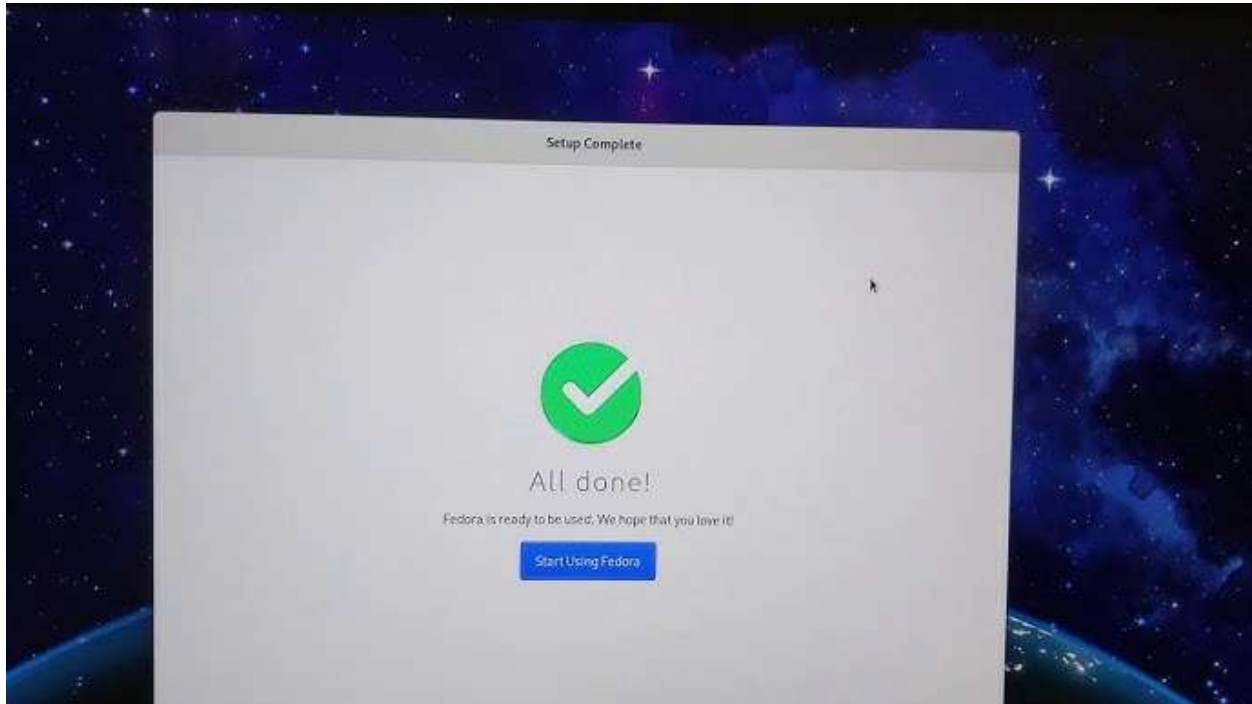


CS23431-Operating System

1a)

**Aim: To install and configure Linux operating system in a Virtual Machine.**

**Output:**



**1b)**

**Aim: To run all the basic commands in fedora OS**

## Output:

### I. Date Commands and output:

[student @ localhost ~] \$

#### 1-i) date

Thu Jan 30 13:40:07 IST 2025

#### ii) date +%m

01

#### iii) date +%h

Jan

#### iv) date +%d

30

#### v) date +%y

25

#### vi) date +%H

13

#### vii) date +%M

45

#### viii) date +%S

32

#### 2. echo "HelloWorld"

Hello World

#### 3. cal

January 2025

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

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4. bc

16/8

2

5. who

student	pts/0	2025-01-30	13:39 (:0)
student	pts/1	2025-01-30	13:40 (:0)

6. who am i

student pts/1 2025-01-30 13:40 (:0)

7. id

uid=1000(student) gid=1000(student) groups=1000(student)  
context=unconfined-u:unconfined-r:unconfined-t:SO-SO:CG.  
C1023

8. tty

/dev/pts/1

9. clear

[screen gets cleared]

10. man who

Name

who - show the login details of the system

Synopsis

who [option] ... [FILE | ARG1 ARG2] ...

11. i) ps

PID	TTY	TIME	CMD
1602	pts/1	00:00:00	bash
1699	pts/1	00:00:00	ps

ii) PS -aux

[shows the info about the running processes]

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12. i) `uname`

• `Linux`

ii) `uname -m`

`i686`

iii) `uname -n`

`localhost: local domain`

iv) `uname -r`

`4.11.8-300.fc26.i686+PAE`

v) `uname -s`

`Linux`

vi) `uname -v`

`#1 SMP Thu Jan 20 20:38:21 UTC 2017`

vii) `uname -a`

`Linux localhost: localdomain 4.11.8-300.fc26.i686+PAE`

`#1 SMP Thu Jan 20 20:38:21 UTC 2017`

`i686 i686 i686 GNU/Linux`

## II. Directory commands

1. `pwd`

`/home/student`

2. `mkdir 230701138`

[creates a new directory]

3. `rmdir dy`

[removes that directory]

4. `cd cse_batch`

[change directory path into `cse_batch`]

5. i) `ls`

`rec1`

ii) `ls -l`

`total 4`

`-rw-rw-r-- 1 student student 35 Jan 30 14:20 rec1`

iii) `ls -a`

`..... rec1`

### III. File Handling Commands

1. `cat > ex-2.1` [Creates a new file]

"This is my file containing Ex-2.1"  
Basic file handling function

2. `Cat ex-2.1` [Views a file]

"This is my file containing Ex-2.1"  
Basic file handling function

3. `cp` [Copy command]

`cp ex-2.1 sample-ex`

4. `rm` [Removes the file]

`rm sample-ex`

5. `mv` [Moves the file, deleting the old file]

`mv ex-2.1 sample-ex`

6. i) `file` [Used to determine type of file]

`file ex-2.1`

`ex-2.1: ASCII text`

ii) `file -i scary.jpg` [Display MIME type]

`image.jpg: image/jpeg`

iii) `file -b scary.jpg`

JPEG image data, 640x480, 8-bit/color RGB.



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7. `wc` [Counts the number of words]

`wc ex-2.1`

2 5 32 `ex-2.1`

8. `ls > sample` [Directing output to a file]

`Cat sample`

`rec1`

`rec2`

`ex-2.1`

9. `who | wc` [Output of one is the input of other]

2 10 88

10. `who | tee sample | wc` [tee stores the content in file]

2 10 88

## 11. Metacharacters

i) `ls r*`

`rec1 rec2`

ii) `ls [a-m]*`

`ex-2.1`

iii) `ls r?`

`rec1 rec2`

iv) `ls [!a-m]*`

`rec1 rec2 sample`

v) `ls -l [a-z]*{1,2}.*?`

`rec1.txt`

`rec2.txt`

## 12. File Permissions

ls -l

```
-rw-r--r-- 1 cse195 32 Feb 1 13:40 sample
-rw-r--r-- 1 cse195 32 Feb 1 13:41 rec123
```

## 13. Permission granting:

chmod

- i) chmod u+rw rec1  
[read-write is granted to users]
- ii) chmod u-rw rec1  
[read-write is disabled to users]
- iii) chmod g-w rec1  
[write is disabled to group]
- iv) chmod g+r rec1  
[read is granted to group]
- v) chmod o-w rec1  
[write is disabled to others]
- vi) chmod a+rw rec1  
[read write is granted to all]
- vii) chmod a+x rec1  
[execute is granted to all]



#### 14. Octal Notations

i) `chmod 555 rec1`

5 - (4+1)  $\Rightarrow$  +rx = users

5 - (4+1)  $\Rightarrow$  +rx = Group

5 - (4+1)  $\Rightarrow$  +rx = others

ii) `chmod 111`

1 - (1)  $\Rightarrow$  +x = users

1 - (1)  $\Rightarrow$  +x = Group

1 - (1)  $\Rightarrow$  +x = others

#### IV. Grouping commands:

1) Semicolon :

`date +%S ; date +%h`

51

Feb

2) `date && ls` (And)

Saturday 01 February 2025 02:01:07 PM IST  
rec1 rec2

3) `date || ls` (Or)

Saturday 01 February 2025 02:04:28 PM IST

## V. Filters Command

### 1) head -5 song\_1

I was broken from a young age  
Taking my sulking to the masses  
Writing my poems for the few  
That look at me, took at me, shook to me, feeling me  
Singing from heartache, from the pain

### 2) tail -3 song\_1

Seeing the beauty through the...  
Pain!  
You made me a, you made me a believer, believer

### 3) less -l | more

total 60

-rw-r--r-- 1 cse 195 cse 195 13208 Feb 1 14:16 poem  
-rw-r--r-- 1 cse 195 cse 195 419 Feb 1 14:20 rec3

### 4) grep "believer" song\_1

You made me a, you made me a believer, believer

### 5) i) sort song\_1 (sorts the entire text file)

#### ii) sort -c student

sort: student: 3: disorder: Balaji cse

#### iii) sort -n student

Ram cse

Kani cse

Arun cse

#### iv) sort -n student

Arun cse

Kani cse

Ram cse

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v) sort -m student

Arun cse

Karri cse

Ram cse

6) nl student

1 Arun cse

2 Karri cse

3 Ram cse

7) cut

i) cut -d ',' -f 4,5 song-1

That look at me,  
Singing from heartache,

ii) cut -c 1-5 song-1

I was

Takin

writi

That

Singi

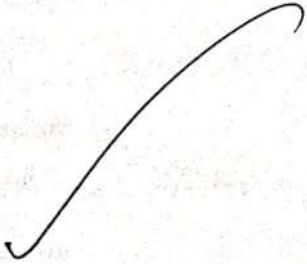
Takin

Speak

Seein

Pain!

You m



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VI. Other essential commands1) free

	total	used	free	shared	buff/cache	available
mem:	1793752	447208	899788	65980	646736	1390932
Swap:	2129916	0	2129916			

2) top

top - 13:48:00 up 5 min, 2 users, load average: 0.16, 0.59, 0.36  
 Tasks: 151 total, 1 running, 158 sleeping, 0 stopped, 0 zombie  
 ....

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
671	anahi	20	0	33436	6228	3916	S	1.0	0.3	0:07.72	anahi-dae
...											

3) ps

PID	TTY	TIME	CMD
1547	pts/1	00:00:00	bash
1576	pts/1	00:00:00	ps



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4) vmstat

```

procs -----memory-----swap-----io-----system-----cpu-----
r  b  swpd  free  buff  cache  si  so  bi  bo  in  cs  us  sy  id  wa  st
d  0    0   900504 51212 59660 0  0  544  125  382  661  5  2  75  14  0

```

5) df

Filesystem	1K-blocks	Used	Available	Use%	Mounted on
devtmpfs	985980	0	985980	0%	/dev
tmpfs	996964	0	996964	0%	/dev/shm
....					

6) ping www.google.com

PING www.google.com (142.250.195.132) 56(84) bytes of data:  
 64 bytes from maa0340-in-f4.1e100.net (142.250.195.132):

icmp\_seq=1 ttl=57 time=4.37 ms

....



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7) ifconfig

```
enp3s0: flags=4163 <UP, BROADCAST, RUNNING, MULTICAST> mtu 1500  
    inet 172.16.9.34 netmask 255.255.252.0 broadcast  
        172.16.11.255  
    ....
```

8) trace route

usage:

trace route to www.google.com (142.250.195.132), 30 hops max,  
60 byte packets  
1 gateway (172.16.8.1) 0.191 ms 0.134 ms 0.126 ms  
2 \*\*\*