



COMPUTER SCIENCE AND ENGINEERING
FACULTY OF ENGINEERING & TECHNOLOGY
OPERATING SYSTEM(303105252)
ENROLLMENT:2203031241319

Parul[®]
University

NAAC A++
ACCREDITED UNIVERSITY

FACULTY OF ENGINEERING AND TECHNOLOGY
BACHELOR OF TECHNOLOGY

OPERATING SYSTEM
(303105252)

4th SEMESTER(ARTIFICIAL INTELLIGENCE)
COMPUTER SCIENCE &ENGINEERING DEPARTMENT

LABORATORY MANUAL

CERTIFICATE

This is to certify that Mr.
..... with Enrollment no.
..... has successfully completed his
laboratory experiments in the
..... from the
department of
CSE(AI) during the academic year 2023-24.....



Date of Submission:.....

Staff In charge:.....

Head Of Department:.....

INDEX

Sr NO	Topic Name	Date of Start	Date of End	Marks	Sign
1	Study of Basic commands of Linux				
2	2.1 Study the basics of shell programming. Write Shell Script for Following 2.2 Adding of Two Numbers. 2.3 Swap Two Variables without Using Third Variable.				
2	2.4 Average Of 3 Numbers. 2.5 Calculate Factorial Of Given Number. 2.6 To validate the entered date. (eg. Date format is: dd-mm-yyyy)				
3	3.1 Write a shell script to check entered string is palindrome or not. 3.2 Write a shell script to Print an Array.				
4	Write a C program to create a child process				
5	Finding out biggest number from given three numbers supplied as command line arguments				
6	6.1 Printing the patterns using for loop. 6.2 Write Shell Script to Print Pyramid. 1 12 123 1234 12345				
7	7.1 Shell script to determine whether				

	given file exist or not. 7.2 Write a Shell Script that prints the even number up to the number given by the user.				
8	Write a program for process creation using C. (Use of gcc compiler).				
9	Implementation of FCFS &Round Robin Algorithm.				
10	Implementation of Banker's Algorithm				

PRACTICAL-1

AIM:-Study of Basic commands of Linux.

Command shell: A program that interprets commands is Command shell.

Shell Script: Allows a user to execute commands by typing them manually at a terminal, or automatically in programs called shell scripts. A shell is not an operating system. It is a way to interface with the operating system and run Commands.

BASH (Bourne Again Shell)

- Bash is a shell written as a free replacement to the standard Bourne Shell (/bin/sh) originally written by Steve Bourne for UNIX systems.
- It has all of the features of the original Bourne Shell, plus additions that make it easier to program with and use from the command line.
- Since it is Free Software, it has been adopted as the default shell on most Linux systems.

BASIC LINUX COMMANDS:

- 1) **Pwd :** print working directory **DESCRIPTION:** pwd prints the full pathname of the current working directory.

SYNTAX: Pwd

```
sudheer@sudheer-VirtualBox:~$ pwd  
/home/sudheer
```

- 2) **cd:** Change Directory

DESCRIPTION: It allows you to change your working directory. You use it to move around within the hierarchy of your file system.

SYNTAX: cd directory_name

EX:

To change into “work directory” in “documents” need to write as follows.

Input: \$ cd /documents/work

```
sudheer@sudheer-VirtualBox:~$ cd Desktop
sudheer@sudheer-VirtualBox:~/Desktop$ ls
file file2 folder new newfolder pad
```

3)cd ..

DESCRIPTION: Move up one directory.

SYNTAX: cd ..

EX:

If you are in work directory and want to go to documents then write.

cd..

You will end up in /documents.

```
/home/sudheer
sudheer@sudheer-VirtualBox:~$ cd ..
sudheer@sudheer-VirtualBox:/home$ pwd
/home
```

4)ls : list all the files and directories

DESCRIPTION: List all files and folders in the current directory in the column format.

SYNTAX: ls [options]

EX:

Using various options

>Lists the total files in the directory and subdirectories, the names of the files in the current directory, their permissions, the number of subdirectories in directories listed, the size of the file, and the data of last modification.

ls -l

>List all files including hidden files.

ls -a

```
sudheer@sudheer-VirtualBox:~$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  snap  sudheer.txt  Templates  Videos
```

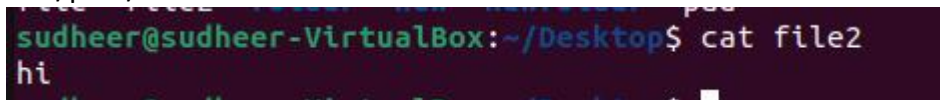
5) cat

DESCRIPTION: cat stands for "catenate". It reads data from files, and outputs their contents. It is the simplest way to display the contents of a file at the command line.

SYNTAX: cat filename

EX:

- Prints the contents of files mytext.txt and yourtext.txt
Cat mytext.txt yourtext.txt
- Print the cpu information using cat command
Cat /proc/cpuinfo
- Print the memory information using cat command
Cat /proc/meminfo



```
sudheer@sudheer-VirtualBox:~/Desktop$ cat file2
hi
```

6) head

DESCRIPTION:

- Head, by default, prints the first 10 lines of each FILE to standard output. With more than one FILE, it precedes each set of output with a header identifying the file name.
- If no FILE is specified, or when FILE is specified as a dash("-"), head reads from standard input.

SYNTAX:

Head [option]...[file/directory]

EX:

Display the first ten lines of myfile.txt

Head myfile.txt



Parul[®]
University

NAAC A++

COMPUTER SCIENCE AND ENGINEERING
FACULTY OF ENGINEERING & TECHNOLOGY
OPERATING SYSTEM(303105252)
ENROLLMENT:2203031241319

```
log: stopped
sudheer@sudheer-VirtualBox:~/Desktop$ cat f
line 1
line 2
line 3
line 4
line 5
line 6
line 7
line 8
line 9
line 10
line 11
line 12
line 13
line 14
sudheer@sudheer-VirtualBox:~/Desktop$ head f
line 1
line 2
line 3
line 4
line 5
line 6
line 7
line 8
line 9
line 10
```

7)tail

DESCRIPTION:

Tail is a command which prints the last few number of lines(10 lines by default) of a certain file, then terminates.

SYNTAX:

Tail [option]...[file/directory]

EX:

Output the last 100 lines of the file myfile.txt.

Tail myfile.txt -n 100


```
sudheer@sudheer-VirtualBox:~/Desktop$ tail f
line 5
line 6
line 7
line 8
line 9
line 10
line 11
line 12
line 13
line 14
```

8)mv: moving(and renaming) files

DESCRIPTION:

The mv command lets you move a file from one directory location to another. It also lets you rename a file (there is no separate rename command).

SYNTAX:

mv [option] source directory

EX:

- Moves the file myfile.txt to the directory destination-directory.
mv myfile.txt destination_directory.
- Move the file myfile.txt into the parent directory
mv myfile.txt ../
- In this case, if JOE1_expenses does not exist, it will be created with the exact content of joe_expenses, and joe_expenses will disappear.
- If JOE1_expenses already exists, its content will be replaced with that of joe_expenses(and joe_expenses will still disappear).

mv joe_expenses JOE1_expenses

```
sudheer@sudheer-VirtualBox:~/Desktop$ touch file
sudheer@sudheer-VirtualBox:~/Desktop$ ls
f1 f2 f3 f4 f5 file file2 folder new newfolder pad sudheerfolder
sudheer@sudheer-VirtualBox:~/Desktop$ mv file file2
sudheer@sudheer-VirtualBox:~/Desktop$ ls
f1 f2 f3 f4 f5 file2 folder new newfolder pad sudheerfolder
```

9)mkdir: make directory

DESCRIPTION:

If the specified directory does not already exist, mkdir creates it. More than one directory may be specified when calling mkdir.

SYNTAX:

mkdir [option] directory

EX:

Create a directory named work.

mkdir work

```
sudheer@sudheer-VirtualBox:~/Desktop$ mkdir sudheerfolder
sudheer@sudheer-VirtualBox:~/Desktop$ ls
file file2 folder new newfolder pad sudheerfolder
```

10)Cp: copy files

DESCRIPTION:

The cp command is used to make copy of files and directories.

SYNTAX:

cp [option] source directoy.

EX:

- Creates a copy of the file in the currently working directory named origfile. The copy will be named newfile, and will be located in the working directory.

cp origfile newfile

```
sudheer@sudheer-VirtualBox:~$ touch hari1
sudheer@sudheer-VirtualBox:~$ cp hari1 hari3
sudheer@sudheer-VirtualBox:~$ cat hari1
hi
sudheer
sudheer@sudheer-VirtualBox:~$ cat hari3
hi
sudheer
```

11) rmdir: romove directory

DESCRIPTION:

The rmdir command is used to remove a directory that contains other files or directories.

SYNTAX:

rm directory_name

EX:

Delete mydir directory along with all files and directories within that directory. Here, -r is for recursive and -f is for forcefully.

`rmdir -rf mydir`

```
sudheer@sudheer-VirtualBox:~/Desktop$ rm file
sudheer@sudheer-VirtualBox:~/Desktop$ ls
f1 f2 f3 f4 f5 file2 folder new newfolder pad sudheerfolder
```

12) gedit

DESCRIPTION:

The gedit command is used to create and open a file.

SYNTAX:

`gedit filename.txt`

EX:

To create a file named abc.sh

`gedit abc.sh`

```
ry 'grep --help' for more information.
sudheer@sudheer-VirtualBox: $ gedit
sudheer@sudheer-VirtualBox: $ ls
desktop Documents Downloads Music pad Pictures Public snap sudheer.txt Templates 'Untitled Document 1' Videos
```

13) man

DESCRIPTION:

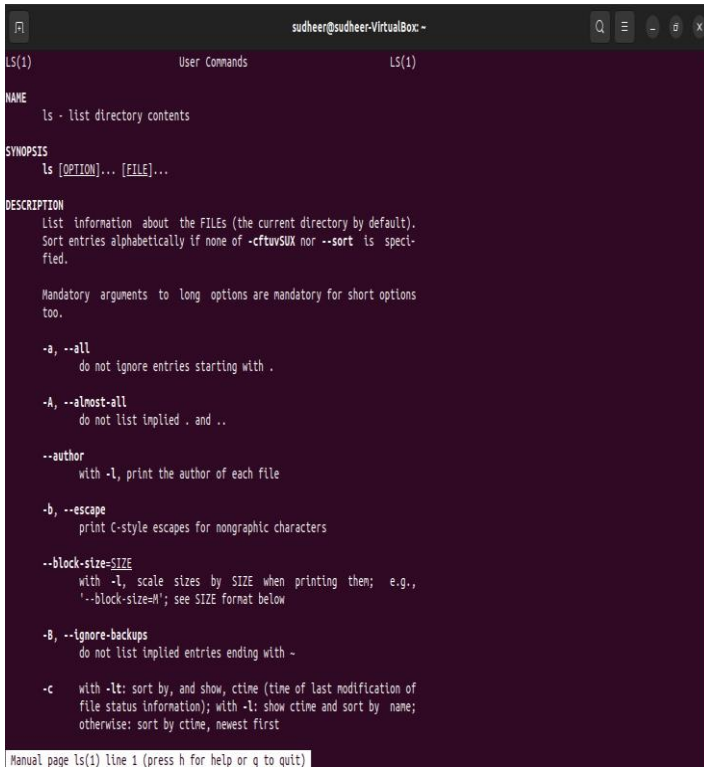
Display on online manual page or manpage.

SYNTAX: `man command`

EX:

To learn about listing files

Man ls



```
sudheer@sudheer-VirtualBox:
LS(1)                                User Commands                                LS(1)
NAME
ls - list directory contents
SYNOPSIS
ls [OPTION]... [FILE]...
DESCRIPTION
List information about the FILES (the current directory by default).
Sort entries alphabetically if none of -cftuvSUX nor --sort is speci-
fied.
Mandatory arguments to long options are mandatory for short options
too.
-a, --all
do not ignore entries starting with .
-A, --almost-all
do not list implied . and ..
--author
with -l, print the author of each file
-b, --escape
print C-style escapes for nongraphic characters
--block-size=SIZE
with -l, scale sizes by SIZE when printing them; e.g.,
'--block-size=M'; see SIZE format below
-B, --ignore-backups
do not list implied entries ending with ~
-c
with -lt: sort by, and show, ctime (time of last modification of
file status information); with -l: show ctime and sort by name;
otherwise: sort by ctime, newest first
Manual page ls(1) line 1 (press h for help or q to quit)
```

14) echo

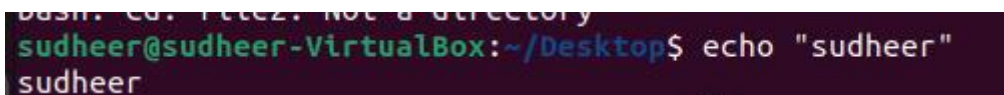
DESCRIPTION:

Display text on the screen

SYNTAX:

echo yourtext

EX:print Hello World on the screen



```
sudheer@sudheer-VirtualBox:~/Desktop$ echo "sudheer"
sudheer
```

15)clear

DESCRIPTION:

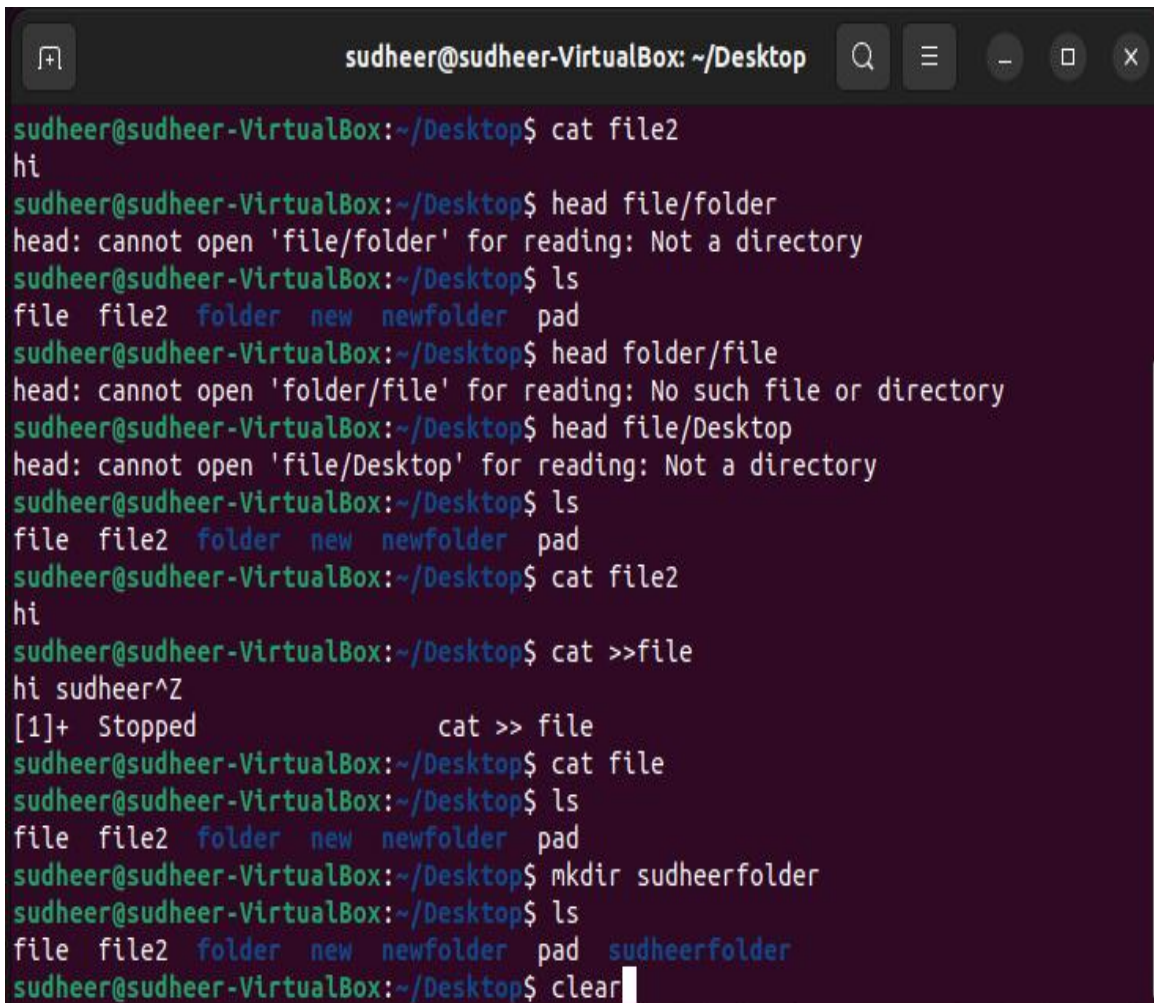
Used to clear the screen

SYNTAX:

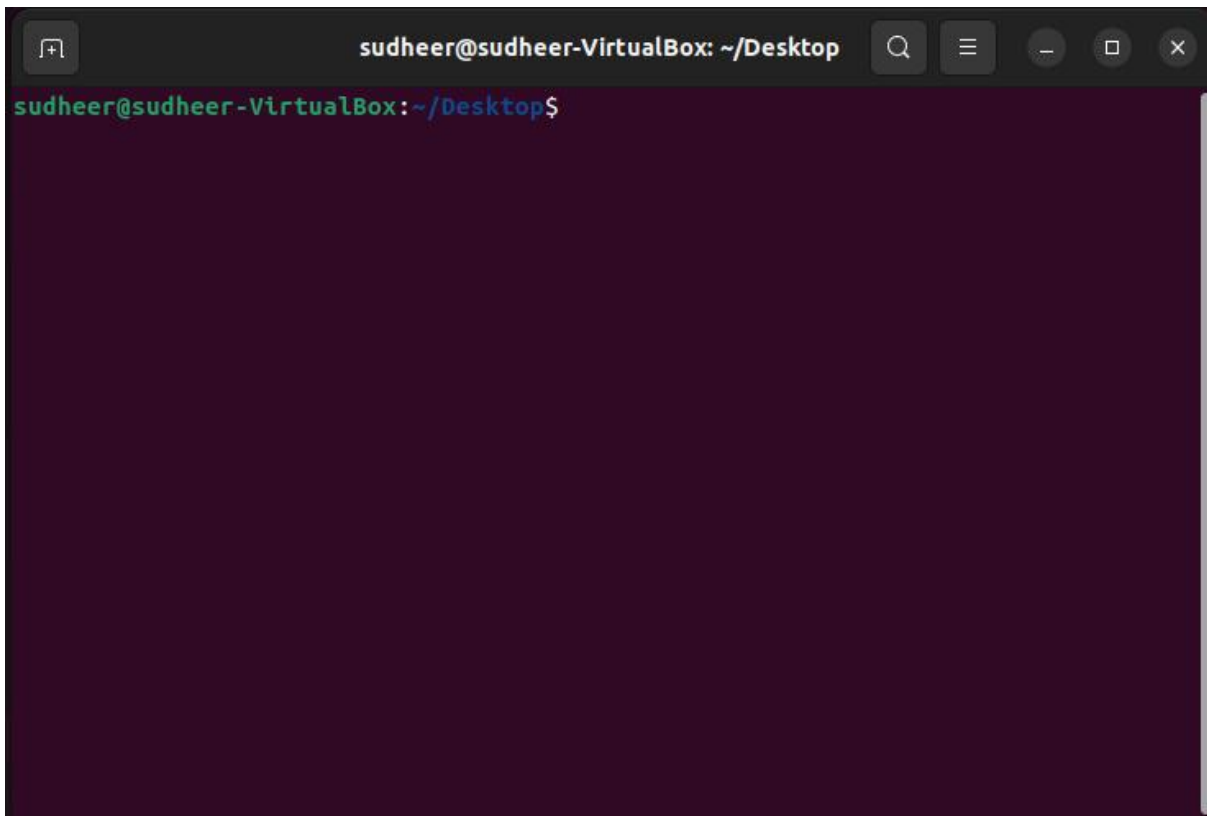
Clear

EX: clear the entire screen

clear



```
sudheer@sudheer-VirtualBox: ~/Desktop
sudheer@sudheer-VirtualBox:~/Desktop$ cat file2
hi
sudheer@sudheer-VirtualBox:~/Desktop$ head file/folder
head: cannot open 'file/folder' for reading: Not a directory
sudheer@sudheer-VirtualBox:~/Desktop$ ls
file file2 folder new newfolder pad
sudheer@sudheer-VirtualBox:~/Desktop$ head folder/file
head: cannot open 'folder/file' for reading: No such file or directory
sudheer@sudheer-VirtualBox:~/Desktop$ head file/Desktop
head: cannot open 'file/Desktop' for reading: Not a directory
sudheer@sudheer-VirtualBox:~/Desktop$ ls
file file2 folder new newfolder pad
sudheer@sudheer-VirtualBox:~/Desktop$ cat file2
hi
sudheer@sudheer-VirtualBox:~/Desktop$ cat >>file
hi sudheer^Z
[1]+  Stopped                  cat >> file
sudheer@sudheer-VirtualBox:~/Desktop$ cat file
sudheer@sudheer-VirtualBox:~/Desktop$ ls
file file2 folder new newfolder pad
sudheer@sudheer-VirtualBox:~/Desktop$ mkdir sudheerfolder
sudheer@sudheer-VirtualBox:~/Desktop$ ls
file file2 folder new newfolder pad sudheerfolder
sudheer@sudheer-VirtualBox:~/Desktop$ clear
```



```
sudheer@sudheer-VirtualBox: ~/Desktop  
sudheer@sudheer-VirtualBox: ~/Desktop$
```

16. whoami

DESCRIPTION:

Whoami prints the effective user ID, this command prints the username associated with the current effective user ID.

SYNTAX:

whoami [option]

EX: display the name of the user who runs the command

Whoami

```
sudheer@sudheer-VirtualBox:~$ whoami  
sudheer
```


17) wc

DESCRIPTION:

wc (word count) command, can return the number of lines, words, and characters in a file.

SYNTAX: wc [option]... [file]..

```
sudheer@sudheer-VirtualBox:~$ wc pad
wc: pad: Is a directory
    0      0      0 pad
```

18) grep

DESCRIPTION: grep command uses a search term to look through a file.

SYNTAX: grep [option]... Pattern [file]...

```
sudheer@sudheer-VirtualBox:~/Desktop$ grep t file2
this is sudheer
this is prudhivi
```

19) free

DESCRIPTION: Display RAM details in Linux machine.

SYNTAX: Free

```
sudheer@sudheer-VirtualBox:~$ free
              total        used        free      shared  buff/cache   available
Mem:           2006696       1102836        162716         21960         741144         711376
Swap:          2744316         749796        1994520
```

20) pipe (|)

DESCRIPTION: Pipe command is used to send output of one program as a input to another.

Pipes “|” help combine 2 or more commands.

SYNTAX: Command 1 | command 2



Parul[®]
University

NAAC A++

COMPUTER SCIENCE AND ENGINEERING
FACULTY OF ENGINEERING & TECHNOLOGY
OPERATING SYSTEM(303105252)
ENROLLMENT:2203031241319

```
sudheer@sudheer-VirtualBox:~/Desktop$ cat name.txt
ram
siva
ramya
sudheer
hari
karan
nithin
mohan
sudheer@sudheer-VirtualBox:~/Desktop$ cat name.txt | sort
hari
karan
mohan
nithin
ram
ramya
siva
sudheer
```




COMPUTER SCIENCE AND ENGINEERING
FACULTY OF ENGINEERING & TECHNOLOGY
OPERATING SYSTEM(303105252)
ENROLLMENT:2203031241319