

## Learn the following for the OS lab

Access modes, permissions

Creating files, Appending to files, deleting files, renaming files, moving files, finding files

Creating directories, deleting directories,

Virtual consoles, pipes

Operators >, >>

Commands: cd, cat, chmod, cp, date, ls, ps, pwd, sort, who

### **B. Tech (I. T) IV Semester Operating Systems Laboratory**

1. Identify the directory you are working in.

➤ pwd

```
suren@SurenKumar:/mnt/c/Users/suren/OneDrive/Documents/oslab$ pwd
/mnt/c/Users/suren/OneDrive/Documents/oslab
```

2. Create three sub directories in it, dir1, dir2, dir3.

➤ mkdir dir1 dir2 dir3

3. Check if they are created and find out what permissions are given to them by default.

➤ ls -l

```
drwxrwxrwx 1 suren suren 4096 Apr 27 13:57 dir1
drwxrwxrwx 1 suren suren 4096 Apr 27 13:57 dir2
drwxrwxrwx 1 suren suren 4096 Apr 27 13:57 dir3
```

4. Create another sub directory sub\_dir1 under dir1.

➤ Mkdir dir1/subdir1

```
suren@SurenKumar:/mnt/c/Users/suren/OneDrive/Documents/oslab/dir1$ ls
subdir1
suren@SurenKumar:/mnt/c/Users/suren/OneDrive/Documents/oslab/dir1$
```

5. Create a file with name dec22\_file1\_2009..(roll-no) in sub\_dir1 using the vi editor.

```
suren@SurenKumar:/mnt/c/Users/suren/OneDrive/Documents/oslab/dir1$ ls subdir1/
5042.txt
suren@SurenKumar:/mnt/c/Users/suren/OneDrive/Documents/oslab/dir1$
```

6. Find out the default permission given to the above file.

- `ls -l dir1/subdir1/5042.txt`

```
suren@SurenKumar:/mnt/c/Users/suren/OneDrive/Documents/oslab$ ls -l dir1/subdir1/5042.txt
-rwxrwxrwx 1 suren suren 0 Apr 27 2024 dir1/subdir1/5042.txt
suren@SurenKumar:/mnt/c/Users/suren/OneDrive/Documents/oslab$
```

7. Display the contents of the file using “cat”

- `cat dir1/subdir1/5042.txt`

```
suren@SurenKumar:/mnt/c/Users/suren/OneDrive/Documents/oslab$ cat dir1/subdir1/5042.txt
This is a file 5042.txt Created Within the sub directory1
suren@SurenKumar:/mnt/c/Users/suren/OneDrive/Documents/oslab$
```

8. Add a few more lines to the file using the “redirection symbols”.

- `echo "This is new content added by using Redirection symbol" >> dir1/subdir1/5042.txt`

```
suren@SurenKumar:/mnt/c/Users/suren/OneDrive/Documents/oslab$ echo "This is new content added by using Redirection symbol" >> dir1/subdir1/5042.txt
suren@SurenKumar:/mnt/c/Users/suren/OneDrive/Documents/oslab$ cat dir1/subdir1/5042.txt
This is a file 5042.txt Created Within the sub directory1
This is new content added by using Redirection symbol
suren@SurenKumar:/mnt/c/Users/suren/OneDrive/Documents/oslab$
```

9. Edit the file by opening it in vi. Identify the keys that you use for common editing:

10. Moving the cursor up, down, left, right, replacing a character, deleting a character, inserting a line, deleting a line.

- Moving the cursor up: Press the 'k' key
- Moving the cursor down: Press the 'j' key
- Moving the cursor left: Press the 'h' key
- Moving the cursor right: Press the 'l' key
- Replacing a character: Press 'r' and then the new character
- Deleting a character: Press 'x'
- Inserting a line: Press 'i' to enter insert mode, then type the text
- Deleting a line: Press 'dd'

11. Change the permission of the file that you created and find out what happens with respect to its usage.

- `chmod u-rw dir1/subdir1/5042.txt`

12. Change the permission of any directory and find out what happens to its usage.

- `chmod u-rw dir1`

13. What are fields that are displayed in the long listing of the directory?

- Fields include permissions, number of links, owner, group, size, last modified date, and filename.

14. Which are the fields that can be changed using the commands that you have seen so far? Change them and display.

- Permissions and ownership can be changed. Use `chmod` for permissions and `chown` for ownership.

15. Create another sub directory `sub_dir2` under `dir2`.

- `mkdir dir2/subdir2`

16. Copy the file you created in `sub_dir1` to `sub_dir2`. Check if the task is accomplished. What happens to the file permissions?

- `cp dir1/subdir1/5042.txt dir2/subdir2`
- The permission remains Same

17. Create another sub directory `sub_dir3` under `dir3`.

- `mkdir dir3/subdir3`

18. Move the file you created in `sub_dir1` to `sub_dir3`. Check if the task is accomplished. What happens to the file permissions? What happens to the file in `sub_dir1`?

- `mv dir1/subdir1/5042.txt dir3/subdir3`
- The file is moved, and permissions should remain the same. The file is no longer present in `sub_dir1`.

19. Change the name of any file and see the changes that are made to its attributes in the long listing of the directory.

- `mv dir3/subdir3/5042 dir3/subdir3/new.txt`

```
suren@SurenKumar:/mnt/c/Users/suren/OneDrive/Documents/oslab$ ls -l dir3/subdir3/new.txt
-rwxrwxrwx 1 suren suren 113 Apr 27 15:00 dir3/subdir3/new.txt
```

20. Change to your home directory and search for a file that you have created.

- `cd`
- `find . -name "new.txt"`

```
suren@SurenKumar:/mnt/c/Users/suren/OneDrive$ find . -name "new.txt"
./Documents/oslab/dir3/subdir3/new.txt
suren@SurenKumar:/mnt/c/Users/suren/OneDrive$
```

21. Find out who all are currently using the server. List them in alphabetical order.

➤ `who | sort`

22. Can you list them according to the time in which they have logged in. (You may need to know something extra to do this—do not bother if you cannot).

➤ `Who | sort -k4`

23. Find out if you can do more than one task---editing in one console / terminal, seeing the “manual” in another and switching between them.

➤ **Yes, you can use multiple terminals**

24. What are the processes that are currently running and how do you find them?

```
suren@SurenKumar: /mnt/c/Users/suren/OneDrive/Documents/oslab$ ps
  PID TTY          TIME CMD
   15 pts/0        00:00:00 bash
  110 pts/0        00:00:03 find
  122 pts/0        00:00:01 find
  123 pts/0        00:00:03 find
  126 pts/0        00:00:01 find
  141 pts/0        00:00:00 ps
```

25. Can you identify how you can make the control characters of the keyboard work for editing—backspace, del...

➤ **In vi editor, you can use backspace and delete keys as usual for editing. If they don't work, check your terminal settings**