

Practical -1

Aim: Install your choice of Linux distribution.
eg. Ubuntu.

Ubuntu is a free and open source software based on Debian. Ubuntu is officially released under 3 editions . Desktop, Server, Union.

All the 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 virtual machine:

Step 1:

Select a virtual optical disk file or a physical file drive to start Ubuntu in your virtual machine. Space given to it is 1.86 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 cd. CD.

Welcome

Indonesia

Bosanski

Català

Ceshtina

Cymraeg

Dansk

Deutsch

Eesti

English

Español

Esperanto

Euskara

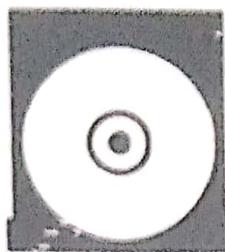
Français

Gaeilge

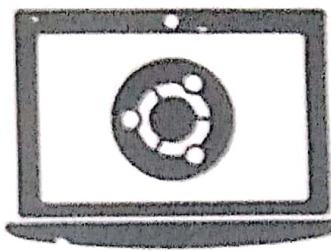
Galego

Hrvatski

Icelandic



Try Ubuntu



Install Ubuntu

You can try Ubuntu without making any changes to your computer, directly from this CD.

Or if you're ready, you can install Ubuntu alongside (or instead of) your current operating system. This shouldn't take too long.



✓ **Install**

Preparing to install Ubuntu

For best results, please ensure that this computer:

✓ has at least 6.8 GB available drive space

✗ is connected to the Internet

Download updates while installing

Ubuntu uses third party software to play Flash, MP3 and other media, and to work with some graphics and wi-fi hardware. Some of this software is proprietary. The software is subject to license terms included with its documentation.

Install this third party software

Fuendo MP3 plugin includes MPEG Layer-3 audio decoding technology licensed from Fraunhofer IIS and Technicolor SA

Quit

Back

Continue

Installation type

This computer currently has no detected operating systems. What would you like to do?

1 Erase disk and install Ubuntu

Warning: This will delete all your programs, documents, photos, music, and any other files on all operating systems.

Except the new Ubuntu installation for security
you will choose a security key in the next step.

Use LVM with the new Ubuntu installation
this will set up logical volume management & associating swapfile and root partition recently.

Something else

You can create or resize partitions yourself or choose multiple partitions for Ubuntu.

Exit

Next

Install now

Keyboard layout

Step 3:

In 'updates and add software' click on the normal installation.

Step 4:

While configuring installation type we need to click 'Erase disk' and install ubuntu'. This step would delete all types of documents, photos, etc. in all operating system.

Step 5:

In this you only need to choose the location for the clock to work on ubuntu.

Step 6:

Here you need to choose username and password for the login in ubuntu and then click on continue.

Step 7:

Here you simply need to type password again and it is done.

Step 8:
Type name of virtual disk and recommend
size to be given is 20GB GIG or 2TB

Therefore, now the virtual box is ready to use.

* Customize desktop environment by changing different default options like changing default background themes, screensavers.

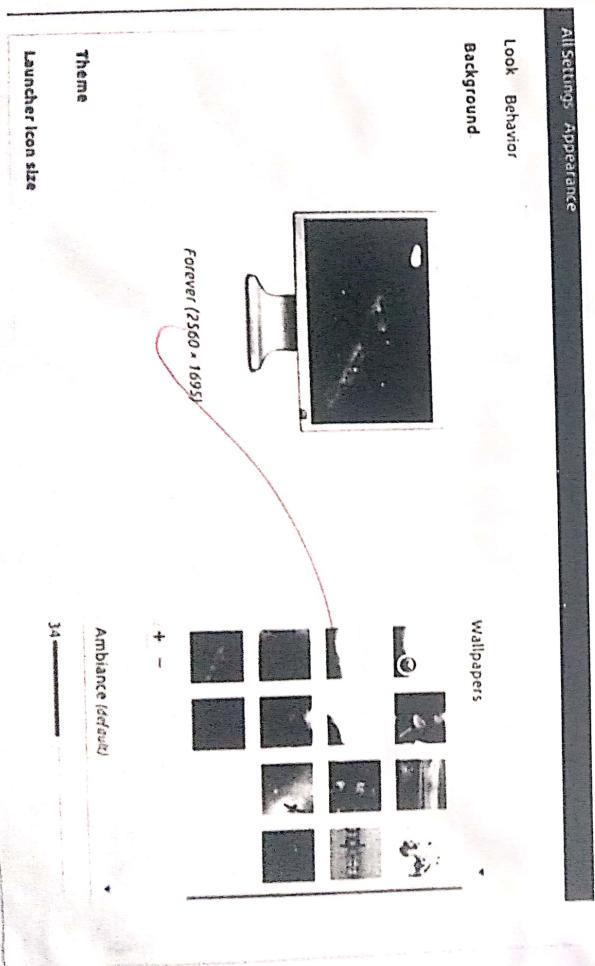
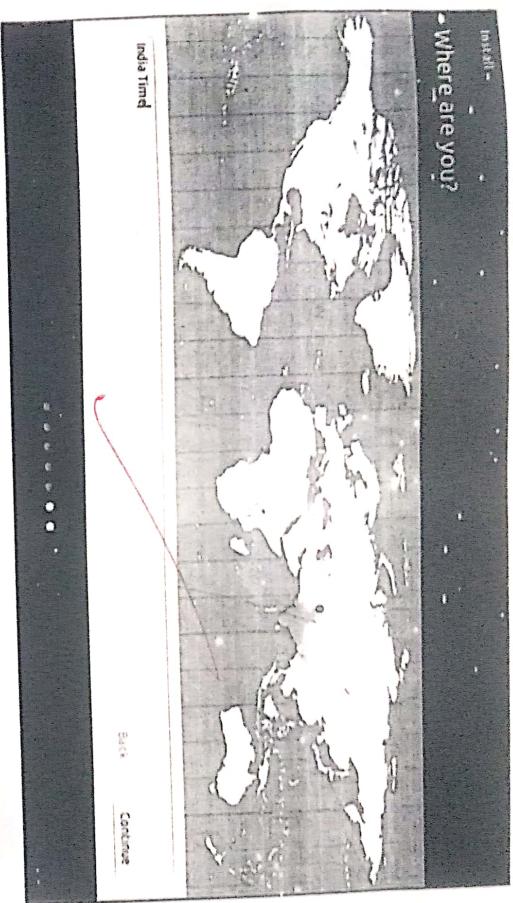
Accessing Appearance settings :

- To access appearance settings in ubuntu, lets click on user menu at the top right corner, on the top menu bar and select system settings.
- A window will pop-up with all settings divided into Personal, Hardware and System options 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 wallpapers. Clicking any thumbnail our wallpaper will be changed right away, with a fading effect.

install
Where are you?



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- (3) If you want to select wallpaper from your picture folder, click the drop down menu above the thumbnails and select the pictures folder.
- (4) You will see all the pictures in your pictures folder as thumbnails, where you can select them as your wall paper.
- (5) To add wallpaper that is in the 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 :

- (1) Ubuntu also has an option to change the desktop theme, which is one click. will change the entire way your computer looks.
- (2) To do that, click on the drop-down menu below the wallpaper thumbnails and choose between Ambiance, Radiance or High Contrast.
- (3) Ambiance is a light theme that looks a bit more Mac-like, while Radiance is a darker brown theme used in Ubuntu by default.

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Screen Resolution : (D)etermine the current screen resolution for your desktop.
Change the size or rotation of the screen.
You can change how big (or how detailed) things appear on the screen by changing the screen resolution.

- You can change which way up things appear (for example, if you have a rotating display) 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 displays and they are not mirrored, you can have different settings on each display. Select a display in the preview area.
 - 4) Select your desired resolution and rotation.
 - 5) Click apply. The new settings will be applied for 30 seconds before reverting back. That way, if you cannot see anything with the new

Time Settings Change the time zone of your system to (e.g. New York time). If you are currently in Indian Time. How does your time change? After noting the time change, change the time zone back to your local time zone. Just click on the clock on the top bar, and choose Time and Date Settings, once the Time and Date windows open, choose Manually, so you can change the time and date manually, otherwise choose your time zone from the map, and choose Automatic.

~~Pop
Open~~

Practical 2

Aim : Installing and removing software

o] Install gcc package , verify that it runs and remove it .

Step 1:

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

Step 2:

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

Step 3:

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

How to Uninstall GCC compiler

To GCC bin, although there is no
top level install target, some directions for removing
particular object or you can do

Type : cd build / gcc
Sudo make uninstall.

This does not remove everything that was created
but it removes major executables like g++
g++ , CPP . contained in that directory

~~for
now~~

Practical - 3

Aim : Utilization of grep, man Commands
Documentation:

- a.) Finding info documentation from the command line : Bring up the info page for the grep command. Bring up the usage section.

Aim : 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) & (backspace = down) keys

Another more summarized form 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 up the man page for the 'ls' command. Go down to the example section.

To use the 'man' command simply type

eg. 'man (Command name)'

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

c) Finding man pages by topic: What man pages are available that document file compression:

eg. '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 cmd line
bring up the man page for the printf lib function.
which manual page section are library function found.

Ans: The number corresponds to what section of the manual page is from & is user command, while 8 is sysadmin stuff. The man page for man itself explain it a list the std out.

~~There are certain terms that have different pages in different sections (eg. 'printf' as a command appears in section 1, as a 'std::lib' 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 one you want or use man -a to show every matching page in all~~

You can tell what section or term falls in with the man - re (equivalent to a proper command) with the matches too so you need to use "term" to limit it.

~~use terminal~~

✓ Mardir - 25

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~~d) finding man pages by section from the command
bring up the man page for the printf function
which manual page section are library function~~

Practical No. - 4.

Command line operations:

a.) Install new package on your system
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 , - / dop - 253 / pam / pas...  
· /usr / bin / password  
· /etc / pam / password  
· /etc / password.
```

Find the directory password. file under root and one level down.

```
# find  
· /etc / password
```

find the password file under root and 2 level down
find / - max depth 2 - name password

find the password file under root and 2 level down
find / - max depth 3 - name password.

· /usr / bin / password
 · /etc / passwd
 · /etc / password.

Find the password file b/w sub-directories level
 2 and 4.

```
# find - maxdepth 3 - maxdepth
./user /bin /password
./etc /passwd
```

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

```
# ls -l
```

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

```
# touch example.txt
# mv example.txt /tmp
```

f) Delete the file moved to /tmp in previous step

by call absolute method.

```
# rm /tmp /example.txt
```

g) Find the location of ls, ps, bash commands

whereis ls

ls : /bin /ls /usr /share /man /man1 /ls.1.gz.

where is ps.

ps : /bin /ps /usr /share /man /man1 /ps.1.gz
share /man /man1 /ps.1.gz

where is bash.

bash : /bin /bash /etc /bash.bashrc /usr /share /
man /man1 /bash.1.gz.

By
09/01

What are the different ways of exploring mount file systems on Linux?

Mount.

```
jebajeba-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,relative,size=494436k,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,relative,size=162416k,mode=755)  
/dev/sda1 on / type ext4 (rw,relative,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,noexec,relatime)  
tmpfs on /run/lock type tmpfs (rw,nosuid,nodev,noexec,relatime,relative,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,release_agent=/lib/systemd/systemd-agent.name=systemd,nsroot=/  
pstree on /sys/fs/pstree type pstree (rw,nosuid,nodev,noexec,relatime)  
cgroup on /sys/fs/cgroup/cpuacct type cgroup (rw,nosuid,nodev,noexec,relatime)  
=/  
cgroup on /sys/fs/cgroup/net_cls,net_prio type cgroup (rw,nosuid,nodev,noexec,relatime,cpuset,nsroot=/  
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,relative,freezer,nsroot=/  
ot=/  
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,relative,devices,nsroot=/  
ot=/  
cgroup on /sys/fs/cgroup/memory type cgroup (rw,nosuid,nodev,noexec,relative,memory,nsroot=/  
t,nsroot=/  
cgroup on /sys/fs/cgroup/bikio type cgroup (rw,nosuid,nodev,noexec,relatime,bikio,nsroot=/  
ot=/  
cgroup on /sys/fs/cgroup/perf_event type cgroup (rw,nosuid,nodev,noexec,relative,perf_event,nsroot=/  
t,nsroot=/  
cgroup on /sys/fs/cgroup/hugetlb type cgroup (rw,nosuid,nodev,noexec,relative,hugetlb,nsroot=/  
ot=/  
systemd-1 on /proc/sys/fs/binfmt_misc type autofs (rw,relative,fd=32,prgrp=1,timeout=0,minp  
rotos=5,maxproto=5,direct)  
hugetlbfs on /dev/hugepages type hugetlbfs (rw,relative)
```


4. Archiving and backup the work dictmon directory using tar, gzip and bzip2 commands

Ans :
gr_ip filename.txt
Bz_ip2 filename.txt.

Use Patch command to Patch a file and a
Patch using patch command again.

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

Practical 6Practical 6Use Environment

c) Which account you are logged in? How do you find out?

Ans
who command & whoami

```
jeba@jeba-VirtualBox:~$ who
jeba@jeba-VirtualBox:~$ who
jeba    ttys    2020-01-15 20:32 (:0)
jeba@jeba-VirtualBox:~$ whoami
jeba
jeba@jeba-VirtualBox:~$ who -l
Login          2020-01-15 20:30
jeba@jeba-VirtualBox:~$ █
```



```
jeba@jeba-VirtualBox:~$ w
20:35:04 up 4 min, 1 user,  load average: 0.76, 0.79, 0.38
USER   TTY        FROM             LOGIN@   IDLE   JCPU      PCPU WHAT
jeba   ttys    :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: 0.69, 0.77, 0.37
USER   TTY        FROM             IDLE WHAT
jeba   ttys    :0                4:38   /sbin/upstart --user
jeba@jeba-VirtualBox:~$ w -h
jeba   ttys    :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   ttys    20:32    5:36   9.08s  0.33s /sbin/upstart --user
jeba   ttys    █
```

b.) Display /etc/shadow file using cat command and understand the importance of shadow file. How it's different than passwd file.

Ans:

cat /etc/shadow

As with the passwd file, each field 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.
- Password, 13 character encrypted. A blank entry (eg.:) indicates a password is not required to log in (usually a bad idea), and a "*" entry (eg. ...*) 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 (aaaa indicates user can keep his or her password unchanged for many, many years).
- The number of days to warn user of an expiring product (# for a full week).
- The number of days after password expires that account is disabled.
- The number of days since January 1, 1970 that an account has been disabled.

A reserved field for possible future use

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```
Jebas@Jebas-MacBook-Pro:~$ sudo cat /etc/shadow
lsudo:password for jebas:
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:::
lpk:16911:0:99999:7:::
mail:16911:0:99999:7:::
news:16911:0:99999:7:::
```

Each field in a password entry is separated with ":" colon char. and are as follows :

• Username, upto 8 characters case-sensitive, usually all lowercase . An "x" in the password field. Passwords are stored in the

"/etc/shadow" file.

• Numeric group id . Red hat uses group id's in a fairly unique manner for enhanced file security. Usually the 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/ksmith). All user's personal files, web pages, mail forwarding, etc. will be stored here.

• User's shell account ". Open set to "/bin/bash" to provide access to the bash shell (my personal favourite shell).

5. Enter your current working directory
s: Pwd

```
2020-01-13 20:36:36+00:00 [root@jeba-jeba-VirtualBox ~]# jeba@jeba-VirtualBox:~$ pwd  
/home/jeba  
jeba@jeba-VirtualBox:~$ █
```

Explore different ways of getting command history, how to run previously executed command without typing it.

1. line number.

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

```
1 who  
2 whoami  
3 who -t  
4 clear  
5 who -t  
6 who -t  
7 who -t  
8 who -t  
9 clear  
10 cat /etc/shadow  
11 sudo cat /etc/shadow  
12 clear  
13 sudo cat /etc/passwd  
14 clear  
15 clear  
16 history  
jeba@jeba-VirtualBox:~$ 13  
ho_1  
OCIN  
jeba@jeba-VirtualBox:~$ █
```

e) Create alias to most commonly used commands
 Alias command instructs the shell to replace one string with another while executing the commands

Ans:
 alias label = " command "

```
Jebadjeba-VirtualBox:~$ alias m=mkdir new"
Jebadjeba-VirtualBox:~$ m new
Jebadjeba-VirtualBox:~$ ls
Desktop  Downloads  Music  Pictures  Templates
documents examples.desktop  new  Public  Videos
Jebadjeba-VirtualBox:~$ ls
```

Practical 7

Linux Editors

a.) Create, modify , search and navigate a File in editor.

i.) Creating a file.
To create a file, on the terminal type vi of the following filename.

ii.) Modifying the file:
To modify a file, on the vi editor, type 'o'

iii.) Search in a file:
To find a word (forward search) Press / followed by the word to search.

iv.) Navigate:

Movement in four directions.

Key	Action
R	Moves cursor up
U	Moves cursor down
L	Moves cursor left
R	Moves cursor right.

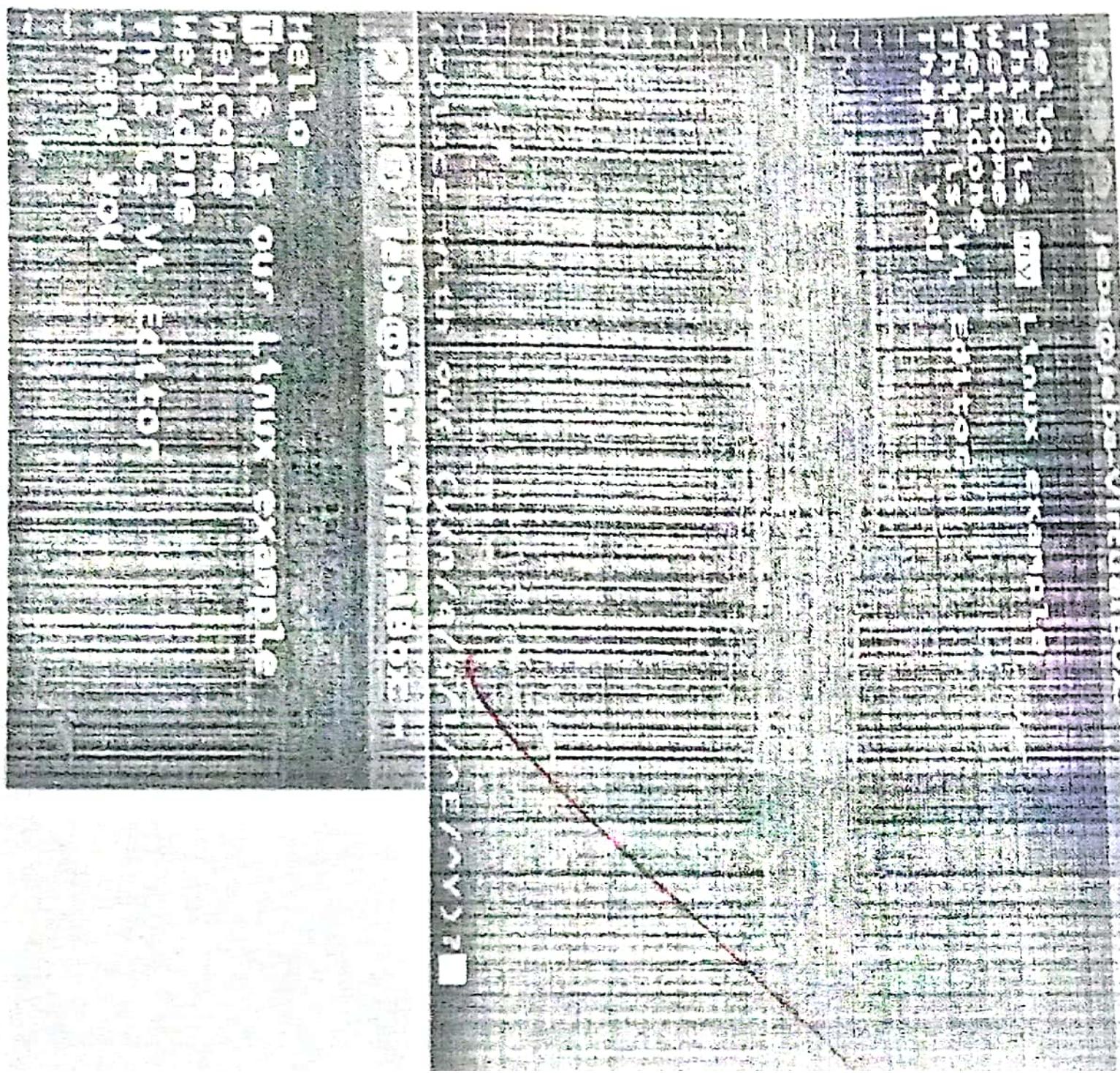
Word Navigation

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Key	Action
b	Moves back to the beginning of word.
e	Moves forward to the end of word
w	Moves forward to beginning of word
o (zero)	Move to the first character of a line.
\$	Move to the end of line.

Scrolling

Key	Action
g	Scrolls forward
g + f	Scrolls forward
g + b	Scrolls backward
g + d	Scrolls half page
g + u	Scrolls half page backward



5.)

highlight
Use sed -n | search.

```
mba@mba-VirtualBox:~$ sed -n 1,2 p
1 Hello
2 This is our Linux example
```

mba@mba-VirtualBox:~\$ sed -n 1,3 p
1 Hello
2 This is our Linux example
3 Welcome

mba@mba-VirtualBox:~\$ sed -n 1,7 p
1 Hello
2 This is our Linux example
3 Welcome
4 Well done
5 This is vi Editor
6 Thank you

mba@mba-VirtualBox:~\$ sed -n 1,2 p
1 Hello

Show the line number
Use sed -n

```
mba@mba-VirtualBox:~$ sed -n 1,2 p
1 Hello
2 This is our Linux example
```

```
mba@mba-VirtualBox:~$ sed -n 1,3 p
1 Hello
2 This is our Linux example
3 Welcome
```

```
mba@mba-VirtualBox:~$ sed -n 1,7 p
1 Hello
2 This is our Linux example
3 Welcome
4 Well done
5 This is vi Editor
6 Thank you
```

line no

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give some users root privileges edit /
etc/ visudo . Enter new line as
lighted below .

```
# Please consider adding local content in /etc/sudoers.d/ instead of
# 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
```

```
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
```

root@jeba-VirtualBox:~\$ sudo chage -E 25/01/2020 -n 10 -w 90 -I 30 -N 30 user1	:	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
Maximum number of days between password change
Number of days of warning before password expires

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.

Delete newly added user.

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```
jeba@jeba-VirtualBox:~$ route
Kernel IP routing table
Destination     Gateway         Genmask        Flags Metric Ref Use Iface
default         *               0.0.0.0       UG    0      0   0 enp53
10.0.2.0       *               255.255.255.0 UG    100   0   0 enp53
link-local     *               255.255.0.0   U     1000  0   0 enp53
jeba@jeba-VirtualBox:~$
```

e) Use of arp command.

f) Use of arp command

```
jeba@jeba-VirtualBox:~$ arp
Address          Hwtype          Hladdr          Flags Mask          Iface
10.0.2.2        ether          52:54:00:12:35:02 C              enp53
```

www.google.com

```
Starting Nmap 7.61 ( 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): 24.64.68.69, 40.67.81.1, 26.94
DNS record for 216.58.196.68: bom05s11-in-f4.1e168.net
Not shown: 998 filtered ports
PORT      STATE SERVICE
80/tcp    open  http
443/tcp   open  https
```

```
Wmap done: 1 IP address (1 host up) scanned in 26.32 seconds  
jebajeba-VirtualBox:~$
```

Practical - 10

Ques: Shell Scripting

Basics of shell scripting.

- To get a shell, you need to start a terminal
- To see what shell you have, run: echo \$SHELL
- In Linux, the dollar sign (\$) stands for shell variable.
- The echo command just remains whatever you type in.

c) #!/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.

```
tcsc@tcsc-VirtualBox:~$ echo $SHELL
/bin/bash
tcsc@tcsc-VirtualBox:~$
```

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

"linux.sh" [New file]

- chmod +x filename.sh
- ./filename.sh

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



```

lun.sh" 3 lines, 46 characters
tcscl@tcscl-VirtualBox:~ /bin/bash
tcscl@tcscl-VirtualBox:~$ sum $(ls)
sum ls:$sum
echo
tcscl@tcscl-VirtualBox:~$ █

```

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 manipulators like insertion, deletion, search, etc. With Sed, we can edit complete files without actually having to open them.

Consider the following text file

) Displaying Partial text of a file.
With sed , we can view only part of a file
rather than seeing whole file.

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

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

Calclus

Computer basic

```
tcsc@tcsc-VirtualBox:~$
```

3) Deleting a file line

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

```
tcsc@tcsc-VirtualBox:~$ vi linux.sh
tcsc@tcsc-VirtualBox:~$ chmod 777 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

calctus

computer basic

5) Replace a string on a particular line.

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

```
ucsc@ucsc-VirtualBox: ~$ sed '/cs/a "This is Linux"' cs.txt
'this is Linux'
Datastructure
Database management
Linux
Python
green tech
softskill
stats
calculus
Computer basic
ccsc@ccsc-VirtualBox: ~$
```

g.) Appending lines

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 datastructure
Thanks database management

Thanks linux
Thanks python

Thanks green tech
Thanks softskill

Thanks stats
Thanks calculus

Thanks computer basic

卷之三

7/02

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