

# **Operating System (01CE1401)**

## **Lab Manual 24-25**

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**Class: 4 EC5**

Lab	Program	Marks	Signature
1.	Demonstrate different commands of Linux (minimum 15 commands)		
2.	a) Write a shell script with basic commands like echo and read b) Write a shell script to display addition of given two numbers		
3.	Write a shell script to display multiplication table of given number		
4.	Write a shell script to generate marksheet of a student. Take 3 subjects, calculate and display total marks, percentage and Class obtained by the student.		
5.	Write a shell script to check entered string is palindrome or not.		
6.	Write a shell script to find factorial of given number n.		
7.	Write a shell script which will accept a number b and display whether it is prime numbers or not.		
8.	Write a shell script which will generate first n Fibonacci numbers like: 1, 1, 2, 3, 5, 13, ...		
9.	Write a menu driven shell script which will print the following menu and execute the given task. a. Display calendar of current month b. Display today's date and time c. Display usernames those are currently logged in the system d. Display your name at given x, y position e. Display your terminal number		
10.	Write a shell script to concatenate two strings		
11.	Write a shell script to read n numbers as command arguments and sort them in descending order.		
12.	Write a program using function, which convert each word in a given text into capital.		
13.	Write a shell script to display all Executable Files, Directories And Zero sized files from current directory		
14.	Write a Shell programming using filters (including grep, egrep, fgrep)		

## Practical 1 : Demonstrate different commands of Linux (min. 15 commands).

1. **ls**: Lists the files and directories in the current directory.
2. **cd**: Changes the current directory to a specified one.
3. **mkdir**: Creates a new directory with the given name.
4. **touch**: Creates an empty file or updates the timestamp of an existing file.
5. **cat**: Displays the contents of a file or concatenates files

```

harsh@kali: ~/Desktop/nakul118
File Actions Edit View Help
[harsh@kali]~$ ls
Desktop Documents Downloads Music Pictures Public Templates Videos truecallerjs
[harsh@kali]~$ ls -l
total 36
drwxr-xr-x 4 harsh harsh 4096 Jan 10 04:02 Desktop
drwxr-xr-x 2 harsh harsh 4096 Mar 24 2024 Documents
drwxr-xr-x 2 harsh harsh 4096 Mar 24 2024 Downloads
drwxr-xr-x 2 harsh harsh 4096 Mar 24 2024 Music
drwxr-xr-x 2 harsh harsh 4096 Mar 24 2024 Pictures
drwxr-xr-x 2 harsh harsh 4096 Mar 24 2024 Public
drwxr-xr-x 2 harsh harsh 4096 Mar 24 2024 Templates
drwxr-xr-x 2 harsh harsh 4096 Mar 24 2024 Videos
drwxr-xr-x 9 harsh harsh 4096 Apr 29 2024 truecallerjs
[harsh@kali]~$ cd Desktop
[harsh@kali]~/Desktop$ ls
Ransomware python2 stop_ssh_boot.txt text.txt ygoheis.txt
[harsh@kali]~/Desktop$ mkdir nakul118
[harsh@kali]~/Desktop$ cd nakul118
[harsh@kali]~/Desktop/nakul118$ ls
[harsh@kali]~/Desktop/nakul118$ touch deom
[harsh@kali]~/Desktop/nakul118$ rm deom
[harsh@kali]~/Desktop/nakul118$ touch demo
[harsh@kali]~/Desktop/nakul118$ ls
demo
[harsh@kali]~/Desktop/nakul118$ cat demo2
hii, i am nakul dhrangdhariya
zsh: suspended cat > demo2

```

Figure 1.1 : commands used listed above

6. **ping**: Sends ICMP packets to check the connectivity to a network host.
7. **pwd**: Prints the current working directory path.
8. **ls -la**: Lists all files and directories, including hidden ones, in long format.

```

harsh@kali: ~/Desktop/nakul118
File Actions Edit View Help
zsh: suspended cat > demo2
[harsh@kali]~/Desktop/nakul118$ cat demo2
hii my name is nakul dhrangdhariya
zsh: suspended cat > demo2
[harsh@kali]~/Desktop/nakul118$ cat demo2
hii my name is nakul dhrangdhariya
[harsh@kali]~/Desktop/nakul118$ ls
demo2 ssl.png
[harsh@kali]~/Desktop/nakul118$ ping www.google.com
PING www.google.com (64.125.131.100) 56 data bytes
64 bytes from 64.125.131.100: icmp_seq=1 ttl=114 time=0.11 ms
64 bytes from 64.125.131.100: icmp_seq=2 ttl=114 time=0.12 ms
64 bytes from 64.125.131.100: icmp_seq=3 ttl=114 time=0.17 ms
zsh: suspended ping www.google.com
[harsh@kali]~/Desktop/nakul118$ ls -la
total 316
drwxr-xr-x 2 harsh harsh 4096 Jan 10 04:07 .
drwxr-xr-x 5 harsh harsh 4096 Jan 10 04:04 ..
-rw-r--r-- 1 harsh harsh 0 Jan 10 04:04 demo
-rw-r--r-- 1 harsh harsh 35 Jan 10 04:08 demo2
-rw-r--r-- 1 harsh harsh 310328 Jan 10 04:07 ssl.png
[harsh@kali]~/Desktop/nakul118$ pwd
/home/harsh/Desktop/nakul118
[harsh@kali]~/Desktop/nakul118$ cat demo2
zsh: suspended cat > demo2
[harsh@kali]~/Desktop/nakul118$ cat demo2
hii, my name is nakul dhrangdhariya
zsh: suspended cat > demo2

```

Figure 1.2 : commands used listed above

9. **cp**: Copies files or directories to a specified location.
10. **mv**: Moves or renames files or directories.

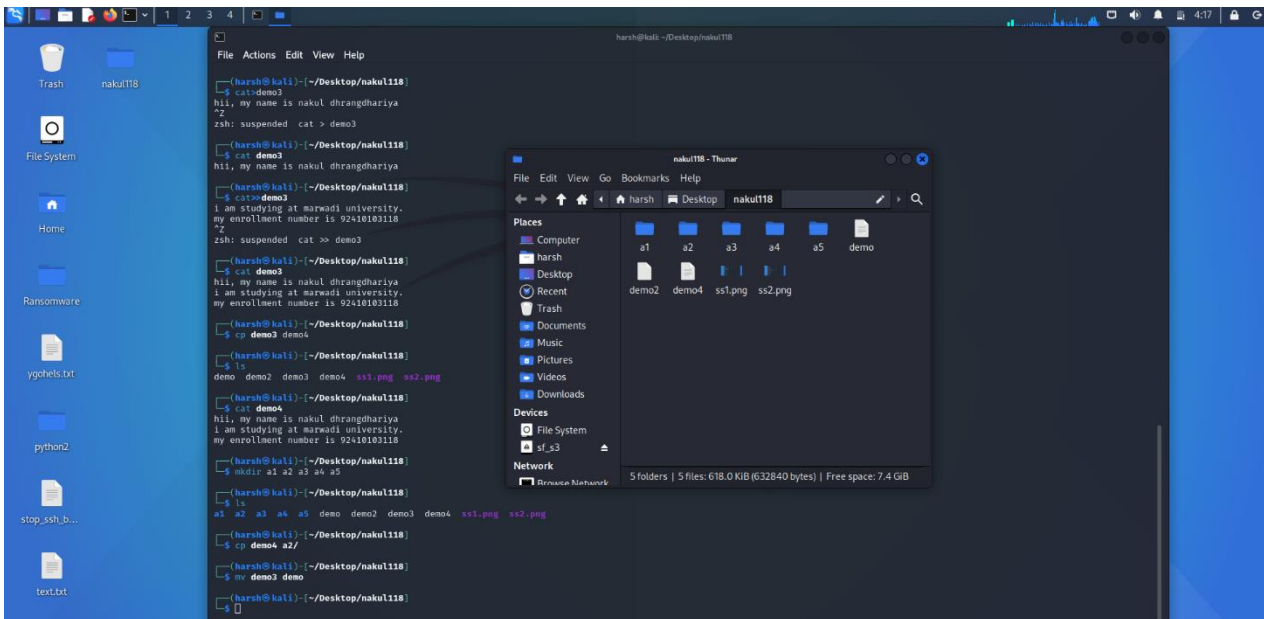


Figure 1.3: commands used listed above

11. **rmdir**: Deletes an empty directory
12. **hostname**: Displays or sets the system's hostname.
13. **zip**: Creates a compressed archive of files and directories in .zip format. Example: zip archive.zip file1 file2.
14. **unzip**: Extracts files from a .zip archive. Example: unzip archive.zip.
15. **sudo apt-get**: Installs, updates, or removes software packages on Debian-based systems.

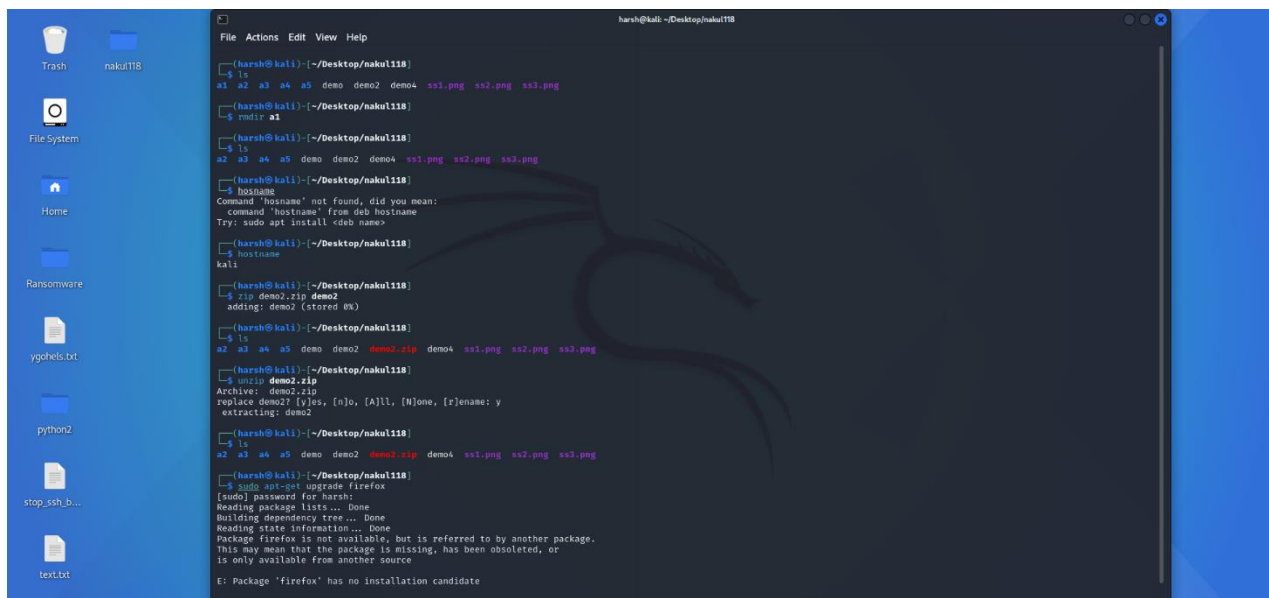
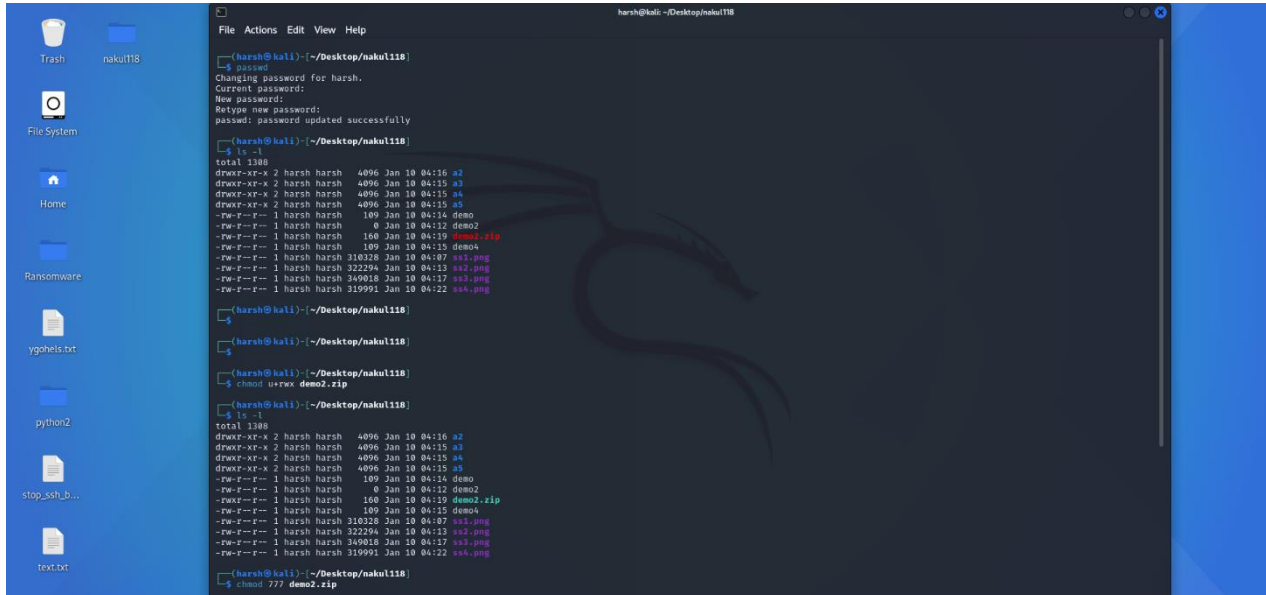


Figure 1.4 : commands used listed above

16. **passwd**: Changes the password of a user account.
17. **chmod**: Modifies file or directory permissions.



```

harsh@kali: ~/Desktop/naku118
File Actions Edit View Help
(harsh@kali) ~/Desktop/naku118
$ passwd
Changing password for harsh.
Current password:
New password:
Retype new password:
passwd: password updated successfully

(harsh@kali) ~/Desktop/naku118
$ ls -l
total 1308
drwxr-xr-x 2 harsh harsh 4096 Jan 10 04:16 a2
drwxr-xr-x 2 harsh harsh 4096 Jan 10 04:15 a3
drwxr-xr-x 2 harsh harsh 4096 Jan 10 04:15 a4
drwxr-xr-x 2 harsh harsh 4096 Jan 10 04:15 a5
-rw-r--r-- 1 harsh harsh 109 Jan 10 04:14 demo
-rw-r--r-- 1 harsh harsh 0 Jan 10 04:12 demo2
-rw-r--r-- 1 harsh harsh 160 Jan 10 04:19 demo2.zip
-rw-r--r-- 1 harsh harsh 109 Jan 10 04:15 demo4
-rw-r--r-- 1 harsh harsh 310328 Jan 10 04:07 s41.png
-rw-r--r-- 1 harsh harsh 322294 Jan 10 04:13 s42.png
-rw-r--r-- 1 harsh harsh 349018 Jan 10 04:17 s43.png
-rw-r--r-- 1 harsh harsh 319991 Jan 10 04:22 s44.png

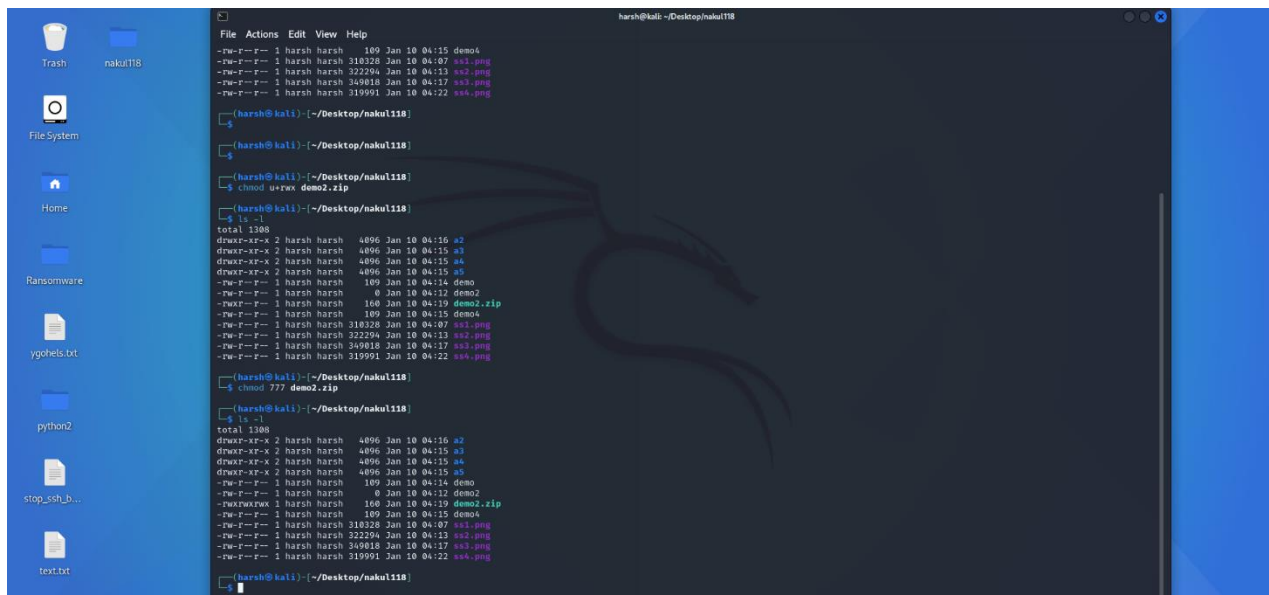
(harsh@kali) ~/Desktop/naku118
$
(harsh@kali) ~/Desktop/naku118
$ chmod u+rwx demo2.zip

(harsh@kali) ~/Desktop/naku118
$ ls -l
total 1308
drwxr-xr-x 2 harsh harsh 4096 Jan 10 04:16 a2
drwxr-xr-x 2 harsh harsh 4096 Jan 10 04:15 a3
drwxr-xr-x 2 harsh harsh 4096 Jan 10 04:15 a4
drwxr-xr-x 2 harsh harsh 4096 Jan 10 04:15 a5
-rw-r--r-- 1 harsh harsh 109 Jan 10 04:14 demo
-rw-r--r-- 1 harsh harsh 0 Jan 10 04:12 demo2
-rwxrwxrwx 1 harsh harsh 160 Jan 10 04:19 demo2.zip
-rw-r--r-- 1 harsh harsh 109 Jan 10 04:15 demo4
-rw-r--r-- 1 harsh harsh 310328 Jan 10 04:07 s41.png
-rw-r--r-- 1 harsh harsh 322294 Jan 10 04:13 s42.png
-rw-r--r-- 1 harsh harsh 349018 Jan 10 04:17 s43.png
-rw-r--r-- 1 harsh harsh 319991 Jan 10 04:22 s44.png

(harsh@kali) ~/Desktop/naku118
$ chmod 777 demo2.zip
  
```

Figure 1.5: commands used listed above

18. **su root**: Switches to the root user account (requires the root password)



```

harsh@kali: ~/Desktop/naku118
File Actions Edit View Help
-rw-r--r-- 1 harsh harsh 109 Jan 10 04:15 demo4
-rw-r--r-- 1 harsh harsh 310328 Jan 10 04:07 s41.png
-rw-r--r-- 1 harsh harsh 322294 Jan 10 04:13 s42.png
-rw-r--r-- 1 harsh harsh 349018 Jan 10 04:17 s43.png
-rw-r--r-- 1 harsh harsh 319991 Jan 10 04:22 s44.png

(harsh@kali) ~/Desktop/naku118
$
(harsh@kali) ~/Desktop/naku118
$ su root
root@kali: ~/Desktop/naku118
$ chmod u+rwx demo2.zip

root@kali: ~/Desktop/naku118
$ ls -l
total 1308
drwxr-xr-x 2 harsh harsh 4096 Jan 10 04:16 a2
drwxr-xr-x 2 harsh harsh 4096 Jan 10 04:15 a3
drwxr-xr-x 2 harsh harsh 4096 Jan 10 04:15 a4
drwxr-xr-x 2 harsh harsh 4096 Jan 10 04:15 a5
-rw-r--r-- 1 harsh harsh 109 Jan 10 04:14 demo
-rw-r--r-- 1 harsh harsh 0 Jan 10 04:12 demo2
-rwxrwxrwx 1 harsh harsh 160 Jan 10 04:19 demo2.zip
-rw-r--r-- 1 harsh harsh 109 Jan 10 04:15 demo4
-rw-r--r-- 1 harsh harsh 310328 Jan 10 04:07 s41.png
-rw-r--r-- 1 harsh harsh 322294 Jan 10 04:13 s42.png
-rw-r--r-- 1 harsh harsh 349018 Jan 10 04:17 s43.png
-rw-r--r-- 1 harsh harsh 319991 Jan 10 04:22 s44.png

root@kali: ~/Desktop/naku118
$
  
```

Figure 1.6 : commands used listed above