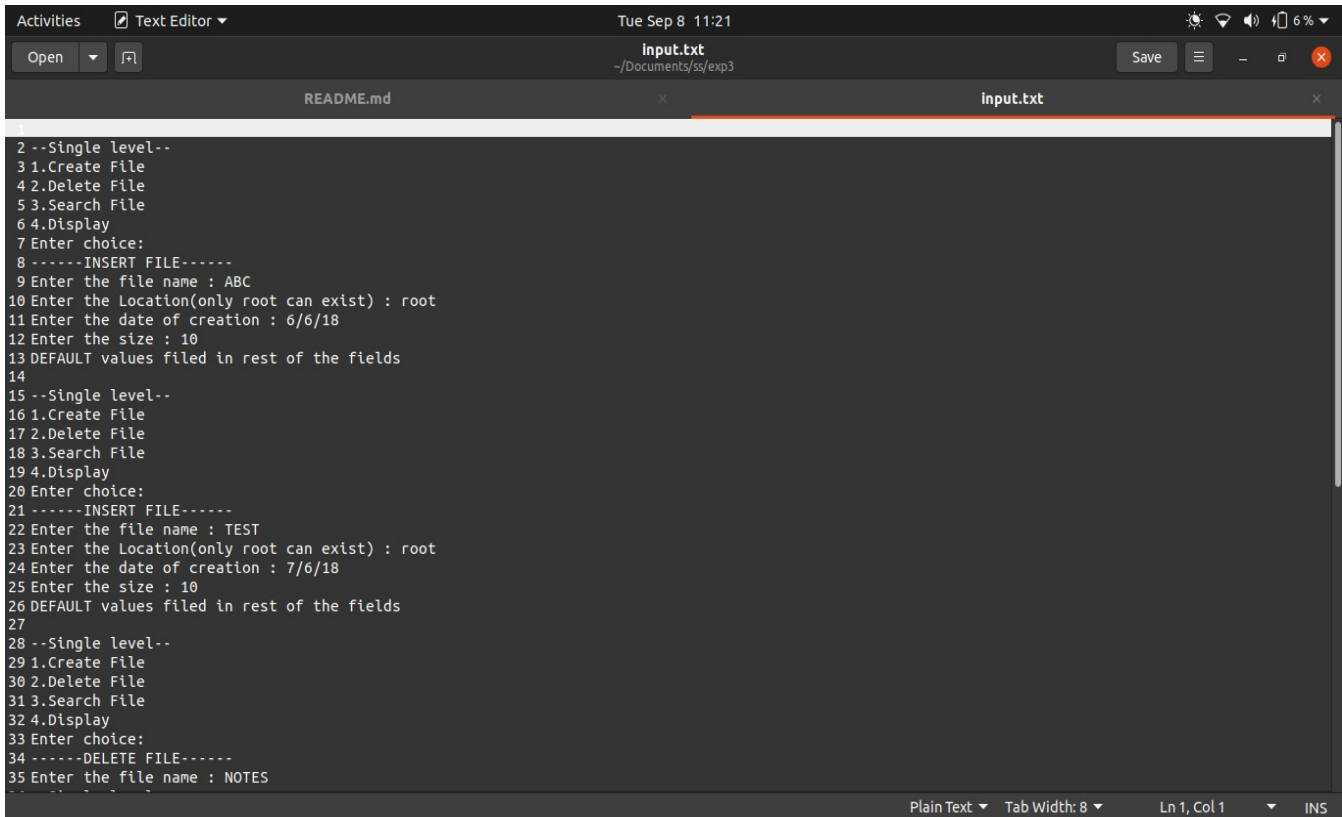
All the levels of file organisation techniques were implemented including

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

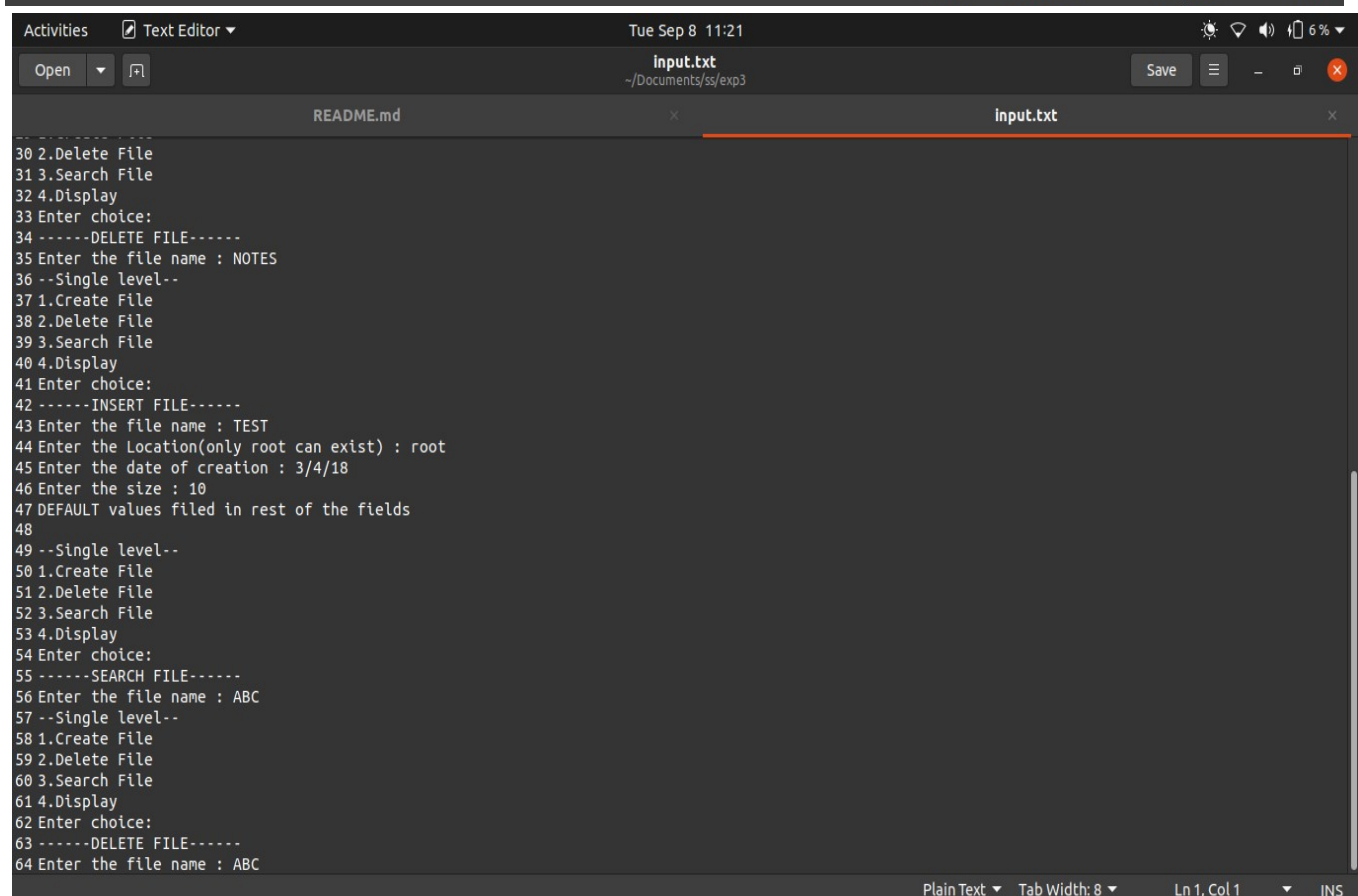
# Output / Screenshots

## 1. SINGLE LEVEL

### Input

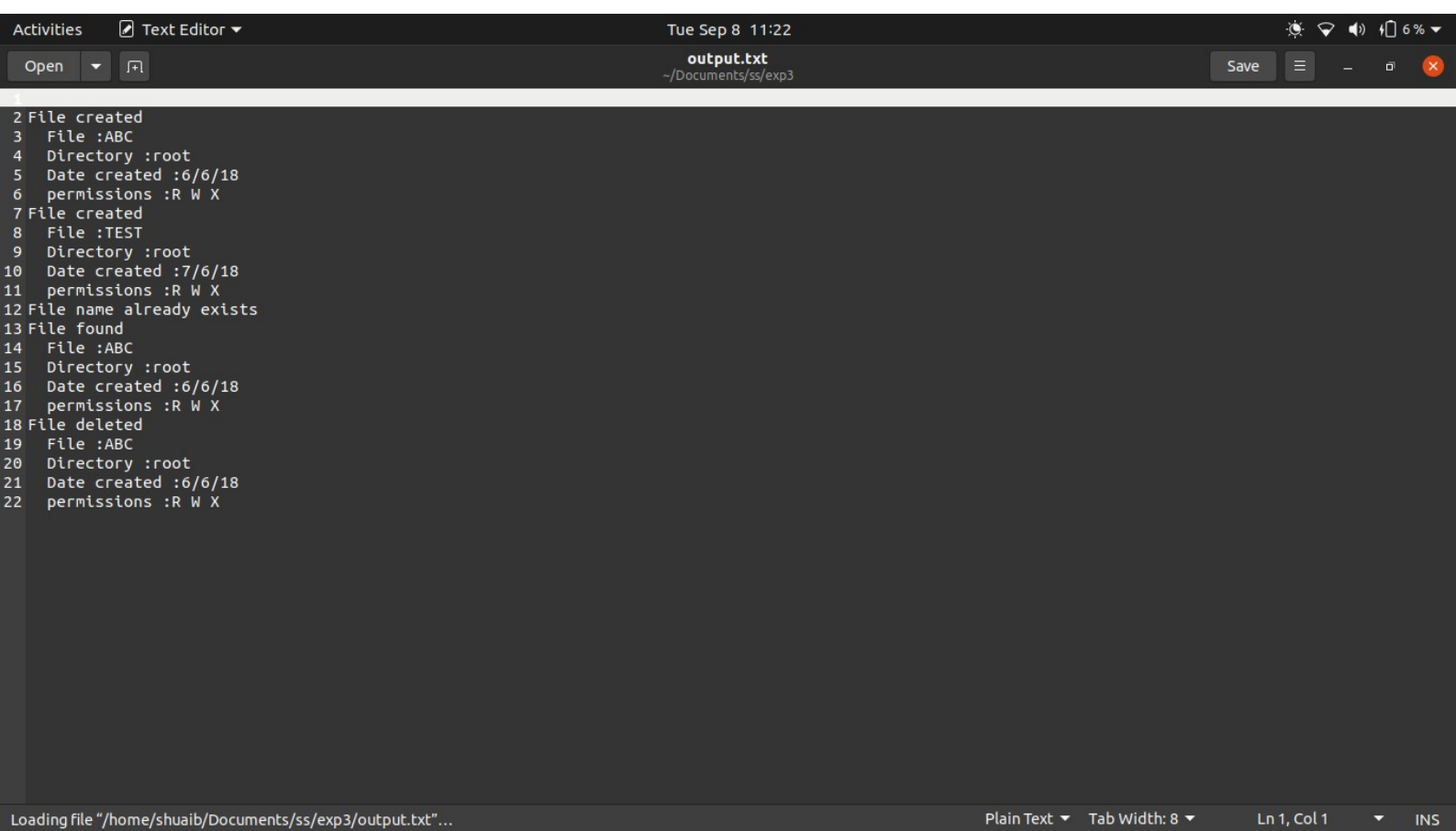


```
2 --Single level--
3 1.Create File
4 2.Delete File
5 3.Search File
6 4.Display
7 Enter choice:
8 -----INSERT FILE-----
9 Enter the file name : ABC
10 Enter the Location(only root can exist) : root
11 Enter the date of creation : 6/6/18
12 Enter the size : 10
13 DEFAULT values filed in rest of the fields
14
15 --Single level--
16 1.Create File
17 2.Delete File
18 3.Search File
19 4.Display
20 Enter choice:
21 -----INSERT FILE-----
22 Enter the file name : TEST
23 Enter the Location(only root can exist) : root
24 Enter the date of creation : 7/6/18
25 Enter the size : 10
26 DEFAULT values filed in rest of the fields
27
28 --Single level--
29 1.Create File
30 2.Delete File
31 3.Search File
32 4.Display
33 Enter choice:
34 -----DELETE FILE-----
35 Enter the file name : NOTES
```



```
30 2.Delete File
31 3.Search File
32 4.Display
33 Enter choice:
34 -----DELETE FILE-----
35 Enter the file name : NOTES
36 --Single level--
37 1.Create File
38 2.Delete File
39 3.Search File
40 4.Display
41 Enter choice:
42 -----INSERT FILE-----
43 Enter the file name : TEST
44 Enter the Location(only root can exist) : root
45 Enter the date of creation : 3/4/18
46 Enter the size : 10
47 DEFAULT values filed in rest of the fields
48
49 --Single level--
50 1.Create File
51 2.Delete File
52 3.Search File
53 4.Display
54 Enter choice:
55 -----SEARCH FILE-----
56 Enter the file name : ABC
57 --Single level--
58 1.Create File
59 2.Delete File
60 3.Search File
61 4.Display
62 Enter choice:
63 -----DELETE FILE-----
64 Enter the file name : ABC
```

# OUTPUT



```
2 File created
3   File :ABC
4   Directory :root
5   Date created :6/6/18
6   permissions :R W X
7 File created
8   File :TEST
9   Directory :root
10  Date created :7/6/18
11  permissions :R W X
12 File name already exists
13 File found
14   File :ABC
15   Directory :root
16   Date created :6/6/18
17   permissions :R W X
18 File deleted
19   File :ABC
20   Directory :root
21   Date created :6/6/18
22   permissions :R W X
```

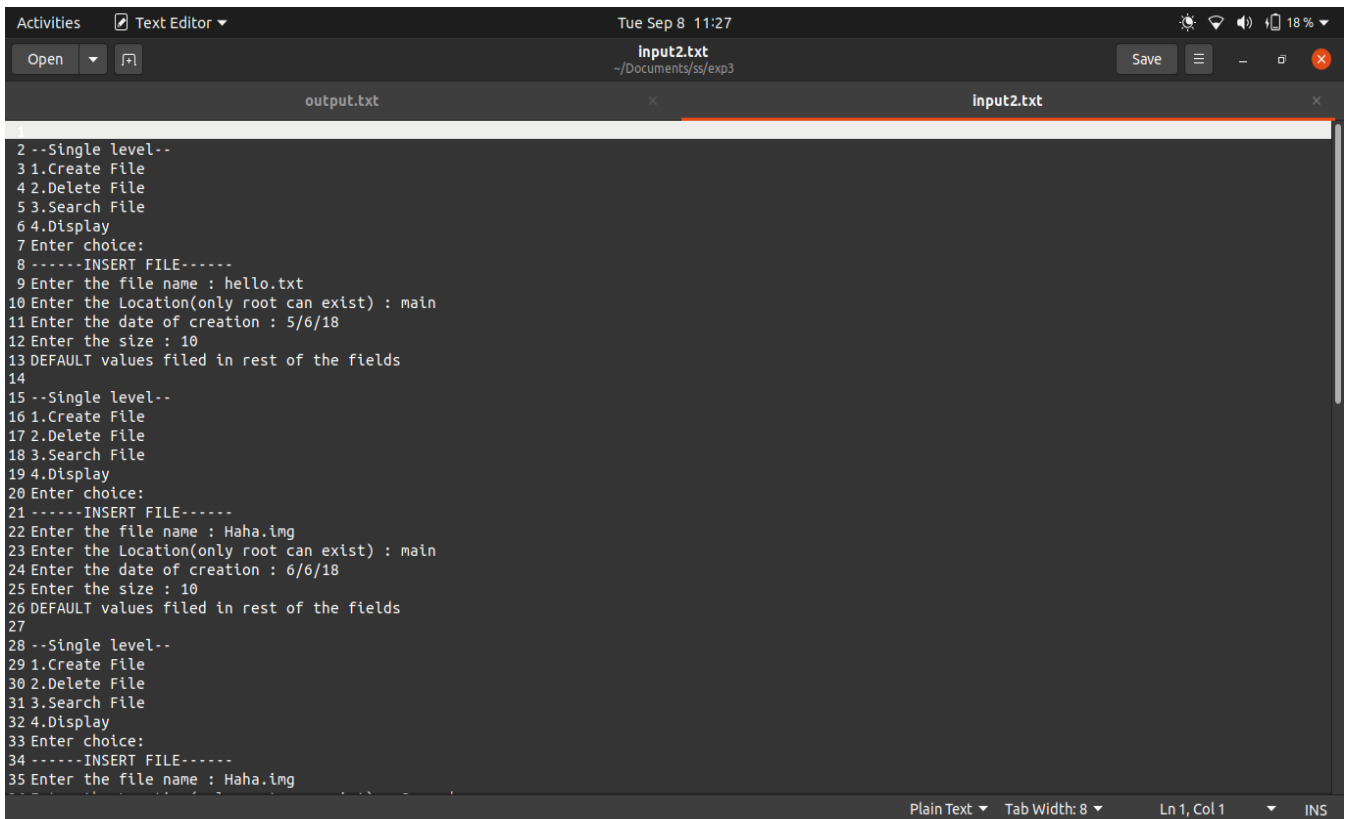
Loading file "/home/shuaib/Documents/ss/exp3/output.txt"...

Plain Text ▾ Tab Width: 8 ▾ Ln 1, Col 1 ▾ INS

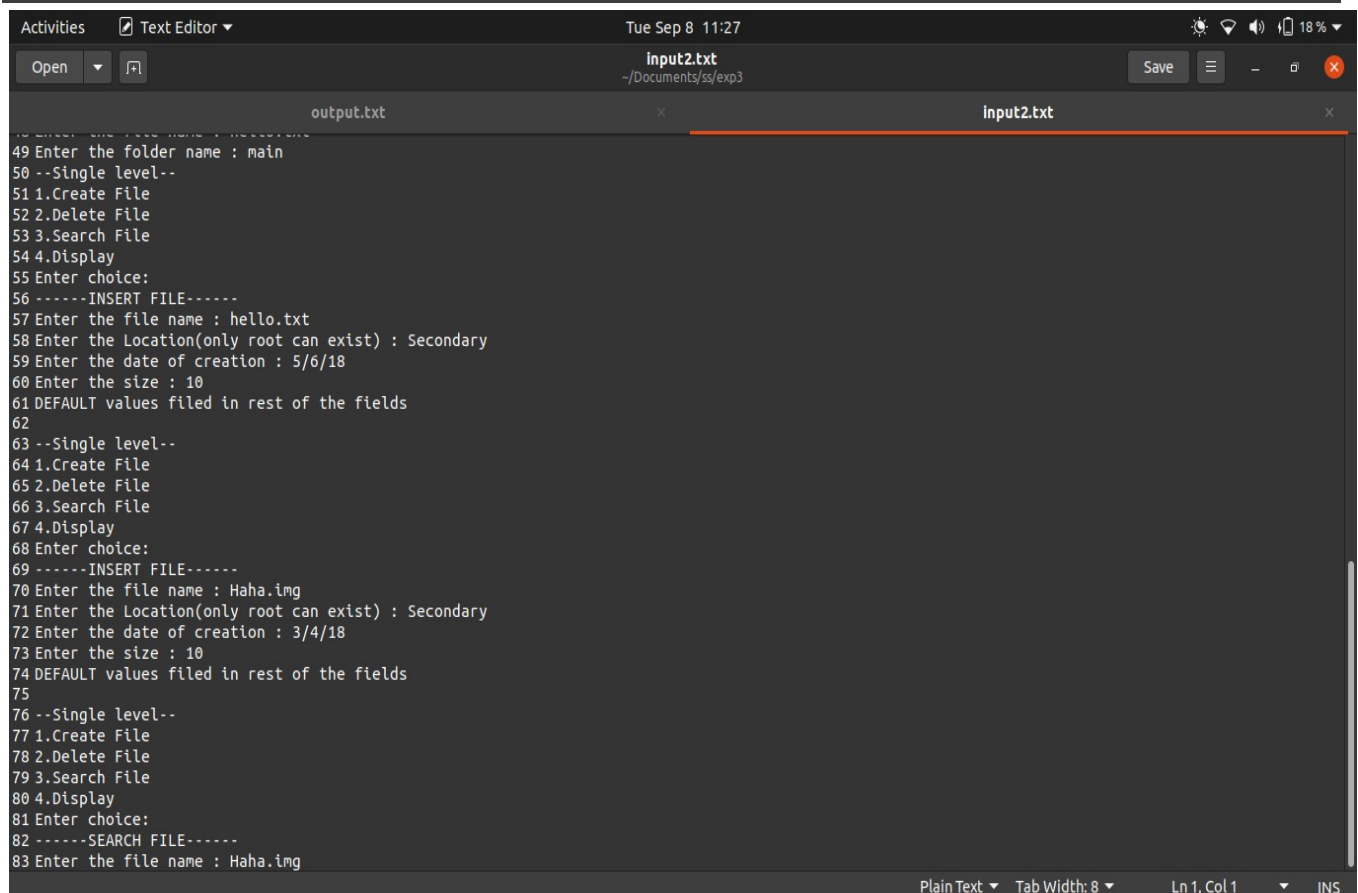
# Output / Screenshots

## 2. TWO LEVEL

### Input



```
2 --Single level--
3 1.Create File
4 2.Delete File
5 3.Search File
6 4.Display
7 Enter choice:
8 -----INSERT FILE-----
9 Enter the file name : hello.txt
10 Enter the Location(only root can exist) : main
11 Enter the date of creation : 5/6/18
12 Enter the size : 10
13 DEFAULT values filed in rest of the fields
14
15 --Single level--
16 1.Create File
17 2.Delete File
18 3.Search File
19 4.Display
20 Enter choice:
21 -----INSERT FILE-----
22 Enter the file name : Haha.img
23 Enter the Location(only root can exist) : main
24 Enter the date of creation : 6/6/18
25 Enter the size : 10
26 DEFAULT values filed in rest of the fields
27
28 --Single level--
29 1.Create File
30 2.Delete File
31 3.Search File
32 4.Display
33 Enter choice:
34 -----INSERT FILE-----
35 Enter the file name : Haha.img
```



```
49 Enter the folder name : main
50 --Single level--
51 1.Create File
52 2.Delete File
53 3.Search File
54 4.Display
55 Enter choice:
56 -----INSERT FILE-----
57 Enter the file name : hello.txt
58 Enter the Location(only root can exist) : Secondary
59 Enter the date of creation : 5/6/18
60 Enter the size : 10
61 DEFAULT values filed in rest of the fields
62
63 --Single level--
64 1.Create File
65 2.Delete File
66 3.Search File
67 4.Display
68 Enter choice:
69 -----INSERT FILE-----
70 Enter the file name : Haha.img
71 Enter the Location(only root can exist) : Secondary
72 Enter the date of creation : 3/4/18
73 Enter the size : 10
74 DEFAULT values filed in rest of the fields
75
76 --Single level--
77 1.Create File
78 2.Delete File
79 3.Search File
80 4.Display
81 Enter choice:
82 -----SEARCH FILE-----
83 Enter the file name : Haha.img
```

## OUTPUT



The screenshot shows a terminal window titled "output2.txt" with the path "~/Documents/ss/exp3". The terminal displays a series of file operations and their outputs, including file creation, directory listing, and file deletion. The output is as follows:

```
2 File created
3 File :hello.txt
4 Directory :main
5 Date created :5/6/18
6 permissions :R W X
7 File created
8 File :Haha.img
9 Directory :main
10 Date created :6/6/18
11 permissions :R W X
12 File created
13 File :Haha.img
14 Directory :Secondary
15 Date created :7/7/18
16 permissions :R W X
17 File deleted
18 File :hello.txt
19 Directory :main
20 Date created :5/6/18
21 permissions :R W X
22 File created
23 File :hello.txt
24 Directory :Secondary
25 Date created :5/6/18
26 permissions :R W XCannot insert file. A file with this name already exists
27 MATCH 1 -
28 File :Haha.img
29 Directory :main
30 Date created :6/6/18
31 permissions :R W X
32 MATCH 2 -
33 File :Haha.img
34 Directory :Secondary
35 Date created :7/7/18
36 permissions :R W X
```

The terminal window includes a top bar with "Activities", "Text Editor", and the date/time "Tue Sep 8 11:27". The bottom status bar shows "Plain Text", "Tab Width: 8", "Ln 1, Col 1", and "INS".

## Output / Screenshots

### 3. HEIRARCHY LEVEL

#### Input

```
Activities Text Editor Tue Sep 8 11:28
input3.txt
~/Documents/ss/exp3 Save

2 --Single level--
3 1.Create File
4 2.Delete File
5 3.Search File
6 4.Create new directory
7 5.Display
8 Enter choice:
9 Enter the folder name : ABCEnter the Location (if the directory does not exist it will be created in the root) : mainEnter the date of creation :
  3/4/18Enter the size : 21
10 --Single level--
11 1.Create File
12 2.Delete File
13 3.Search File
14 4.Create new directory
15 5.Display
16 Enter choice:
17 -----INSERT FILE-----
18 Enter the file name : hello.txt
19 Enter the Location(if dir does not exist it will be created in root) : main
20 Enter the date of creation : 2/3/18
21 Enter the size : 10
22 DEFAULT values filed in rest of the fields
23
24 --Single level--
25 1.Create File
26 2.Delete File
27 3.Search File
28 4.Create new directory
29 5.Display
30 Enter choice:
31 -----INSERT FILE-----
32 Enter the file name : ABC
33 Enter the Location(if dir does not exist it will be created in root) : sec
34 Enter the date of creation : 2/3/18
35 Enter the size : 10
36 DEFAULT values filed in rest of the fields
--
Loading file "/home/shuaib/Documents/ss/exp3/input3.txt"...
```

```
Activities Text Editor Tue Sep 8 11:28
input3.txt
~/Documents/ss/exp3 Save

38 --Single level--
39 1.Create File
40 2.Delete File
41 3.Search File
42 4.Create new directory
43 5.Display
44 Enter choice:
45 -----INSERT FILE-----
46 Enter the file name : CDE
47 Enter the Location(if dir does not exist it will be created in root) : ABC
48 Enter the date of creation : 1/2/18
49 Enter the size : 10
50 DEFAULT values filed in rest of the fields
51
52 --Single level--
53 1.Create File
54 2.Delete File
55 3.Search File
56 4.Create new directory
57 5.Display
58 Enter choice:
59 -----DELETE FILE-----
60 Enter the file name : hello.txt
61 Enter the folder name : main
62 --Single level--
63 1.Create File
64 2.Delete File
65 3.Search File
66 4.Create new directory
67 5.Display
68 Enter choice:
69 -----SEARCH FILE-----
70 Enter the file name : ABC
71 --Single level--
72 1.Create File
73 2.Delete File
74 3.Search File
```

# OUTPUT

```
Activities  Text Editor  Tue Sep 8 11:28
Open  output3.txt  Save  ~ / Documents / ss / exp3

2 File created
3   File :hello.txt
4   Directory :main
5   Date created :2/3/18
6   permissions :R W X
7 Directory :root
8 File created
9   File :ABC
10  Directory :sec
11  Date created :2/3/18
12  permissions :R W X
13 Directory :root
14 File created
15   File :CDE
16  Directory :ABC
17  Date created :1/2/18
18  permissions :R W X
19 Directory :main
20 Directory :sec
21 File deleted
22   File :hello.txt
23   Directory :main
24   Date created :2/3/18
25   permissions :R W X
26 File Found
27 Location: sec
28 Name: ABC
29 Size: 10kb
30 Date: 2/3/18
31 Permissions:R W X
32 Directory :root

Loading file "/home/shuaib/Documents/ss/exp3/output3.txt"...  Plain Text  Tab Width: 8  Ln 1, Col 1  INS
```