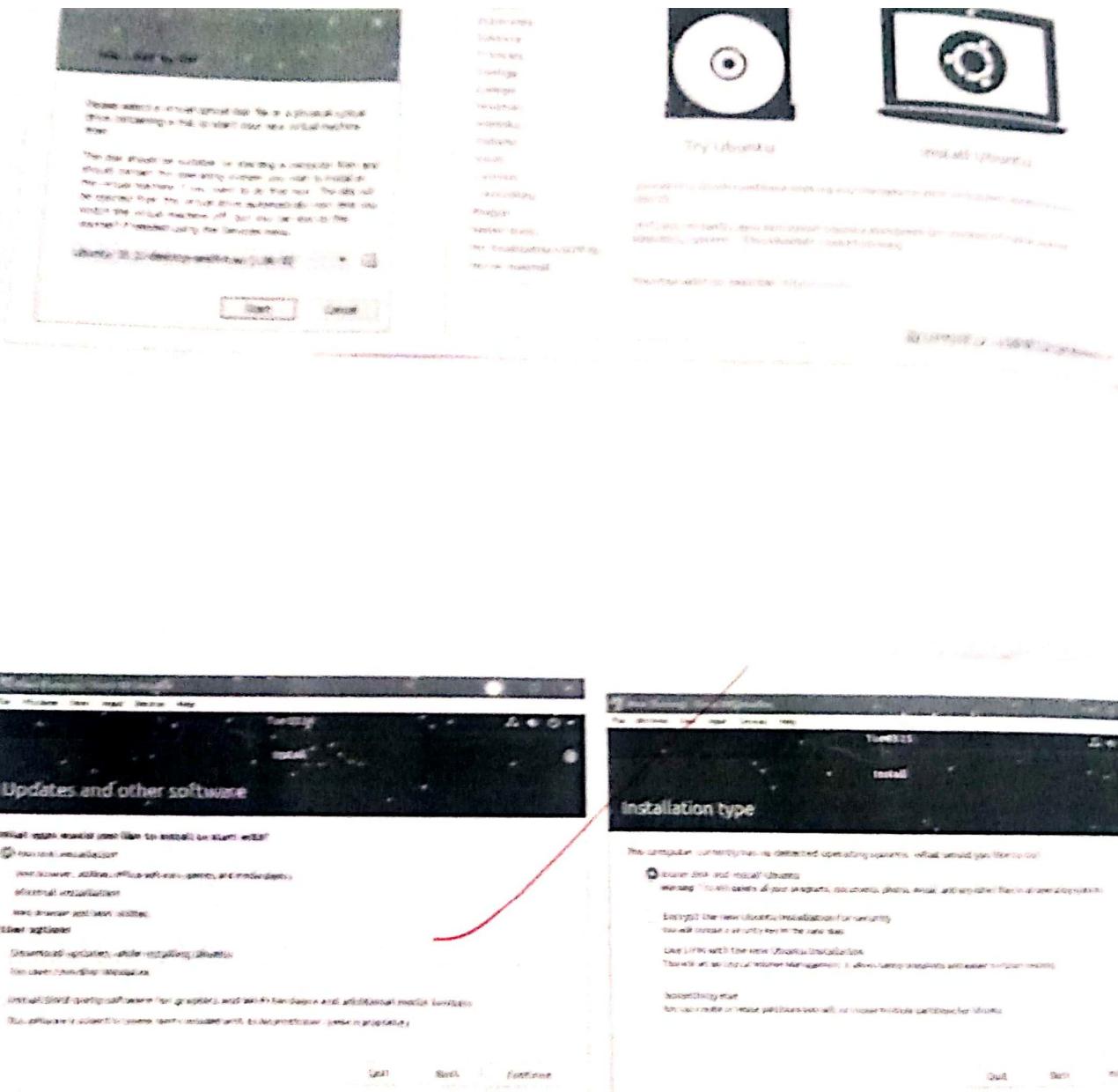


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then, install your choice of Linux Distribution for e.g., Ubuntu, Fedora, Debian, etc.

Ubuntu: Ubuntu is a free and open source software, based on debian. Ubuntu is officially released under 2 editions. They are: (1) Desktop, (2) Server Edition.

Both of these editions can be runned on the computer alone or a virtual box machine.

It is a popular open source software for cloud computing with support of openstack.

Steps for Installing Ubuntu in a Virtual Machine:-

Step 1: Insert a Virtual optical file on a physical drive to start Ubuntu in your Virtual Machine. Space given to it is 4.86 GB.

Step 2: Select the Language of your choice, and click on "Install Ubuntu" (you can also Try Ubuntu for free on Computer device from this option).

Step 3: On "Install updates and Add Software" click on the overall installation.

While Configuring initialisation type, we need to click "Erase Disk and Install Ubuntu". This step would delete all types of document, photo, etc. in all operating system.

- Step VI:- To this you only need to choose the for the clock to work on Ubuntu.
- Step VII:- In this type you need to choose your password. For login in Ubuntu click on continue.
- Step VIII:- Here, you simply need to type password again and it is done.

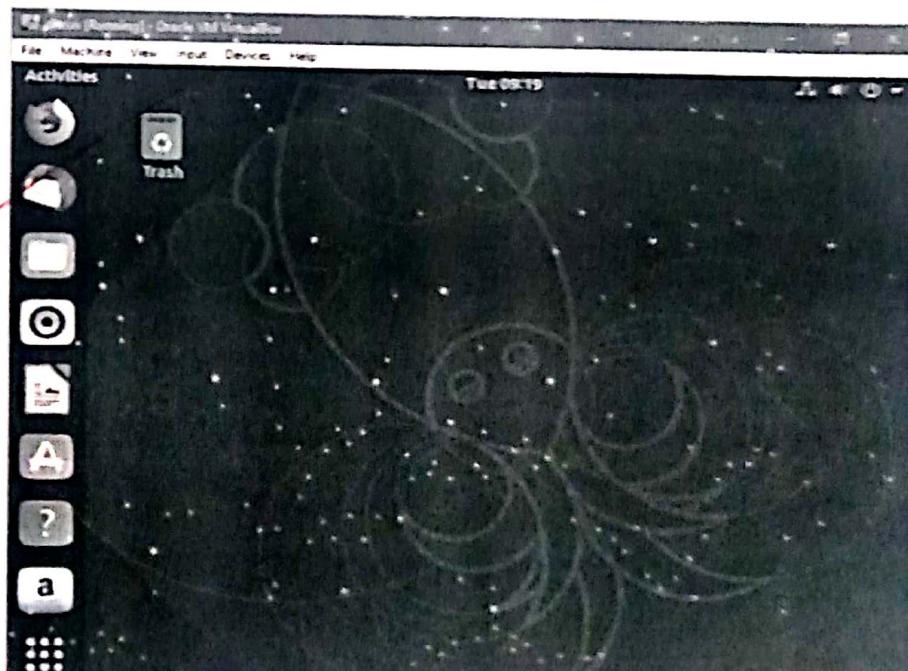
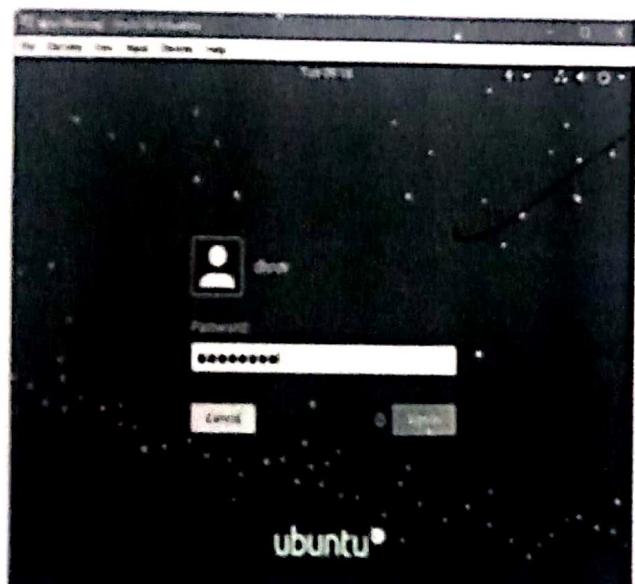
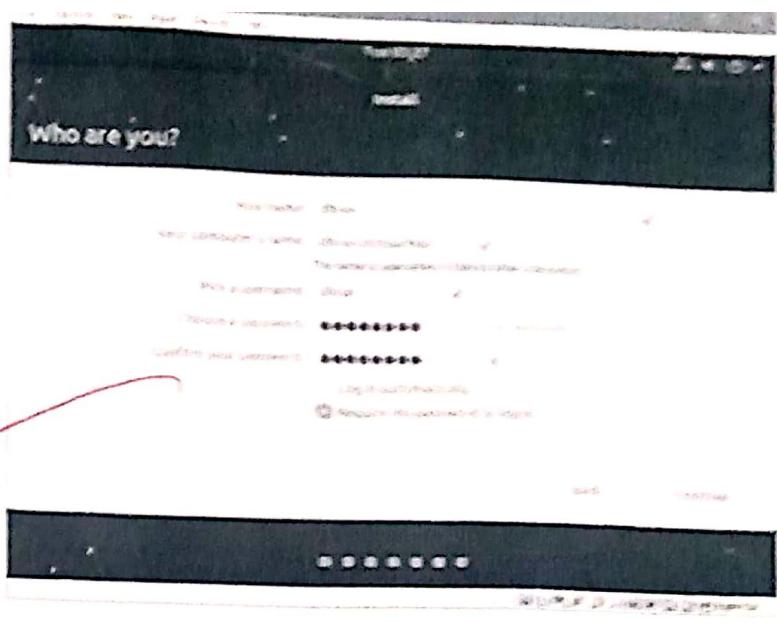
Step IX :- Type name of Virtual disc and recommending to be given is 2048 MB or 2TB.

Hence, Now the VirtualBox is ready to use.

B] Customize Desktop environment by changing the default option like changing default background, screen savers, etc.

Accessing Appearance Settings:-

- I] To access Appearance Setting, in Ubuntu, left click User menu at the top right corner on the top bar and select System, settings.
- II] A window will pop up with All settings divided into Personal, Hardware and System Options. Let's first select the appearance icon.



Welcome to Ubuntu 14.04

Fast and full of new features, the latest version of Ubuntu makes computing easier than ever. Here are just a few cool new things to look out for...



Installing system



Changing wallpaper Picture:-

- i] On the left side of Background part, you can see your current wallpaper.
- ii] On the right side is part where we can select one of Ubuntu Wallpapers. Clicking on every thumbnail our wallpaper will be changed right away. with a feeling effect.
- iii] If you want to select wallpaper then click the drop down menu above thumbnails and select the pictures folder.
- iv] You will see all the pictures in your Picture folder as thumbnails. where you can select them as your wallpaper.

To add wallpaper that is in another folder. just click the plus icon below the thumbnails and then in pop-up window, select the path to our custom folder and choose the picture inside of it.

Changing Ubuntu Theme :-

If Ubuntu also has an option to change the Desktop theme, which in one click will change the entire way your computer looks.

- 1] To do that, click on the drop-down menu below Wallpapers. thumbnails and choose between Ambiance Radiance or High Contrast

② Ambiance is a light theme that looks a bit more Mac like, while Radiance is the darker brown theme used in Ubuntu by default.

③ Screen Resolutions: ascertain the current screen resolution for your desktop.

change the size or rotation of the screen:
if you can change how big (or how detailed) things appear on the screen by changing the screen resolution.

④ You can change which way up things appear (for example if you have a rotating display) by changing the rotation.

⑤ Click the icon on the very right of the menu bar and select system settings. open screen display.

⑥ If you have multiple displays and they are not mirrored, you can have different settings on each display. Select a display in the preview area.

⑦ Select your desired ~~resolution~~ and rotation

⑧ Select Apply. The new settings will be applied after 30 seconds before reverting back. That way, if you cannot see anything with the new

- 1) Time Settings: change the time zone of your system to (or New York time)
- 2) If you are currently in Indian Time. Has does the displayed time change?
- 3) After noting the time change, change the time zone back to your local time zone.
- 4) Just click on the clock on the top bar, and choose time and date setting, once the Time and Date window open choose Manually, so you can change the time and date Manually; otherwise choose your time zone from the map. And choose Automatic.

SG
01/02

Reactions B2 Software

Lab 8: Practical DB Software

After installing the new package, verify that it runs and then
a) Test the new package, verify that it runs and then
remove it.

Step 3:- Just type 'gcc -v' to know if you have a
installed gcc compiler or not. If the output is
blank then it means that you don't have it
installed.

Step 8 :- Type 'sudo apt-get install gcc'. After typing the following command, Installation will take place.

Step 10:- Type 'sudo apt-get install build-essential'. It will install all the libraries required for C and C++ programming language.

HOW TO UNIVERSALIZE ALL COMPUTER

In Sec 510, although there is no to prevent all targets, some countries do have it, in particular USA, so you can do

Type: cd build/qcc

Sabrina ~~and~~ ~~she~~ ~~is~~ ~~an~~ ~~English~~

10202

This does not remove everything that was installed, it removes any non-executable file (e.g. .git, .cpp) contained in that directory.

Ques:- Utilization of grep, man commands.

Documentation:

Q1:- Finding info documentation from the command line is bring up the info page for the grep command. Bring up the usage section.

Ans:- To find info about any command, 'info' command is used. The syntax of info command is "info command-name"

We are going to find the info about the 'grep' command.

Open the Terminal (ctrl+Alt+T) and type: info grep

After typing this command following output will be displayed onto your screen.

You can also scroll through pages using (space = up) and (backspace = down) key.

Another more summarized way of showing info is the 'man' command. The command is same as 'info' required data.

1.8

b] Finding man page from the command line. Bring down scroll
up the man page for the 'ls' command to the examples section.

Ans:- To use the 'man' command simply type 'man' command-name.

Now we are going to find the manual for 'ls' command simply type: 'man ls'.

c] Finding man pages by topic what man pages are available that document file compressor.

Ans:- 'Tar', 'zip' are some man pages which are available for document file compression simply type 'man zip', 'man tar'

d] Finding man pages by section from the cmdline bring up the man page for the `printf` function which Manual page section are library functions found.

Ans:- The number corresponds to what section of the man page is from; 1 is user command while 8 is system stuff. The man page for man itself. List the function

1. User Commands,
2. System Calls,
3. C Library Functions,
4. Device and Special Files
5. File Format and Conventions

Ch 11 : Command Line Operations

Permissions No. IV

41

Q] Install new package on your system

→ Sudo apt-get install [package-name]

Q] Remove the package installed.

→ Sudo apt-get remove [package-name]

Q] Find the password file in using find command.

→ # find / -name passwd

- /usr/share/doc/libss-ldap-2.53/pamd/passwd
- /usr/bin/passwd
- /etc/pam.d/passwd
- /etc/passwd

Q] Find the directory .passwd . file under atleast down.

→ # find / -max_depth 2 -name passwd

- /etc/passwd

Q] Find the password file under root and 2 level down.

→ # find / -max_depth 3 -name passwd

~~• /usr/bin/passwd~~

~~• /usr/pam.d/passwd~~

~~• /etc/passwd~~

Q] Find the password file below sub-directories level 2 and 4.

→ # find -maxdepth 3 -maxdepth -name passwd

~~• /usr/bin/passwd~~

~~• /etc/pam.d/passwd~~

- 1) Create a symbolic link to the file you want.
- ↳ create a symbolic link to file 2
- ↳ step 1: m -s file file 2
- ↳ create an empty file example.txt and move it to /tmp directory using relative pathname
- ↳ touch example.txt
- ↳ mv example.txt /tmp.
- ↳ Delete the file moved to /tmp in previous step by absolute method.
- ↳ rm /tmp/example.txt
- ↳ find the location of ls, ps, lsh command.
- ↳ whereis ls
- ls: /bin/ls /usr/share/man/man1/ls.1.gz
- ↳ whereis ps
- ps: /bin/ps /usr/share/man/man1/ps.1.gz
share/man/man1/ps.1.gz
- ↳ whereis lsh
- lsh: /bin/lsh /etc/lsh.lshrc /usr/share/man/man1/lsh.1.gz

John

```
jeb@jeba-VirtualBox:~$ mount
sysfs on /sys type sysfs (rw,nosuid,nodev,noexec,relatime)
proc on /proc type proc (rw,nosuid,nodev,noexec,relatime)
udev on /dev type devtmpfs (rw,nosuid,relatime,size=494436k,nr_inodes=123609,mode=755)
devpts on /dev/pts type devpts (rw,nosuid,noexec,relatime,gid=5,mode=620,ptmxmode=666)
tmpfs on /run type tmpfs (rw,nosuid,noexec,relatime,size=102416k,mode=755)
/dev/sda1 on / type ext4 (rw,relatime,errors=remount-ro,data=ordered)
securityfs on /sys/kernel/security type securityfs (rw,nosuid,nodev,noexec,relatime)
tmpfs on /dev/shm type tmpfs (rw,nosuid,nodev)
tmpfs on /run/lock type tmpfs (rw,nosuid,nodev,noexec,relatime,size=5120k)
tmpfs on /sys/fs/cgroup type tmpfs (ro,nosuid,nodev,noexec,mode=755)
cgroup on /sys/fs/cgroup/systemd type cgroup (rw,nosuid,nodev,noexec,relatime,nsdelegate)
cgroup on /sys/fs/cgroup/systemd-cgroups-agent type cgroup (name=systemd,nsdelegate)
pstore on /sys/fs/pstore type pstore (rw,nosuid,nodev,noexec,relatime)
cgroup on /sys/fs/cgroup/cpuset type cgroup (rw,nosuid,nodev,noexec,relatime,cpuset,nsroot=/)
cgroup on /sys/fs/cgroup/net_cls,net_prio type cgroup (rw,nosuid,nodev,noexec,relatime,net_cls,net_prio,nsroot=/)
cgroup on /sys/fs/cgroup/pids type cgroup (rw,nosuid,nodev,noexec,relatime,pids,nsroot=/)
cgroup on /sys/fs/cgroup/freezer type cgroup (rw,nosuid,nodev,noexec,relatime,freezer,nsroot=/)
cgroup on /sys/fs/cgroup/cpu,cpuacct type cgroup (rw,nosuid,nodev,noexec,relatime,cpu,cpuacct,nsroot=/)
cgroup on /sys/fs/cgroup/devices type cgroup (rw,nosuid,nodev,noexec,relatime,devices,nsroot=/)
cgroup on /sys/fs/cgroup/memory type cgroup (rw,nosuid,nodev,noexec,relatime,memory,nsroot=/)
cgroup on /sys/fs/cgroup/blkio type cgroup (rw,nosuid,nodev,noexec,relatime,blkio,nsroot=/)
cgroup on /sys/fs/cgroup/perf_event type cgroup (rw,nosuid,nodev,noexec,relatime,perf_event,nsroot=/)
cgroup on /sys/fs/cgroup/hugetlb type cgroup (rw,nosuid,nodev,noexec,relatime,hugetlb,nsroot=/)
systemd-1 on /proc/sys/fs/binfmt_misc type autofs (rw,relatime,fde=32,pgsize=1,fsnotify=1,fsnotify_freq=2,noexec,direct)
hugetlbfs on /mnt/hugepage type hugetlbfs (rw,relatime)
```

Aim:- File Operations.

- i] Explore mounted file systems on your computer.
↳ df -h.

Filesystem	1K-blocks	Used	Available	Use%	Mounted on
udev	494436	0	494436	0%	/dev
tmpfs	102416	3676	98740	4%	/run
/dev/sda1	7092728	3383372	3326024	51%	/
tmpfs	512076	216	5116	1%	/dev/shm

- ii] What are the different ways of exploring mounted file system on Linux?
↳ mount

④ Copying text from files
→ cp command, mv command

```
jeba@jeba-VirtualBox:~ ls
Desktop  Downloads  Music  Public  Videos
Documents  examples.desktop  Pictures  Templates
jeba@jeba-VirtualBox:~$ cd jeb
jeba@jeba-VirtualBox:~/jeb$ cat .gg.txt
cat: .gg.txt: No such file or directory
jeba@jeba-VirtualBox:~/jeb$ cat gg.txt
cat: gg.txt: No such file or directory
jeba@jeba-VirtualBox:~/jeb$ cat >gg.txt
welcome
Linux
AC
jeba@jeba-VirtualBox:~/jeb$ touch dd.txt
jeba@jeba-VirtualBox:~/jeb$ ls
dd.txt  gg.txt
jeba@jeba-VirtualBox:~/jeb$ cp gg.txt dd.txt
jeba@jeba-VirtualBox:~/jeb$ cat gg.txt
welcome
Linux
jeba@jeba-VirtualBox:~/jeb$ cat dd.txt
welcome
Linux
jeba@jeba-VirtualBox:~/jeb$ ■
```

```
jeba@jeba-VirtualBox:~/jeb$ touch ss.txt
jeba@jeba-VirtualBox:~/jeb$ mv gg.txt ss.txt
jeba@jeba-VirtualBox:~/jeb$ cat gg.txt
cat: gg.txt: No such file or directory
jeba@jeba-VirtualBox:~/jeb$ cat ss.txt
welcome
Linux
jeba@jeba-VirtualBox:~/jeb$ ■
```

```
jebajeba-VirtualBox: $ tar -cvf data.tar /mn  
tar: data.tar: Cannot open: Permission denied  
tar: Error is not recoverable: exiting now  
jebajeba-VirtualBox: $ sudo tar -cvf data.tar /mn  
tar: Removing leading '/' from member names
```

/mn/ /mn/hd/

bin	etc	lib	mn	opt	run	srv	usr	
boot	dd	home	lost+found	mnt	proc	sbin	sys	var
cdrom	dev	etctra-ing	media	mtab	root	sbin	sys	vmlinuz

19b003cba-VirtualBox: /S cat data.tar

3eb91eb9-V1.FinalBox:-/3eb\$ bzip2 ss.txt

```
jeba@jeba-VirtualBox:~/jeb$ ls  
dd.txt
```

```
jeba@jeba-VirtualBox:~/jeb$ cat ss.txt.bz2
```

BZh91AY&SY ← [REDACTED] → [REDACTED]
'Jewssse[REDACTED] ieba@jeba-VirtualBox:~/iebS gziP dd.txt

jebs@jebs-OptiPlex-5090:~\$ ls

jebs@jebs-VirtualBox:~/jebs\$ cat dd.txt.gz

• [1] id.txt+0x14+Meooo+00 [+] xzieba@xieba-VirtualBox:~/jeb\$

jeba@jeba-VirtualBox:~/jeb\$ ls

```
jeba@jeba-VirtualBox:~/jeb$ cat >aa.txt  
hello world
```

四
八

```
jeba@jeba-VirtualBox:~/jeb$ cat >bb.txt
```

this is linux^c

308

100 100

```
< hello world  
tsha:tsha-VirtualBox:- [Jobs] cat abb.tst
```

this is Lux

四

```
jeba@jeba-VirtualBox:~/JebS$ diff aa.txt bb.txt
```

1C1

< hello world

1

> this is Linux
www.linux.com

jebajeba-VirtualBox:~/jebS gzip aa.txt
jebajeba-VirtualBox:~/jebS gzip bt.txt

www.muhimbi.com | Support | Documentation | Feedback

Binary files aa.txt.gz and bb.txt.gz differ

Digitized by Google

4] Archiving and backup the work directory using tar,
gzip and bzip2 commands.
⇒ gzip filename.txt

Bzip2 filename.txt

5] Use different command to create difference of two
files.
⇒ diff filename1 filename2

- Q] Use patch command to patch a file . And another
the patch using command again
- # cat > filename.txt
cat > filenamer.txt
diff -u filename.txt filenamer.txt > sam.patch
patch , sam.patch
patch < sam.patch.

```
jeba@jeba-VirtualBox:~/jeb$ cat >hi.txt
ht
ht
ht
ht
AC
jeba@jeba-VirtualBox:~/jeb$ cat >hi.txt
hello
hello
hello
AC
jeba@jeba-VirtualBox:~/jeb$ diff -u hi.txt hi.txt ssm.patch
jeba@jeba-VirtualBox:~/jeb$ patch -s ssm.patch
AC
jeba@jeba-VirtualBox:~/jeb$ patch -s ssm.patch
patching file hi.txt
jeba@jeba-VirtualBox:~/jeb$ cat ssm.patch
--- hi.txt 2020-01-08 22:51:55.463569834 +0530
+++ hi.txt 2020-01-08 22:51:55.463569834 +0530
@@ -1,5 +1,5 @@
-ht
-ht
-ht
+hello
+hello
+hello
```

```
jeba@jeba-VirtualBox:~$ w
20:35:04 up 4 min, 1 user, load average: 0.70, 0.79, 0.38
USER   TTY      FROM          LOGIN@        IDLE      JCPU      PCPU WHAT
jeba    tty7     :0           20:32        4:28     8.19s  0.33s /sbin/upstart .
jeba@jeba-VirtualBox:~$ w -s
20:35:14 up 4 min, 1 user, load average: 0.60, 0.77, 0.37
USER   TTY      FROM          IDLE      WHAT
jeba    tty7     :0           4:38     /sbin/upstart --user
jeba@jeba-VirtualBox:~$ w -h
jeba    tty7     :0           20:32        4:44     8.67s  0.33s /sbin/upstart .
jeba@jeba-VirtualBox:~$ w -f
20:36:12 up 5 min, 1 user, load average: 0.41, 0.69, 0.37
USER   TTY      LOGIN@        IDLE      JCPU      PCPU WHAT
jeba    tty7     20:32        5:36     9.00s  0.33s /sbin/upstart --user
```

```
jeba@jeba-VirtualBox:~$ sudo cat /etc/shadow
[sudo] password for jeba:
root:!:18240:0:99999:7:::
daemon:*:16911:0:99999:7:::
bin:*:16911:0:99999:7:::
sys:*:16911:0:99999:7:::
sync:*:16911:0:99999:7:::
games:*:16911:0:99999:7:::
man:*:16911:0:99999:7:::
lp:*:16911:0:99999:7:::
mail:*:16911:0:99999:7:::
news:*:16911:0:99999:7:::
```

Q] Which account you are logged in? How do you find out?
 ⇒ who command & whoami

Q] Display /etc/shadow file using cat command and understand the importance of shadow file. How it is different than passwd file.

⇒ cat /etc/shadow.

As with the passwd file, each field in shadow file is also separated with ":" colon characters, and are as follows:-

- Username, upto 8 characters. Case-sensitive, usually all lowercase. A direct match to the username in the /etc/passwd file.
- Password, 13 character encrypted. A blank entry (e.g.:) indicates a password is not required to log in (usually a bad idea), and a "*" entry (e.g.:*:) indicates the account has been disabled.
- The number of days (since January 1, 1970) since the password was last changed.
- The number of days before password may be changed (0 indicates it may be changed at any time).
- The number of days after which password must be changed (99999 indicates user can keep his/her password unchanged for many many years).
- The number of days to warn user of an existing expiring password (7 for a full week).

- The number of days after password expires that account is disabled.
- The number of days since January 1, 1970 account has been disabled.
- A reserved field for possible future use

Each field in a passwd entry is separated with colon character, and are as follows:-

- Username, upto 8 characters, case-sensitive, usually lowercase
- An "x" in the password field. Passwords are stored in the "/etc/shadow" file.
- Numeric user id. Red Hat uses group id's in a unique manner for enhanced file security. Usually group id will match the user id.
- Full name of user. I'm not sure what the maximum length for this field is, but try to keep it reasonable (under 30 characters)
- User's home directory. Usually /home/username (e.g. /home/smith). All user's personal files, web pages, mail forwarding, etc. will be stored here.
- User's "shell account". Often set to "/bin/bash" to provide access to the bash shell (my personal favorite shell).

8] Get your current working directory. → pwd.

```
JebadJebad-VirtualBox:~$ sudo cat /etc/passwd  
root:x:0:0:root:/root:/bin/bash  
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin  
bin:x:2:2:bin:/bin:/usr/sbin/nologin  
sys:x:3:3:sys:/dev:/usr/sbin/nologin  
sync:x:4:65534:sync:/bin:/bin/sync  
games:x:5:60:games:/usr/games:/usr/sbin/nologin  
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin  
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin  
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin  
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin  
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin  
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin  
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin  
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin  
list:x:38:38:List Manager:/var/list:/usr/sbin/nologin
```

```
jobs@jobs-VirtualBox:~  
jobs@jobs-VirtualBox:~$ history  
1 who  
2 who -l  
3 clear  
4 who  
5 who  
6 who  
7 who  
8 who  
9 clear  
10 cat /etc/shadow  
11 sudo cat /etc/shadow  
12 clear  
13 sudo cat /etc/passwd  
14 pwd  
15 clear  
16 history  
jobs@jobs-VirtualBox:~$ ls  
who -l  
LOGIN    TTY1          2020-01-15 20:30  
jobs@jobs-VirtualBox:~$ █
```

- iii) Explore different ways of getting command history.
How to run previously executed command without typing.

* history

line number

- ii) create alias to most commonly used commands
alias command. instruct the shell to replace one string with another string while executing the command
alias label: "command",

*for
for*

Ques:- vi (Line Editor)

i] Create, modify, search and navigate a file in vi.

ii] Creating a file.
 → To create a file on the terminal type vi followed by filename and its extension.

iii] Modifying the file.
 → To modify a file, on the vi editor, type e.

iv] Search in a file:
 → To find a word (forward search) press / followed by the word to search.

v] Navigate:-

→ Movement in four directions

<u>key</u>	<u>Action</u>
k	Move cursor up
j	Move cursor down
h	Move cursor left
l	Move cursor right

Word Navigation

<u>key</u>	<u>Action</u>
b	Move back to the beginning of word
e	Move forward to the end of word
w	Move forward to the beginning of a word
0 (zero)	Move to first character of a line
\$	Move to the end of line

```
root@rhel7.0:~# nano /root/testfile  
Hello  
this is my Linux example  
welcome  
wellcome  
this is vi editor  
thank you  
root@rhel7.0:~#
```

```
root@rhel7.0:~# nano /root/testfile  
Hello  
this is [2] Linux example  
welcome  
wellcome  
this is vi Editor  
thank you  
root@rhel7.0:~#
```

Scrolling

<u>key</u>	Action
Ctrl + f	Scrolls forward
Ctrl + b	Scrolls backward
Ctrl + d	Scrolls half page
Ctrl + u	Scrolls half page backward.

g] Learn all essential command, like search | replace, show line numbers.

→ i] Replace

ii] Highlight

use set hisearch

iii] Show the line number

use set nu

88
01/02

Title:- Linux Security.

- 1] Use of sudo to change user privilege to root.
 - ↳ Create a user named user1.
- ↳ To give some users root privilege edit /etc/sudo using visudo. Enter new line as highlighted below.

2] Identify operators that require sudo privilege.


```
jeba@jeba-VirtualBox:~  
jeba@jeba-VirtualBox: $ sudo chage -l user1  
Last password change : Jan 20, 2020  
Password expires : never  
Password inactive : never  
Account expires : never  
Minimum number of days between password change : 0  
Maximum number of days between password change : 99999  
Number of days of warning before password expires : 7
```

```
jeba@jeba-VirtualBox:~$ sudo chage user1  
Changing the aging information for user1  
Enter the new value, or press ENTER for the default  
Minimum Password Age [0]: 100  
Maximum Password Age [99999]: 200  
Last Password Change (YYYY-MM-DD) [2020-01-20]: 2020-01-21  
Password Expiration Warning [7]: 5  
Password Inactive [-1]:  
Account Expiration Date (YYYY-MM-DD) [-1]: 2020-01-31  
jeba@jeba-VirtualBox:~$ sudo chage -l user1  
Last password change : Jan 21, 2020  
Password expires : Aug 08, 2020  
Password inactive : never  
Account expires : Jan 31, 2020  
Minimum number of days between password change : 100  
Maximum number of days between password change : 200  
Number of days of warning before password expires : 5  
jeba@jeba-VirtualBox:~$ █
```

qf Modify expiration date for new user using , password ageing.

- E : Expiration Date
- m : Minimum number of days before password change
- M : Number of days password is valid.
- I : Account inactive
- W : Number of days of warning before a password change is required.

1.8

a] Delete newly added user.

sudo userdel user1

```
jeba@jeba-VirtualBox:~$ sudo chage -E 25/01/2020 -m 10 -M 90 -I 30 -W 30 user1
jeba@jeba-VirtualBox:~$ sudo chage -l user1
Last password change : Jan 21, 2020
Password expires      : Apr 20, 2020
Password inactive     : May 20, 2020
Account expires        : Jan 01, 2022
Minimum number of days between password change : 10
Maximum number of days between password change : 90
Number of days of warning before password expires: 30
jeba@jeba-VirtualBox:~$
```

```
jeba@jeba-VirtualBox:~$ sudo userdel user1
[sudo] password for jeba:
jeba@jeba-VirtualBox:~$ su user1
No passwd entry for user 'user1'
jeba@jeba-VirtualBox:~$
```

S
01/02

```
jeba@jeba-VirtualBox: ~
jeba@jeba-VirtualBox:~$ ifconfig
enp0s3      Link encap:Ethernet HWaddr 08:00:27:0e:6b:69
              inet addr:10.0.2.15 Bcast:10.0.2.255 Mask:255.255.255.0
              inet6 addr: fe80::c0cd:53a0:d5a3:848e/64 Scope:Link
                  UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
                  RX packets:2 errors:0 dropped:0 overruns:0 frame:0
                  TX packets:73 errors:0 dropped:0 overruns:0 carrier:0
                  collisions:0 txqueuelen:1000
                  RX bytes:1180 (1.1 KB) TX bytes:8518 (8.5 KB)

lo          Link encap:Local Loopback
              inet addr:127.0.0.1 Mask:255.0.0.0
              inet6 addr: ::1/128 Scope:Host
                  UP LOOPBACK RUNNING MTU:65536 Metric:1
                  RX packets:53240 errors:0 dropped:0 overruns:0 frame:0
                  TX packets:53240 errors:0 dropped:0 overruns:0 carrier:0
                  collisions:0 txqueuelen:1
                  RX bytes:4225072 (4.2 MB) TX bytes:4225072 (4.2 MB)
```

```
jeba@jeba-VirtualBox: ~
jeba@jeba-VirtualBox:~$ hostname
jeba-VirtualBox
jeba@jeba-VirtualBox:~$
```

```
jeba@jeba-VirtualBox:~$ ping www.google.com
PING www.google.com (172.217.31.196) 56(84) bytes of data.
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=1 ttl=54 time=97.8 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=2 ttl=54 time=82.0 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=3 ttl=54 time=84.8 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=4 ttl=54 time=87.1 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=5 ttl=54 time=93.5 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=6 ttl=54 time=86.9 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=7 ttl=54 time=98.0 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=8 ttl=54 time=90.9 ms
^Z
[1]+  Stopped                  ping www.google.com
jeba@jeba-VirtualBox:~$
```

Practical - 18
Name: Nitin Mehta

67

- 1] Get IP address of your machine using cmd
→ ipconfig
- 2] Get hostname of your machine
→ hostname
- 3] Use ping to check the network connectivity to remote machine
→ ping www.google.com.

28

5] Use of dig command.
⇒ dig www.google.com.

```
jeba@jeba-Vostro-340: ~
dig www.google.com
<>> global
Got answer
->>HEADER flags:
: OPT PSE
: EDNS: ve
: QUESTION
: www.google
: ANSWER
: www.google
: Query
: SERVER
: WHEN:
: MSG ST
jeba@jeba-Vostro-340: ~
```

6] Troubleshooting network using traceroute, route command.
⇒ traceroute www.google.com.

```
jeba@jeba-Vostro-340: ~
traceroute www.google.com
1 10.10.1.10
2 10.10.1.11
3 10.10.1.12
jeba@jeba-Vostro-340: ~
```

7] Use of arp command.
⇒ arp

jeba@jeba-Vostro-340: ~
arp -a
Kernel IP address for eth0 is 10.10.1.10
inet brdcast mcast stp
ether 00:0c:29:10:00:00 brd ff:ff:ff:ff:ff:ff mcast stp
jeba@jeba-Vostro-340: ~

```
jeba@jeba-VirtualBox: ~  
jeba@jeba-VirtualBox:~$ dig www.google.com  
;; <>> DIG 9.10.3-P4-Ubuntu <>> www.google.com  
;; global options: +cmd  
;; Got answer:  
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 52068  
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1  
;; OPT PSEUDOSECTION:  
;; EDNS: version: 0, flags:; udp: 4096  
;; QUESTION SECTION:  
;www.google.com.  
;; ANSWER SECTION:  
www.google.com. 91 IN A 172.217.166.100  
;; Query time: 152 msec  
;; SERVER: 127.0.1.1#53(127.0.1.1)  
;; WHEN: Mon Jan 20 22:40:06 IST 2020  
;; MSG SIZE rcvd: 59  
jeba@jeba-VirtualBox:~$
```

```
jeba@jeba-VirtualBox: ~  
jeba@jeba-VirtualBox:~$ traceroute www.google.com  
traceroute to www.google.com (172.217.166.100), 30 hops max, 60 byte packets  
1 10.0.2.2 (10.0.2.2) 0.190 ms 0.143 ms 0.151 ms  
2 * * *  
3 10.0.2.2 (10.0.2.2) 68.568 ms 68.486 ms 68.405 ms  
jeba@jeba-VirtualBox:~$
```

jeba@jeba-VirtualBox:~\$ arp
Address HWtype HNAddress Flags Mask Iface
10.0.2.2 ether 52:54:00:12:35:02 C enp0s

jeba@jeba-VirtualBox:~\$ host -V
host 9.10.3-P4-Ubuntu
jeba@jeba-VirtualBox:~\$

Q Use of arp command
Ans arp

Q Use of host command.
Ans host →

1

1) Use of netstat command for memory consumption
of netstat
names added ~~george.com~~

```
Starting Nmap scan at [REDACTED]
Host is up
Other address(es) for this host:
    DNS record not shown
PORT      STATE    SERVICE
80/tcp      open     http
443/tcp     open     https
Nmap done at [REDACTED]
```

Active Internet connections (w/o servers)			Foreign Address		State
Local Address	Type	State	L-Node	Path	
unix 0.0	DGRAM	LISTEN	42149	/run/user/1000/system	
unix 1.0	DGRAM	LISTEN	9694	/run/systemd/journal/socket	
unix 2.0	DGRAM	LISTEN	9695	/run/systemd/journal/socket	
unix 3.0	DGRAM	LISTEN	9704	/run/systemd/journal/socket	
unix 4.0	DGRAM	LISTEN	9684	/run/systemd/notify	
unix 5.0	STREAM	CONNECTED	44042	@/tmp/dbus-CynTe17AQG	
unix 6.0	STREAM	CONNECTED	43331	@/tmp/dbus-CynTe17AQG	
unix 7.0	STREAM	CONNECTED	42988	@/tmp/dbus-CynTe17AQG	
unix 8.0	STREAM	CONNECTED	42690	@/tmp/dbus-Ch0CC6C7PS	
unix 9.0	STREAM	CONNECTED	13242	/run/systemd/journal/socket	
unix 10.0	STREAM	CONNECTED	43113	/run/systemd/journal/socket	
unix 11.0	STREAM	CONNECTED	43013		
unix 12.0	STREAM	CONNECTED	42935		

Aim:- Shell Scripting.

Basics of Shell Scripting :-

- a] To get a shell, you need to start a terminal.
- b] To see what shell you have, run: echo \$SHELL
- c] In Linux, the dollar sign (\$) stands for shell variable.
- d] The echo command just returns whatever you type in.
- e] #!/bin/bash - It is called shebang. It is written at the top of a shell script and it passes the instruction to the program /bin/bash.

Echo \$SHELL

• vi filename.sh

#!/bin/bash

echo "This is Linux Ubuntu"

• chmod 777 filename.sh,

✓ ./.filename.sh.

↳ ps to write and execute a shell script.

↳ Shell script is just a simple text file with .sh extension having executable permission.

↳ Open terminal.

↳ Navigate to the place where you want to create script using cd command.

↳ Touch filename.sh

↳ vi filename.sh [You can use your favourite editor, to edit the script].

- ① chmod +x filename.sh (for making the script executable)
- ② sh filename.sh or ./filename.sh (for running the script)

Program to display your name

```
#!/bin/bash  
Echo "Enter Your Name!"  
Read name  
Echo "My Name is: $name"
```

```
vi/btn/bash  
'echo "Enter your name;"  
read name  
'echo "My name is: $name"
```

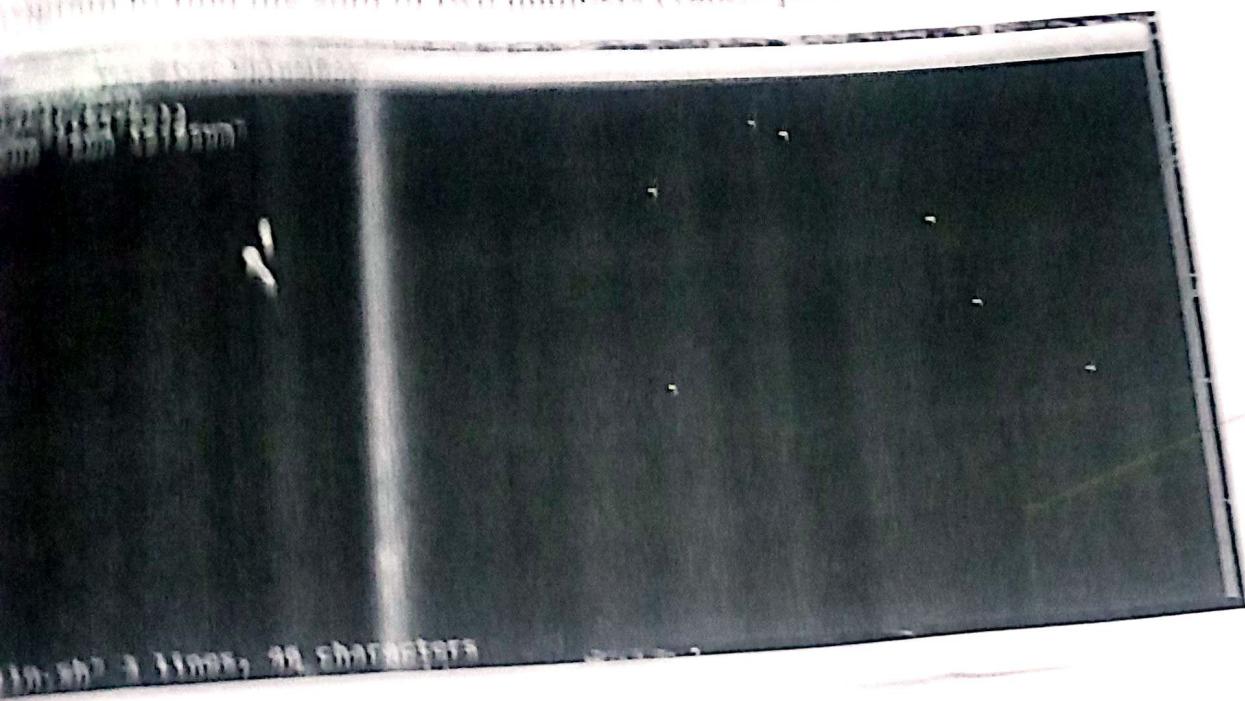
:wq

```
tcsc@tcsc-VirtualBox:~  
tcsc@tcsc-VirtualBox:~$ vi ubuntu.sh  
tcsc@tcsc-VirtualBox:~$ chmod 777 ubuntu.sh  
tcsc@tcsc-VirtualBox:~$ ./ubuntu.sh  
'Enter your name:  
TANVI  
My name is: TANVI  
tcsc@tcsc-VirtualBox:~$
```

Program to find the sum of two variables

```
vi filename.sh  
#!/bin/bash  
a = 100  
b = 25  
sum = $(($a + $b))  
Echo "Sum is: $sum"
```


program to find the sum of two numbers (values passed during execution)



10:38:27 ~ 15ms, 98 characters

```
centos@centos-VirtualBox:~$ vi lln.sh
centos@centos-VirtualBox:~$ chmod 777 lln.sh
centos@centos-VirtualBox:~$ ./lln.sh 50 70
sum (50)120
centos@centos-VirtualBox:~$ █
```

Sed:-

sed command or Stream Editor is very powerful utility offered by Linux systems. It is mainly used for text substitution, find and replace but it can perform other text manipulations like insertion, deletion, search, etc. With sed, we can edit complete files without actually having to open it.

Consider the following text file.

1] Displaying the partial text of a file.
with sed, we can view only part of a file rather
than seeing whole file

2]

a] Display all except some lines.

To display all content of a file except for some portion, use option 'd'.

2) Display a

To display a

tcsc@tcsc-virt
subjects offered
datastructure
green tech
softskill
stats
calculus
computer basic
tcsc@tcsc-virt

3] Deleting a line

To delete a line, use line number followed by 'd'.

3) Deleting a

To dele

tcsc@tcsc-virt
tcsc@tcsc-virt
tcsc@tcsc-virt
THIS IS LINUX
tcsc@tcsc-virt

4]

Search and Replace a string.
's' option is for searching a word.

4) Se

tcsc@tc
subject
datastr
database
linux
python
green
softsk
stats
calculus
comput

2) Display all except some lines

To display all content of a file except for some portion, use option 'd'

```
tcsc@tcsc-VirtualBox:~$ sed 3,5d cs.txt
subjects offered in cs
datastructure
green tech
softskill
stats
calculus
computer basic
tcsc@tcsc-VirtualBox:~$
```

3) Deleting a line

To delete a line , use line number followed by 'd'

```
tcsc@tcsc-VirtualBox:~$ vi linux.sh
tcsc@tcsc-VirtualBox:~$ chmod 777 linux.sh
tcsc@tcsc-VirtualBox:~$ ./linux.sh
THIS IS LINUX!
tcsc@tcsc-VirtualBox:~$
```

4) Search and Replacing a string

's' option is for searching a word.

```
tcsc@tcsc-VirtualBox:~$ sed 's/cs/computer/' cs.txt
subjects offered in computer
datastructure
database management
linux
python
green tech
softskill
stats
calculus
computer basic
```

```
tcsc@tcsc-VirtualBox:~$ sed '/cs/a "this is linux"' cs.txt
subjects offered in cs
datastructure
database management
linux
python
green tech
softskill
stats
calclus
computer basic
```

6) Add a line after / before the matched string.

To add a new line with some content after every pattern match, use option 'a'.

```
tcsc@tcsc-VirtualBox:~$ sed '/cs/a "this is linux"' cs.txt
subjects offered in cs
"this is linux"
datastructure
database management
linux
python
green tech
softskill
stats
calclus
computer basic
tcsc@tcsc-VirtualBox:~$
```

To add a new line with some content before every pattern match, use option 'i'.

```
tcsc@tcsc-VirtualBox:~$ sed '/cs/i "this is linux"' cs.txt
>this is linux
subjects offered in cs
datastructure
database management
linux
python
green tech
softskill
stats
calclus
computer basic
tcsc@tcsc-VirtualBox:~$
```

④ Replace a string on a particular line
To replace a string on a particular line, use the
number with a string or a regular expression.

⑤ Add a line after/before the selected string.
To add a new line with some content after every
pattern/marker, use option 5.

To add a new line with some content before
every pattern marker, use option 6.

8

- 7] To change a whole line with matched pattern, To change a whole line to a new line when search pattern matches, use option 'c.'

8] Appending lines

To add some content before every line with use * and & as follows.

7) To change a whole line with matched pattern.

To change a whole line to a new line when a search pattern matches, use option 'c'.

```
tcsc@tcsc-VirtualBox:~$ sed '/linux/c "this is linux"'; cs.txt
subjects offered in cs
datastructure
database management
>this is linux<
python
green tech
softskill
stats
calclus
computer basic
```

8) Appending lines

To add some content before every line with sed, use * and & as follows.

```
tcsc@tcsc-VirtualBox:~$ sed -e 's/.*/Thanks &/' cs.txt
Thanks subjects offered in cs
Thanks datastructure
Thanks database management
Thanks linux
Thanks python
Thanks green tech
Thanks softskill
Thanks stats
Thanks calclus
Thanks computer basic
```