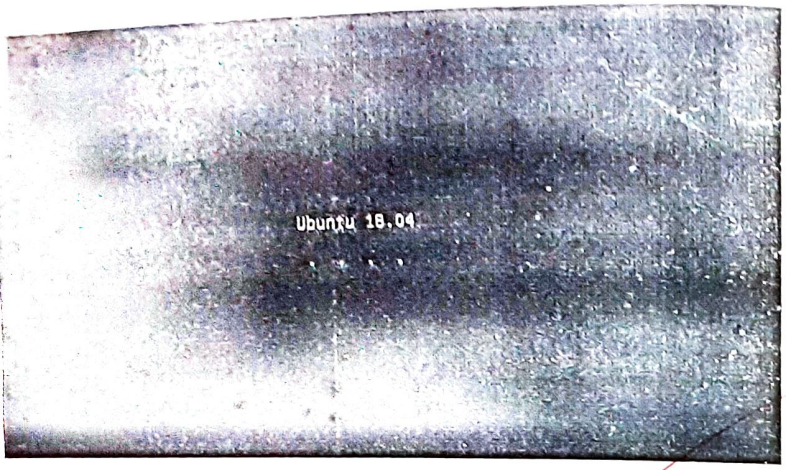
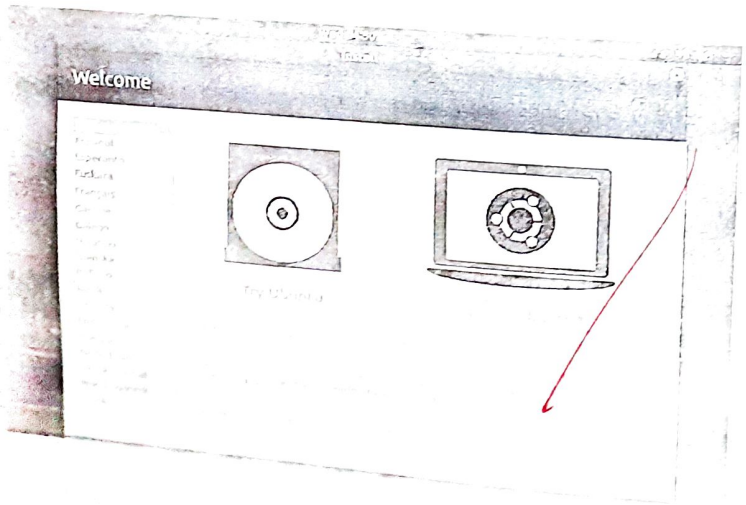




PRACTICAL - NO 1

Aim :- Install your choice of Linux distribution
Eg ubuntu, Fedora

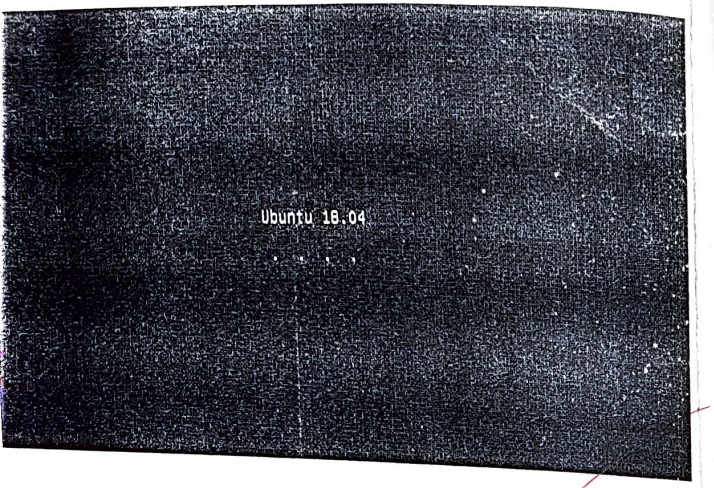
1) Customize desktop environment by changing different default option like default background, themes, screensavers
3) Screen Resolution
4) Time setting

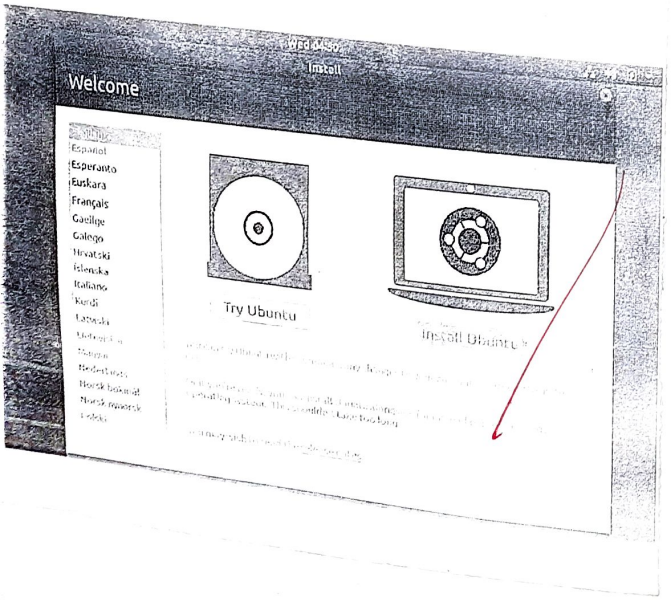
a) Using a USB drive.

→ • Most newer computers can boot from USB You should see welcome screen prompting you to choose your language and giving you the option to install Ubuntu or try it from USB
• If your computer doesn't automatically does so you might need to press F2 key to bring up the boot menu, but be carefull not hold it down that can cause an error message

1. Prepare to install

→ • We recommend you plug your computer into a power source
• You should also make sure you have enough space on your computer to install Ubuntu
• We advice you to select download Updates while installing and Install third party software





PRACTICAL- NO-1

Aim :- Install your choice of linux distribution
Eg ubuntu, Fedora

2) Customize desktop environment by changing different default option like default background, themes, screensavers.

3) Screen Resolution

4) Time setting

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→ • Most newer computers can boot from USB. You should see welcome screen prompting you to choose your language and giving you the option to install Ubuntu or try it from USB
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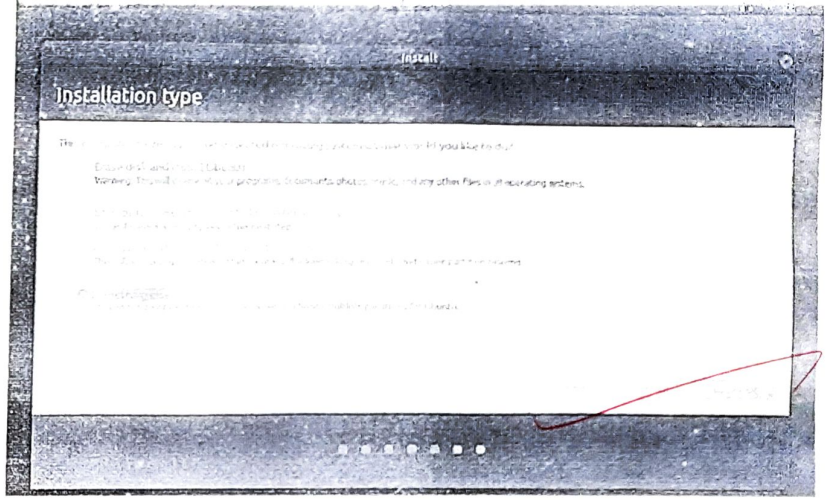
1. Prepare to install

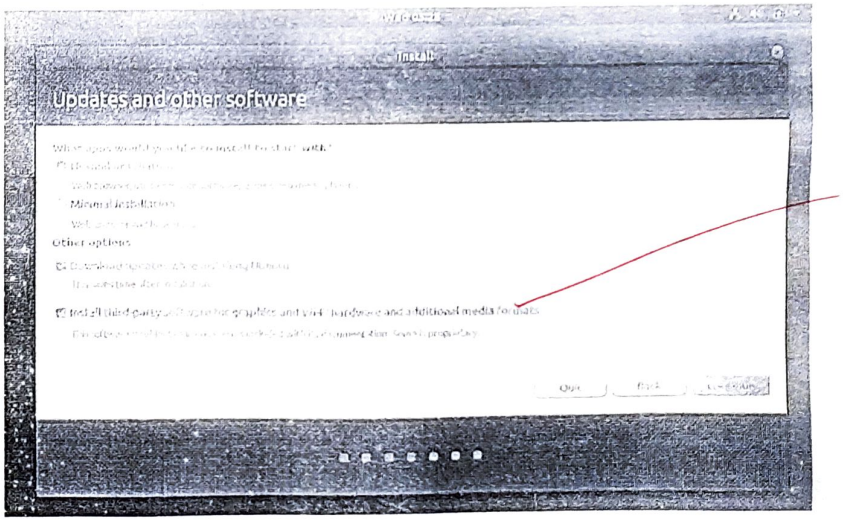
→ • We recommend you plug your computer into a power source
• You should also make sure you have enough space on your computer to install Ubuntu.
• We advice you to select download Updates while installing and Install third party software.

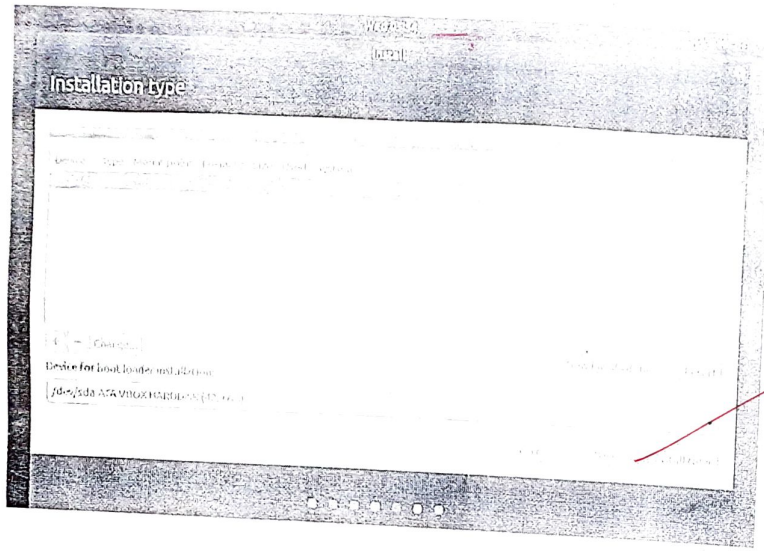
so you can get the last updates while you install ubuntu
- If you are not connected to internet it will ask you for wireless network, if available we advise you to connect during the installation.

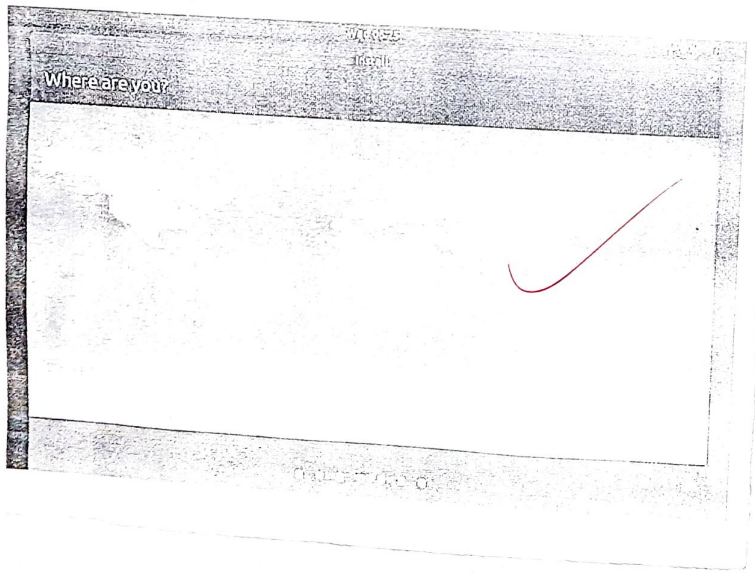
2. Allocate drive space
- Use the check space to choose whether you had to like install ubuntu alongside another operating system. delete your existing OS and replace it with ubuntu. or if you are an advanced user choose the 'Something else' option

3. Begin the installation
- Depending on your previous selection, you can verify that you can choose the way in which would like to install ubuntu
- The installation process will begin when you click the installation Now button
- Ubuntu needs about 4.5 GB to install and add new features to allow your files
- Select your location
- If You are connected to the internit this should be done automatically









5. Select your preffered keyboard layout
→ Click the language option you need. If you are not sure click the detect keyboard layout button for help

6. Enter your login and password details.
7. Learn more about Ubuntu While the System installs.
8. Thats it
All that's left, is to restart your computer and start enjoying Ubuntu

Customising desktop environment by Changing different dfault options like changing dfault background, themes
→ • Accessing Appearance setting in Ubuntu
Let's click on ~~User~~ menu at the bar and select system settings.

A window will pop-up with all setting divided into personal, Hardware and System option icons. let's first select the Appearance icon

Changing wallpaper picture

→ • On the left side of Background part, you can see your current wallpaper.

• On the right side is part where we can select one of ubuntu wallpaper. Clicking any wallpapers will be changed right away with a fading effect

• If you want to select wallpaper from picture folder click the drop-down menu above thumbnails and select picture folder as thumbnails where your pictures folders as thumbnails where you can select them as your wallpapers

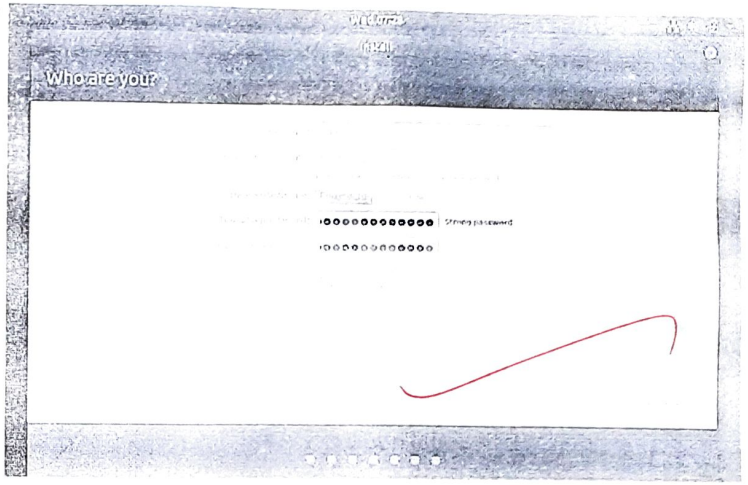
Changing Ubuntu theme

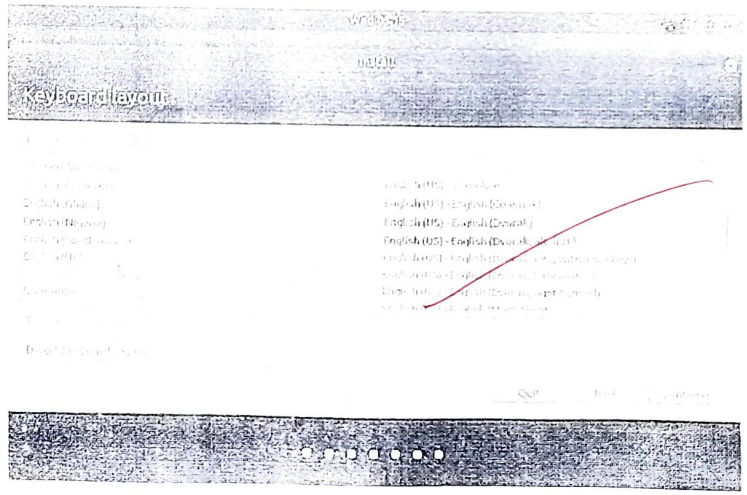
→ • Ubuntu also has an option to change the desktop theme which is one click will change the entire way your computer looks

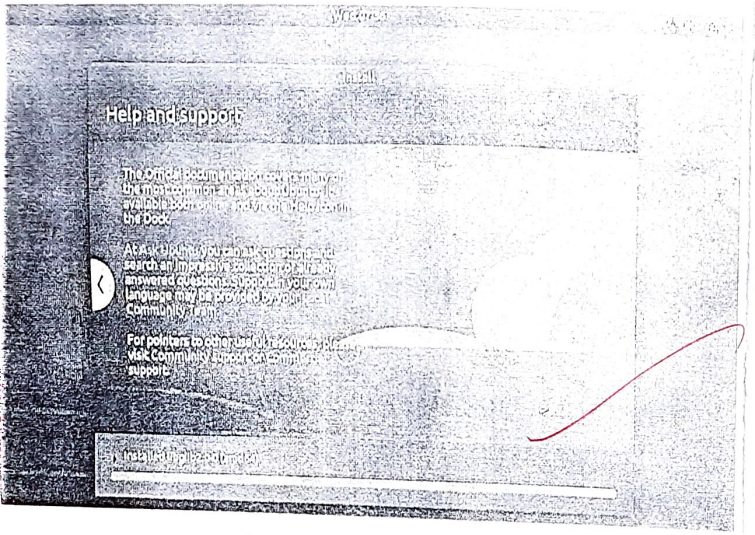
• To do that click on drop-down menu below the wallpaper thumbnails and choose between Ambiance, Radiance or high contrast

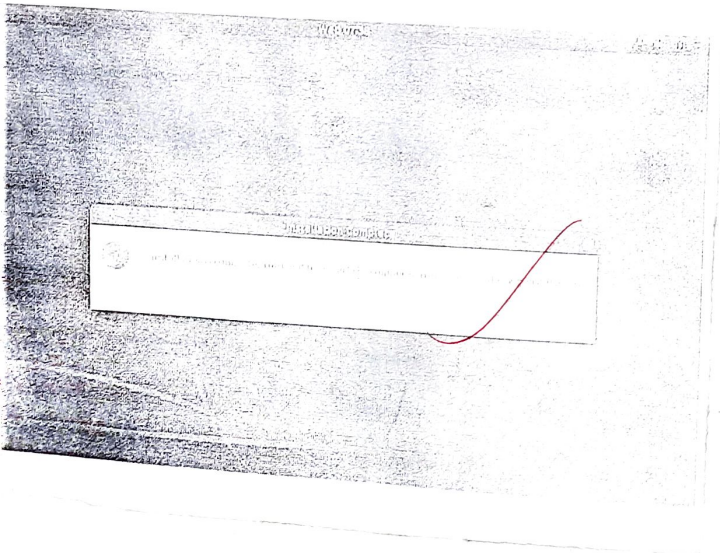
• Screen resolution: Ascertain the current screen resolution for your screen

Change the size or rotation of the screen.







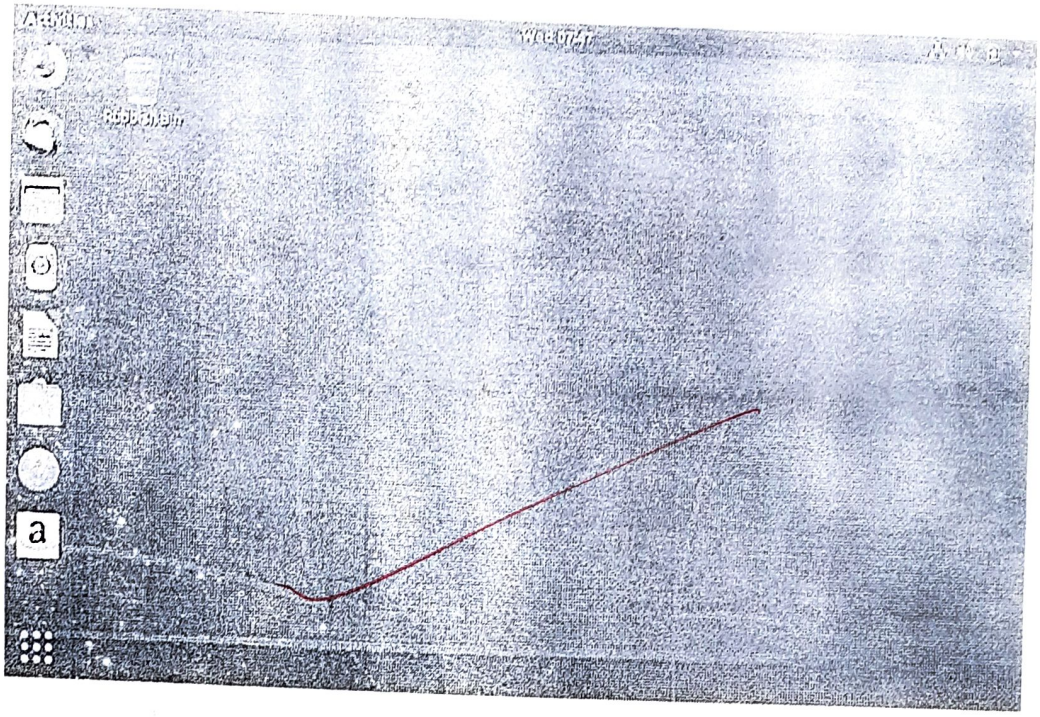


- You can change how big things appear on the screen resolution
- You can change which way up things appear by changing the rotation

1. Click the icon on the very right of the menu bar and select system settings
2. open screen display
3. If you have multiple display and they are not removed & you can have a different setting on each display
4. Select your desired resolution and rotation.
5. Click Apply. The new setting will be applied for 30 seconds before reverting ~~back~~. back

Time settings Change the time zone of your system

1. If you are correctly in Indian time. How does the display time Change.
2. After noting the time Change the time zone back to your local time zone
3. Just Click on the top bar and Choose the time and date settings once time and date window opens, Choose manually, So you can Change the time and date manually



05/02

PRACTICAL - 2

Aim: Installing and removing software

a] Install gcc package, verify that it runs and then remove it

Step 1:

First type 'gcc -v' to know if you have already installed gcc compiler or not. If the output is blank then it means that you dont have gcc installed.

Step 2:

Type 'sudo apt-get install gcc'. After typing the following command installation will take place

Step 3:

Type 'sudo apt-get install build-essential'. This will install all the libraries required for c and c++ programming language.

~~Note~~ How to uninstall gcc compiler:

In Gcc 5.1.0, although there is no top-level Uninstall target, some directories do have it in particular gcc, do you can do

Type: cd build/gcc
sudo make uninstall

This doesnot remove every thing that was installed, but it remove major executables like gcc, g++, cpp.... contained in that directory.

05/02

PRACTICAL - 3

Aim : Utilization of grep, man Commands.
Documuntation:

a) Finding info documentation from the Command line:
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 'group' Command:

Open the terminal and type: info grep

After typing this Command following output will be displayed into your screen.

You can also scroll through pages using (Space = up) & (backspace = down) keys.

Another more Summarized of showing info is the 'man' Command. The Command is Same as info ; but required data

b) Finding man pages from the cmd line : Bring the man page for the 'ls' command scroll down to the example 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 compression

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

d) Find man pages by section from the cmd line: bring up the man pages for the print flib function which manual page section are library function found

Ans: The number corresponds to what section of the manual page is from, 1 is user command, while 8 is sys admin stuff. The man page for man itself explain it and list the all one

There are certain terms that have different pages in different sections (eg: 'printf' as a command appears in section 1. as a 'stdlib' function appears in section 3), in cases like that you can pass the section no to the man before the page name to choose which on you want or use man -a to show every matching page in a row.

~~You can still tell~~

You can tell what section a term falls in with 'man -k' (equivalent to apropos command).
It will do substring matches too so you need to use "^foo$" to limit it.

PRACTICAL - 4

Command line options

a) Install new package on your distribution

Sudo apt-get install (package name)

b) Remove the package installed

Sudo apt-get remove (package name)

c) Find the password file in / using find command.

find / - name password
- /usr/share/doc/nss_ldap-253/pam.d/pssword
- /usr/bin/passwd
- /etc/pam.d/passwd
- /etc/passwd

Find the directory password file under root and one level down

find / - max depth 2 - name passwd
- /etc/passwd

Find the passwd file under root and 2 level down

find / - max depth 3 - name passwd
- /usr/bin/passwd
- /etc/pam.d/passwd
- /etc/passwd.

find the password file b/w subdirectories level 2 & 4

find - max depth 3 - max depth 5 - name passwd
- /usr/bin/passwd
- /etc/pam.d/passwd

d) Create a symbolic link to the file you found in least step.

ln - s file1 file2

e) Create an empty file example.txt and move it to /tmp directory using relative pathname

touch example.txt
mv example.txt /tmp

f) delete the file moved to /tmp in previous step by absolute method

rm /tmp/example.txt

PRACTICAL - 6.

Use Environment

a) which account you are logged in ? How do you find out?

Ans who command & whoami

b) Display /etc/shadow file using cat comman and understand the importance of shadow file. How its different than passwd file
Ans: Cat /etc/shadow

As with the passwd file, each file in the shadow file is also separated with ":" colons characters, and are as follows.

- Username, up to 8 Characters Case-Sensitive, usually all lowercase. A direct match to the username in the /etc/passwd file.

- ~~Username, op~~
- Password up to 8 Characters Case-Sensitive, usually all lowercase. A direct match to the username in the /etc/passwd
- The ~~name~~ number of days (Since January 1, 1970)

- An "x" in the password field. passwords are stored in the "/etc/shadow" file.

- Numeric group id. This assigned by the "adduser script Unix uses this field plus the following group field. to identify which files belong to the user.

- Numeric group id. Red Hat uses group id's in a ~~pai~~ fairly unique manner for enhanced file security. Usually the group id will match the user id

- Full name of user. I'm not sure that maximum length for th field is, but try to kupit reasonable (under 30 characters)

- User's home directory. Usually /home/ user name (eg. /home/s ithj). All users personal file. web pages. mails forwording etc. will be Stored here

- User's shell account" often set to "/bin/bash" to provide access to the bash shell (my personal favourate shell).

```
jeba@jeba-VirtualBox: ~
jeba@jeba-VirtualBox:~$ who
jeba     tty7         2020-01-15 20:32 (:0)
jeba@jeba-VirtualBox:~$ whoami
jeba
jeba@jeba-VirtualBox:~$ who -l
LOGIN    tty1         2020-01-15 20:30                780 id=tty1
jeba@jeba-VirtualBox:~$
```

```
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
```

```
ba@jeba-VirtualBox:~$ sudo cat /etc/shadow
sudo] password for jeba:
oot:!:18240:0:99999:7:::
aemon:*:16911:0:99999:7:::
in:*:16911:0:99999:7:::
ys:*: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:::
```

```
@jeba-VirtualBox:~$ sudo cat /etc/passwd
:x:0:0:root:/root:/bin/bash
non:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
:x:2:2:bin:/bin:/usr/sbin/nologin
s:x:3:3:sys:/dev:/usr/sbin/nologin
nc:x:4:65534:sync:/bin:/bin/sync
mes:x:5:60:games:/usr/games:/usr/sbin/nologin
an:x:6:12:man:/var/cache/man:/usr/sbin/nologin
p:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
ail:x:8:8:mail:/var/mail:/usr/sbin/nologin
ews:x:9:9:news:/var/spool/news:/usr/sbin/nologin
ucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
ww-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:Mailing List Manager:/var/list:/usr/sbin/nologin
```

```
jeba@jeba-VirtualBox:~$ alias m="mkdir new"
jeba@jeba-VirtualBox:~$ m
jeba@jeba-VirtualBox:~$ ls
Desktop    Downloads        [redacted]  Music  Pictures  Templates
Documents  examples.desktop  jj          new    Public    Videos
```

b)

c) Get your current working directory

Ans pwd

d) Explore different ways to getting command history
How to run previously executed command without typing it

Ans history

! line number

e) Create alias to most commonly used command

Alias command instructs the shell to replace one string with another string while executing the commands.

~~and~~:

Ans: alias label = "command"

05/07

```
jeba@jeba-VirtualBox: ~
jeba@jeba-VirtualBox:~$ history
    1  who
    2  whoami
    3  who -l
    4  clear
    5  w
    6  w -s
    7  w -h
    8  w -f
    9  clear
   10  cat /etc/shadow
   11  sudo cat /etc/shadow
   12  clear
   13  sudo cat /etc/passwd
   14  pwd
   15  clear
   16  history
jeba@jeba-VirtualBox:~$ !3
who -l
LOGIN    tty1         2020-01-15 20:30               780 id=tty1
jeba@jeba-VirtualBox:~$
```

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

PRACTICAL - 1

a) Linux Editor : Vi

b) Create, modify, search and navigate a file in editor.

i) Creating a file:

To create a file, on the terminal type vi followed by filename.

ii) Modifying the file:

To modify a file, on the vi editor, type 'o'

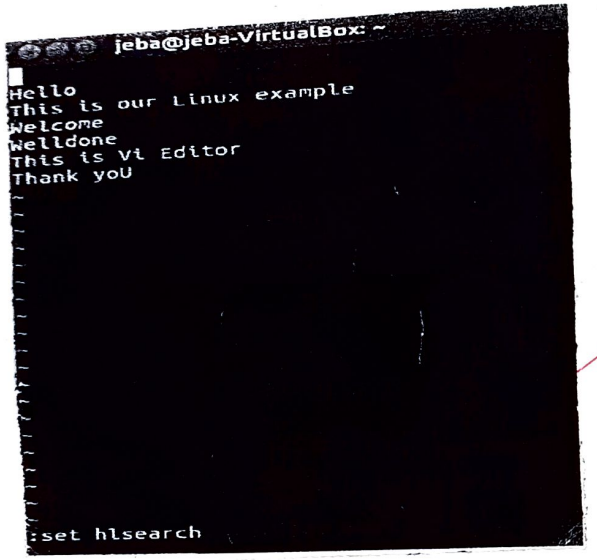
iii) Search in a file

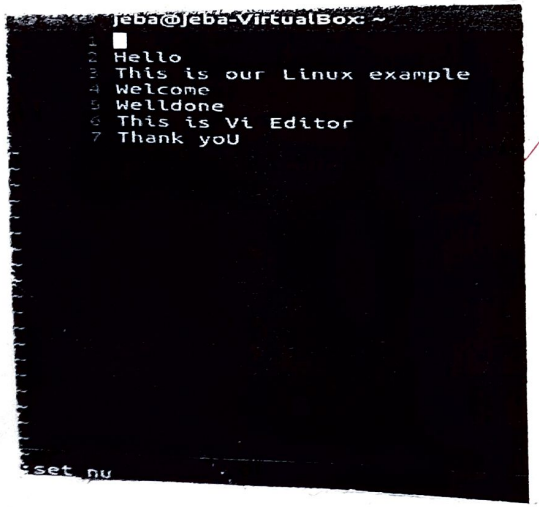
To find a word (forword search) press / followed by the word to search.

iv) Navigate

Movement in four direction

Key	Action
k	moves cursor up
j	moves cursor down
h	Moves cursor left
l	Moves cursor right





IBU

Word Navigation:

Key	Action
b	moves back to the bigining of the word
e	Moves forward to the end of the word
w	moved forword to the bigning of the
0 (zero)	Moves to first Character of a line
$	Move to the end of line

Scrolling:

Key	Action.
Ctrl+f	Scroll forward.
Ctrl+b	Scrolls backward
Ctrl+d	Scrolls half page
Ctrl+u	Scrolls halfpage Backward

b) learn all essential commands like search/ replace, highlight, show line numbers

i) Replace

Syntax: g/word to be replaced//new word/ g<

ii) Highlight
Use set

iii) Show the l
use set n

```
jeba@jeba-VirtualBox:~$ df -k
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    511860   1% /dev/shm
tmpfs              5120       4      5116   1% /run/lock
tmpfs            512076       0    512076   0% /sys/fs/cgroup
tmpfs            102416      48    102368   1% /run/user/1000
jeba@jeba-VirtualBox:~$
```

```
jeba@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=000)
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,xattr,releas
e_agent=/lib/systemd/systemd-cgroups-agent,name=systemd,nsroot=/)
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,nsro
ot=/)
cgroup on /sys/fs/cgroup/cpu,cpuacct type cgroup (rw,nosuid,nodev,noexec,relatime,cpu,cpua
cct,nsroot=/)
cgroup on /sys/fs/cgroup/devices type cgroup (rw,nosuid,nodev,noexec,relatime,devices,nsro
ot=/)
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_even
t,nsroot=/)
cgroup on /sys/fs/cgroup/hugetlb type cgroup (rw,nosuid,nodev,noexec,relatime,hugetlb,nsro
ot=/)
systemd-1 on /proc/sys/fs/binfmt_misc type autofs (rw,relatime,fd=32,pgrp=1,timeout=0,minp
roto=5,maxproto=5,direct)
hugetlbfs on /dev/hugepages type hugetlbfs (rw,relatime)
```

PRACTICAL - 5

Aim: File operations

1. Explore mounted file system on your computer.

→ df -k

2. What are the different ways of exploring mounted file system on linux?

→ mount

3. copying text from files

→ cp command, mv command

4. Archiving and ~~the~~ backup the work directory using tar, gzip,

→ gzip Filename.txt

5. use diff-command to ~~check~~ Create diff of two files

→ diff filename1 file name2

6. use ~~pattern~~ & patch command to patch a file. and analyse the pattern using patch command again

```
jeba@jeba-VirtualBox:~/jeb$ ls
dd.txt.gz  ss.txt.bz2
jeba@jeba-VirtualBox:~/jeb$ cat >aa.txt
hello world
^C
jeba@jeba-VirtualBox:~/jeb$ cat >bb.txt
this is linux^C
jeba@jeba-VirtualBox:~/jeb$ diff aa.txt bb.txt
1d0
< hello world
jeba@jeba-VirtualBox:~/jeb$ cat >bb.txt
this is Linux
^C
jeba@jeba-VirtualBox:~/jeb$ diff aa.txt bb.txt
1c1
< hello world
---
> this is Linux
jeba@jeba-VirtualBox:~/jeb$ gzip aa.txt
jeba@jeba-VirtualBox:~/jeb$ gzip bb.txt
jeba@jeba-VirtualBox:~/jeb$ diff aa.txt.gz bb.txt.gz
Binary files aa.txt.gz and bb.txt.gz differ
```

```
jeba@jeba-VirtualBox:~/jeb$ cat >hi.txt
hi
hi
hi
^C
jeba@jeba-VirtualBox:~/jeb$ cat >hii.txt
hello
hello
hello
^C
jeba@jeba-VirtualBox:~/jeb$ diff -u hi.txt hii.txt >sam.patch
jeba@jeba-VirtualBox:~/jeb$ patch ,sam.patch
^C
jeba@jeba-VirtualBox:~/jeb$ patch <sam.patch
patching file hi.txt
jeba@jeba-VirtualBox:~/jeb$ cat sam.patch
--- hi.txt      2020-01-08 22:14:55.463569834 +0530
+++ hii.txt     2020-01-08 22:15:16.259898738 +0530
@@ -1,3 +1,3 @@
-hi
-hi
-hi
+hello
+hello
+hello
jeba@jeba-VirtualBox:~/jeb$
```

```
esktop    Downloads         Music      Public
ocuments  examples.desktop  jj  Pictures  Templates  Videos
eba@jeba-VirtualBox:~$ cd jeb
eba@jeba-VirtualBox:~/jeb$ cat .gg.txt
at: .gg.txt: No such file or directory
eba@jeba-VirtualBox:~/jeb$ cat gg.txt
at: gg.txt: No such file or directory
eba@jeba-VirtualBox:~/jeb$ cat >gg.txt
elcome
inux
C
eba@jeba-VirtualBox:~/jeb$ touch dd.txt
eba@jeba-VirtualBox:~/jeb$ ls
d.txt  gg.txt
eba@jeba-VirtualBox:~/jeb$ cp gg.txt dd.txt
eba@jeba-VirtualBox:~/jeb$ cat gg.txt
elcome
inux
eba@jeba-VirtualBox:~/jeb$ cat dd.txt
elcome
inux
eba@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$
```

```
eba@jeba-VirtualBox:~/jeb$ bzip2 ss.txt
eba@jeba-VirtualBox:~/jeb$ ls
d.txt  ss.txt.bz2
eba@jeba-VirtualBox:~/jeb$ cat ss.txt.bz2
Zh91AY&SY`◆[illegible]◆[illegible]
◆ow$S◆◆[illegible]1 jeba@jeba-VirtualBox:~/jeb$ gzip dd.txt
eba@jeba-VirtualBox:~/jeb$ ls
d.txt.gz  ss.txt.bz2
eba@jeba-VirtualBox:~/jeb$ cat dd.txt.gz
[illegible]d.txt+O◆I◆◆M◆◆◆◆+◆◆[illegible]◆Xzjeba@jeba-VirtualBox:~/jeb$
```

```
ba@jeba-VirtualBox:/$ tar -cvf data.tar /mnn
r: data.tar: Cannot open: Permission denied
r: Error is not recoverable: exiting now
ba@jeba-VirtualBox:/$ sudo tar -cvf data.tar /mnn
r: Removing leading `/' from member names
nn/
nn/hd/
eba@jeba-VirtualBox:/$ ls
in     data.tar  etc         lib          mnn   opt   run   srv  usr
oot    dd        home        lost+found   mnt   proc  sbin  sys  var
drom   dev       initrd.img  media        mnt1  root  snap  tmp  vmlinuz
eba@jeba-VirtualBox:/$ cat data.tar
nn/0000755000000000000000000000000013605376557010365 5ustar  rootrootmnn/hd/0000755000000
00000000000000000013605376557010760 5ustar  rootrootjeba@jeba-VirtualBox:/$
```

PRACTICAL-8

Aim: Linux Security

a) Use of ~~sha~~ sudo to change user privileges to root

→ Create a user named user1

To give some users root privileges edit /etc/sudoers using visudo. Enter new line as ~~sh~~ highlighted below

b) Identify operations that require sudo privileges

```
jeba@jeba-VirtualBox: ~
jeba@jeba-VirtualBox:~$ sudo useradd user1
[sudo] password for jeba:
jeba@jeba-VirtualBox:~$ sudo passwd user1
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
jeba@jeba-VirtualBox:~$
```

```
# directly modifying this file.
#
# See the man page for details on how to write a sudoers file.
#
Defaults        env_reset
Defaults        mail_badpass
Defaults        secure_path="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin
sbin:/bin"

# Host alias specification

# User alias specification

# Cmnd alias specification

# User privilege specification
root    ALL=(ALL:ALL) ALL

user1   ALL=(ALL:ALL) ALL
```

```
jeba@jeba-VirtualBox:~$ su user1
Password:
user1@jeba-VirtualBox:/home/jeba$ mkdir folder1
mkdir: cannot create directory 'folder1': Permission denied
user1@jeba-VirtualBox:/home/jeba$ sudo mkdir folder1
[sudo] password for user1:
user1 is not in the sudoers file.  This incident will be reported.
```

```
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
```

c) 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

d) Delete newly added user

PRACTICAL - 9

Aim : Network Management

a) Get IP address of your machine using ifconfig

```
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)
```

b) Get hostname of your machine

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

c) use ping to check the network connectivity to remote machine

```
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:~$
```

```
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.                        IN      A

;; 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:~$ route
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
default         10.0.2.2        0.0.0.0         UG    100    0        0 enp0s3
10.0.2.0        *               255.255.255.0   U     100    0        0 enp0s3
link-local      *               255.255.0.0     U     1000   0        0 enp0s3
jeba@jeba-VirtualBox:~$
```

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

```
jeba@jeba-VirtualBox:~
jeba@jeba-VirtualBox:~$ netstat
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
Active UNIX domain sockets (w/o servers)
Proto RefCnt Flags       Type       State         I-Node   Path
unix  2      [ ]         DGRAM                    42149    /run/user/1000/system
d/notify
unix  2      [ ]         DGRAM                    9694     /run/systemd/journal/
syslog
unix  16     [ ]         DGRAM                    9695     /run/systemd/journal/
dev-log
unix  7      [ ]         DGRAM                    9704     /run/systemd/journal/
socket
unix  3      [ ]         DGRAM                    9684     /run/systemd/notify
unix  3      [ ]         STREAM     CONNECTED     44042    @/tmp/dbus-CymTeI7AQG
unix  3      [ ]         STREAM     CONNECTED     43331
unix  3      [ ]         STREAM     CONNECTED     42988    @/tmp/dbus-CymTeI7AQG
unix  3      [ ]         STREAM     CONNECTED     42690    @/tmp/dbus-CMGGc6G7P5
unix  3      [ ]         STREAM     CONNECTED     13242    /run/systemd/journal/
stdout
unix  3      [ ]         STREAM     CONNECTED     43113    /run/systemd/journal/
stdout
unix  3      [ ]         STREAM     CONNECTED     43013
unix  3      [ ]         STREAM     CONNECTED     42935
```

```
jeba@jeba-VirtualBox:~$ nmap www.google.com

Starting Nmap 7.01 ( https://nmap.org ) at 2020-01-20 22:51 IST
Nmap scan report for www.google.com (216.58.196.68)
Host is up (0.044s latency).
Other addresses for www.google.com (not scanned): 2404:6800:4007:811::2004
rDNS record for 216.58.196.68: bom05s11-in-f4.1e100.net
Not shown: 998 filtered ports
PORT    STATE SERVICE
80/tcp  open  http
443/tcp open  https

Nmap done: 1 IP address (1 host up) scanned in 20.32 seconds
jeba@jeba-VirtualBox:~$
```

PRACTICAL - 10

AIM: SHESS SCRIPTING.

Basics of Shell scripting

a) To get a shell, you need to start a terminial
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 passed the instruction to the program/bin/bash

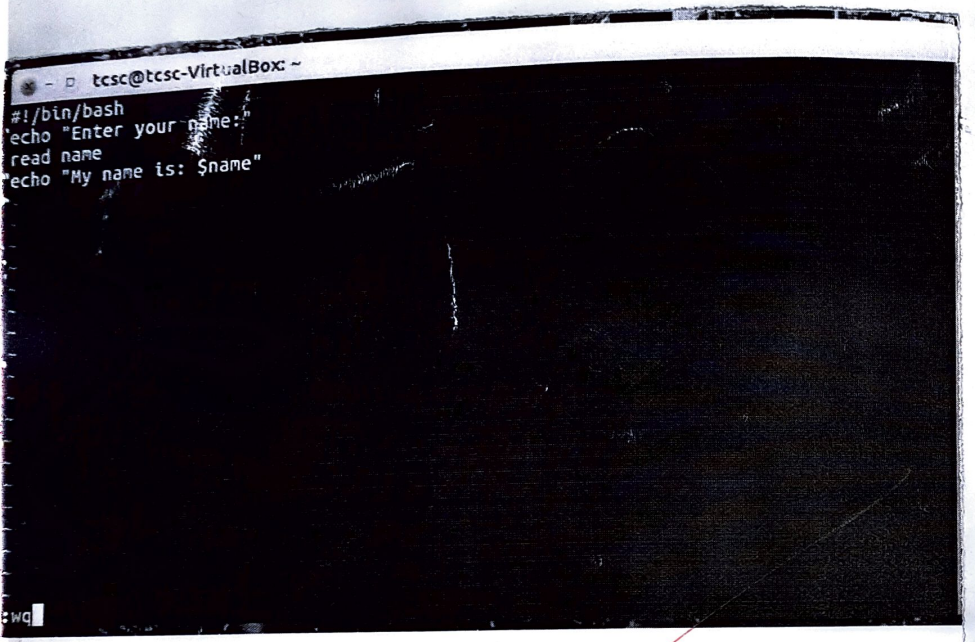
Step to write and execute a shell script

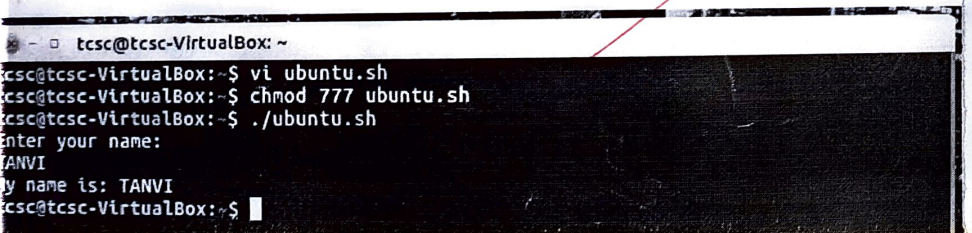
a) open terminal
b) Navigate to the place where you want to create script using cd command
c) Touch filename.sh
d) vi filename.sh [You can use your favourite editor, to edit the script]
e) chmod 777 filename.sh (for marking the script executable)
f) sh filename.sh or ./filename.sh (for running the script)

```
#!/bin/bash
echo "THIS IS LINUX!"
```

```
"linux.sh" [New File]
```

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





Program to display your name

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

Program to find the sum of two variables

```
vi filename.sh
#!/bin/bash
a=100
b=25
```

Sed

Sed command or stream Editor is very powerful utility offered by linux systems. It is mainly used for text substitution, find & replace but it can perform other text manipulation like insertion, deletion, search, etc. with sed, we can edit complete files without actually having to open it

```
#!/bin/bash
a=100
b=25
sum=$(($a+$b))
echo "Sum is:$sum"
~
:wq
```

```
tcsc@tcsc-VirtualBox: ~
tcsc@tcsc-VirtualBox:~$ vi linux2.sh
tcsc@tcsc-VirtualBox:~$ chmod 777 linux2.sh
tcsc@tcsc-VirtualBox:~$ ./linux2.sh
Sum is:125
tcsc@tcsc-VirtualBox:~$
```

```
tcsc@tcsc-VirtualBox: ~
#!/bin/bash
sum=$(($1+$2))
echo "sum is:$sum"
~
"lin.sh" 3 lines, 46 characters
```

```
tcsc@tcsc-VirtualBox:~$ vi lin.sh
tcsc@tcsc-VirtualBox:~$ chmod 777 lin.sh
tcsc@tcsc-VirtualBox:~$ ./lin.sh 50 70
sum is:120
tcsc@tcsc-VirtualBox:~$
```

```
tcsc@tcsc-VirtualBox: ~
subjects offered in cs
datastructure
database management
linux
python
green tech
softskill
stats
calclus
computer basic
:wq
```

```
tcsc@tcsc-VirtualBox: ~
tcsc@tcsc-VirtualBox:~$ vi cs.txt
tcsc@tcsc-VirtualBox:~$ sed -n 3,5p cs.txt
database management
linux
python
tcsc@tcsc-VirtualBox:~$
```

Displaying partial text of a file

With sed, we can view only part of a file rather than seeing whole file

2) Displays all except some lines
To display all content of a file except for some position, use option 'd'

3) Deleting a line

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

4) Search and Replacing a string
's' option is for searching a word.

```
tcsc@tcsc-VirtualBox:~$ sed '6 s/cs/computer system /' cs.txt
subjects offered in cs
datastructure
database management
linux
python
green tech
softskill
stats
calclus
computer basic
```

```
csc@tcsc-VirtualBox:~$ sed '/cs/a "this is linux" ' cs.txt
ubjects offered in cs
this is linux"
atastructure
atabase management
inux
ython
reen tech
oftskill
tats
alclus
omputer basic
csc@tcsc-VirtualBox:~$
```

6) Replace a string on a particular line

To replace a string on a particular line, use line number with 's' option.

6) Add a line after / before the matched string

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

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

7) To change a whole line with matched pattern

To change a whole line to a new line when a search pattern matched use option 'c'

8) Appending lines

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