

PRACTICAL-01

* Aim:- Install your choice of Linux distribution
eg:- Ubuntu, Fedora, debian etc.

* Ubuntu:- Ubuntu is a free and open source software based on Debian, Ubuntu is officially released under 3 edition desktop, server, union.

All the editions can be runned on the computer alone or a virtual machine is also possible. It is a popular open source software for cloud computing with support of open stack.

Steps for installing ubuntu in a virtual machine.

S1:- Select a virtual optical file or a physical drive to start ubuntu in your virtual machine. Space given to it is 1.86 GB.

S2:- Select the language of your choice and click on 'Install Ubuntu'.

You can also 'try ubuntu' for free on computer device from this CD.

S3:- In update and add software click on the normal installation.

S5:- 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.

S5:- In this you only needs to choose the location after the disk is "wiped" on ubuntu.

S6:- In this step you need to choose username and password for the login in Ubuntu and then click on continue.

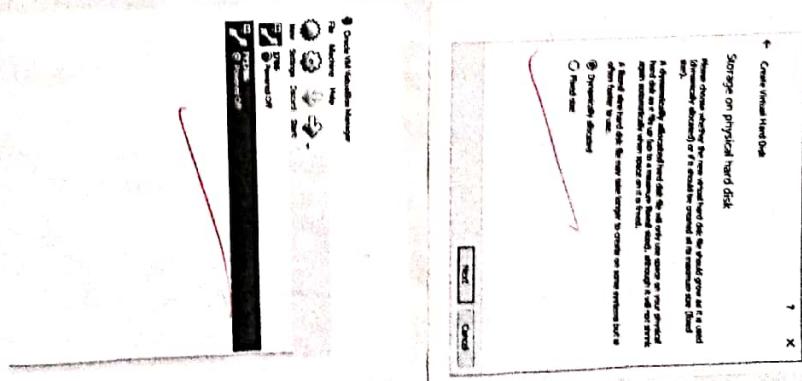
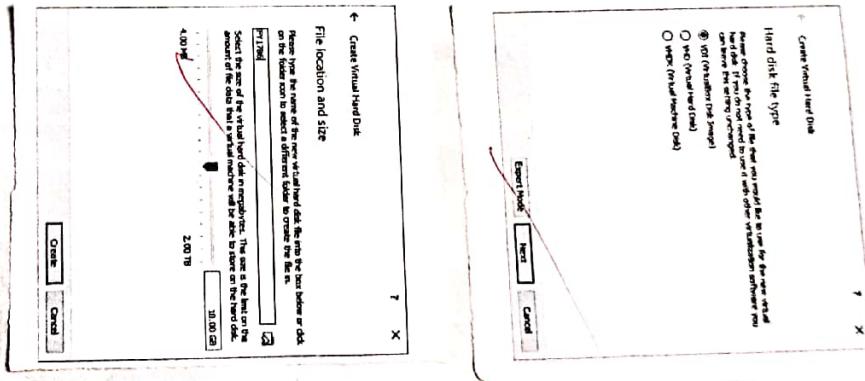
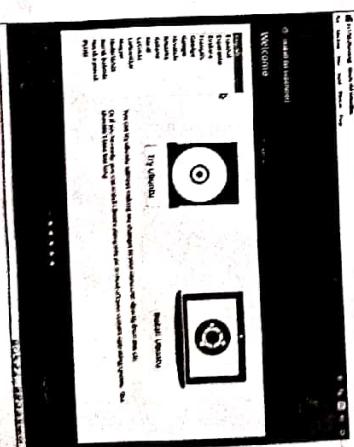
S7:- Here you simply need to type password again and it is done.

S8:- Type name of virtual disks and command tags to be given is 20GB and 2MB.

Therefore, now the virtualization is ready to use.

~~Q8:-~~ You can change environment by changing different default options like changing default booting ramdisk, kernel, processes, etc.

Q9:- Answering AppArmor setting:-



4) To change Appearance setting in Ubuntu, lets click on user menu at the top right corner, on the top menu bar and select system setting.

5) A window will pop up with all setting divided into personal, hardware and system setting.

6) Changing wallpaper picture:-

- 1) On the left side of background part you can see your current wallpaper.
- 2) On the right side is part where we can select one of ubuntu wallpaper. Clicking on any thumbnail our wallpaper will be changed.
- 3) If you want to select wallpaper from your pictures folder, click the drop-down menu above thumbnails, select the pictures and folder.
- 4) You will see all the picture in your pictures folder as thumbnails, where you can click them as your wallpaper.

4) Changing Ubuntu Theme :-

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

To do that, click on the drop-down menu below the wallpaper thumbnails and choose between ambiance, Radiance or高 contrast.

5) Screen resolution:- Assertion the current screen resolution for your desktop.

6) Change the size or rotation of the screen:-

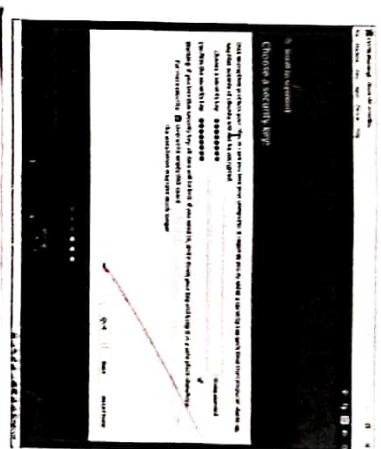
1) You can change how bigger how detailed) things appear on the screen.

2) You can change which way up things appear

3) Click the icon on the very right of the menu bar and select system settings.

4) Open screen display.

5) If you have multiple display and they are not mirrored, you can have different setting on each display.



by default your desired resolution and rotation.

All UI's apply the new settings will be applied for so see before reverting back to the

1) Time setting change the time zone of your system to (or new york time).

2) If you are currently in Indian time. How does the displayed time change?

2) After noting the time change, change the time zone back to your local time zone.

3) Just click on the tick on the top bar, and choose time and date setting.

*Shon
Jain*

PRACTICAL-2

- * AIM:- Installing and removing software.
- Q] 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 don't 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.

Now To ~~uninstall~~ all compiler :-

In GCC 5.1.0, although there is no top level ~~uninstall~~ target, some directories do have it in particular gcc, so you can do:

Type: `cd build/gcc
sudo make uninstall`

This does not remove everything that was installed, but it removes major executables like `gcc`, `g++`, `cpp...` contained in that directory.

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PRACTICAL NO:- 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 wage 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'

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

You can also scroll through page using (space=up & 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 . scroll down to the examples section .

→ 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 .

→ 'Tar', 'Zip' are some man pages which are available for document file compression .

simply type :- man zip
man tar .

TAR(1)

tar - an archiving utility

Synopsis

Traditional usage

tar [A|c|d|s|t|u|x] [uncompress.]

UNIX-style usage

tar - A [OPTIONS] ARCHIVE ARCHIVE

tar - c [OPTIONS] [-f ARCHIVE] [OPTIONS] [FILE...]

EEG
zip decks (see separate man page)
zipnote (see separate man page)

zipsnote (see separate man page)

Description

Large Archives and zipbh. zip automatically uses the zipbh extension.

HANUAL SECTION
The standard sections of the manual include:
1. User commands
2. System calls
3. C library functions

There are certain terms that have different pages in different sections (eg:- 'print' as a command appears in section 3) in case you want you can pass the section no to the man before the page name to choose which section you want or use man -a show everything nothing page in a row.

\$ man 1 print
\$ man 3 print
\$ man -a print
\$ man -K print

→ finding man pages by section from the end Jines bring up the man pages for the print job function which manual page section are library function founded.

→ The number corresponds to what section of the manual page is from i.e user command, which is admin stuff. The man page for man itself complain is and will give all

print f
print +
print f
print f
print f
print f [building]
(1) - formated and print data
(1P) - write formattated output
(3) - formated output whence
(3P) - print formattated output
(1) - both built-in command

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You can tell which section a term falls in with 'man-k' (equivalent to an regex). It will do substituting matches too so you need to use "term" to limit it.

(e) Command-line Help lists the available options for the `mkdir` command. How can you do this?

~~\$ mkdir -m a=rwx directoryname~~

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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 passwd .

- /usr/share/doc/nss-1.2.8-2531/pam.d/passwd
- /usr/bin/passwd
- /etc/pam.d/passwd
- /etc/passwd

d) find the directory password file under root and one level down.

✓ # find / -maxdepth 2 -name passwd

• /etc/passwd .

e) find the passwd file under root and 2 level down.

✓ # find / -maxdepth 3 -name passwd .

- /usr/bin/passwd
- /etc/pam.d/passwd
- /etc/passwd

i) find the password file in/using find command
find / -name passwd .
find -maxdepth 3 -name passwd
• /usr/bin/passwd
• /etc/passwd

j) Create a symbolic link to the file you found
in last step.
ln -s file file2 .

k) Create an empty file example.txt & move it to /tmp
directory using relative path name.
✓ # touch example.txt
✓ # mv example.txt /tmp

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

rm /tmp/example.txt

m) find the location of ls , ps , bash commands
where ls
ls : /bin/ls /usr/share/man/man1/ls.1.gz
where is ps
ps : /bin/ps /usr/share/man/man1/ps.1.gz

whereis bash.

SAP

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

PRACTICAL :- 05

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- Explore mounted file systems on your computer
→ df -h

```
jebad@jebad-VirtualBox:~$ df -h
Filesystem      1K-blocks   Used Available Use% Mounted on
udev              494436       0   494436  0% /dev
tmpfs             102416  3676   98740  4% /run
tmpfs             709278 3383372 3326024 51% /
/dev/sda1            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
```

- What are the different ways of exploring mounted file system on Linux?

→ Mount

```
jebad@jebad-VirtualBox:~$ mount
sysfs on /sys type sysfs (rw,nosuid,nodev,noexec,relatime)
proc on /proc type proc (rw,nosuid,nodev,noexec,relatime,size=94048)
devtmpfs on /dev type devtmpfs (rw,nosuid,noexec,relatime,size=123602,mode=755)
devpts on /run/pts type devpts (rw,nosuid,noexec,relatime,size=10240k,mode=600)
/dev/sda1 on / type ext4 (rw,relatime,errors=remount-ro,data=ordered)
securityfs on /sys/kernel/security type security (rw,nosuid,nodev,noexec,relatime)
tmpfs on /dev/shm type tmpfs (rw,nosuid,nodev,noexec,relatime)
tmpfs on /dev/shm type tmpfs (rw,nosuid,nodev,noexec,relatime)
tmpfs on /run type tmpfs (rw,nosuid,nodev,noexec,relatime)
tmpfs on /run/lock type tmpfs (rw,nosuid,nodev,noexec,relatime)
tmpfs on /run/shm type tmpfs (rw,nosuid,nodev,noexec,relatime)
tmpfs on /run/user type tmpfs (rw,nosuid,nodev,noexec,relatime)
cgroup on /sys/fs/cgroup/cpuset type cgroup (no, nosuid, nodev, noexec, relatime, xattr, relaes)
cgroup on /sys/fs/cgroup/systemd type cgroup (no, nosuid, nodev, noexec, relatime, xattr, relaes)
cgroup on /sys/fs/cgroup/blkio type cgroup (no, nosuid, nodev, noexec, relatime, xattr, relaes)
cgroup on /sys/fs/cgroup/memory type cgroup (no, nosuid, nodev, noexec, relatime, xattr, relaes)
cgroup on /sys/fs/cgroup/devices type cgroup (no, nosuid, nodev, noexec, relatime, devices, nsroot)
cgroup on /sys/fs/cgroup/net_cls,net_prio type cgroup (no, nosuid, nodev, noexec, relatime, net)
cgroup on /sys/fs/cgroup/nsroot type cgroup (no, nosuid, nodev, noexec, relatime, 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)
cgroup on /sys/fs/cgroup/cpu,cpuacct type cgroup (rw, nosuid, nodev, noexec, relatime, cpu, cpuac
ctt, 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_event,
nsroot=[])
cgroup on /sys/fs/cgroup/hugepages type cgroup (rw, nosuid, nodev, noexec, relatime, hugepages)
cgroup on /sys/fs/cgroup/hugepages,hugepages type hugepages (rw, relatime)
hugepages on /dev/hugepages type hugepages (rw, relatime)
```

- Copying text from files
→ cp command, mv command

→ Use diff command to merge diff
→ diff filename1 filename2

Updationg and backup the work directory using tar, gzip
and bzip2 commands
→ zip filenam.txt
Bzip filenam.txt

b) Use patch command to patch a file. And analyze the patch using patch command again.

PRACTICAL :- b

Air:- The Environment

~~d) Which account you are logged in? How do you find out? Who command by who and~~

- Username, up to 8 characters. Case-sensitive wall455
 - All lowercase. A direct match to the username in my local password file
 - The number of days (since January 1, 1970) since the password was last changed
 - The number of days before password may be changed
 - The indicator it may be changed at any time.
 - (0 indicates it is not changing)
 - The number of days to warn user of an expiring password (\sim for a full week)
 - ~~The number of days until password expires that~~

by shadow | st | shadow fin wing cast downward and undoubt-
the importance of shadow fin. Now its different
than pawed fin.
cat | st | shadow

As with the posnum file; each field in the address file is also separated with "—" colon character and are as follow :-

- Numerical user id. This is assigned by the "adduser" script. Unix uses this field, plus the full name field, to identify which files belong to whom.
 - User's home directory. Usually /home/username (e.g. /home/lamishty). All user's personal files are stored there, mail for user, etc., will be stored here.

→ employ different ways of getting command history, how to run previously generated command without typing it.

Get your current working directory

```
[root@kali ~]# su -c "ls /etc/passwd" root
ls /etc/passwd
root:x:0:0::/root:/bin/bash
daemon:x:1:1::/root:/usr/sbin/nologin
bin:x:2:2::/root:/bin/sh
sys:x:3:3::/root:/bin/sh
sync:x:4:0::/root:/bin/sh
mail:x:8:12::/var/spool/mail:/bin/sh
news:x:9:9::/var/spool/news:/bin/sh
uucp:x:10:10::/var/spool/uucp:/bin/sh
proxy:x:13:13::/var/spool/uucp:/bin/sh
nobody:x:99:99::/var/www:/bin/nologin
www-data:x:33:33::/var/www:/usr/sbin/nologin
backup:x:34:34::/var/backups:/usr/sbin/nologin
list:x:36:36::/var/backups/list:/usr/bin/list
[root@kali ~]
```

of last year were working directly

```
jeb@jeb-a-VirtualBox: ~$ alias rm='rm -i'
jeb@jeb-a-VirtualBox: ~$ rm
jeb@jeb-a-VirtualBox: ~$ ls
jeb@jeb-a-VirtualBox: ~$ examples/Desktop/
jeb@jeb-a-VirtualBox: ~$
```

```
jeba@jeba-VirtualBox: ~
```

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

```
1 whoami
```

```
2 whoami
```

```
3 clear
```

```
4 clear
```

```
5 whoami
```

```
6 whoami
```

```
7 whoami
```

```
8 clear
```

```
9 cat /etc/shadow
```

```
10 sudo cat /etc/shadow
```

```
11 sudo cat /etc/shadow
```

```
12 sudo cat /etc/passwd
```

```
13 sudo cat /etc/passwd
```

```
14 pwd
```

```
15 clear
```

```
16 history
```

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

```
whoami
```

```
LOGON 2010-01-13 20:30:00
```

```
jeba@jeba-VirtualBox: ~
```

jeba@jeba-VirtualBox: ~

PRACTICAL:- 7

- * Aim:- Linux editors: Vi

of Create , modify , search and navigate a file in editor.

(ii) 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 '0'

(iii) Search in a file:

To find a word (forward search) press / followed by the word of search.

(iv) Navigate

Movement in four directions.

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

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

wrapping

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

b) Learn all essential commands like search / replace, highlights
show line numbers

(ii) Replace

Syntax: /g [word to be replaced] {s} [new word] /g

```
jeba@jeba-VirtualBox: ~
Hello
This is my Linux example.
Welcome
Well done
This is VI Editor
Thank you
```

048

```
jeba@jeba-VirtualBox:~  
$ vim example  
Hello  
This is our Linux example  
Welcome  
We done  
This is vi Editor  
Thank you  
:  
exit  
:
```

89%
✓

ANSWER

```
jeba@jeba-VirtualBox:~  
$ vim example  
Hello  
This is our Linux example  
Welcome  
We done  
This is vi Editor  
Thank you  
:  
exit  
:
```

(ii) Highlight
Our set numbers

```
jeba@jeba-VirtualBox:~  
$ vim example  
Hello  
This is our Linux example  
Welcome  
We done  
This is vi Editor  
Thank you  
:  
set hisearch  
exit  
:
```

89%
✓

89%
✓

(iii) Show the line number
Our set numbers

64

Practical :- 8

of use of sudo to change user privileges to root

નામાદિત્ત પત્ર

```
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: ~$
```

To give some more root privileges add /etc/sudoers
wing vi/vim. Enter new line as first listed below

of humidity, solar insolation
of convected air flow.

میں اپنے دوستوں کا سارا جانشینی کر رکھتا ہوں۔

password change	3 days
last password change	30 days
password expires	30 days
password inactive	30 days
account expires	30 days
minimum number of days between password changes	20
maximum number of days between password changes	90000
number of days of warning before password expires	7

```

Job 33: User alterations: $ 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 [999999]: 200
Last Password Change (mmyy-mm-dd) [2017-01-20]: 2019-01-23
Password Expiration Warning [7]: 5
Password Inactive [-1]: -
Account Expiration Date (www-mm-yy) [-1]: 2020-01-31

Job 34: User alterations: $ sudo chage -l user1
Last password change: Aug 08, 2020
Password expires: never
Password in active: -
Account expires: Jan 31, 2020
Minimum number of days between password change: 1000
Maximum number of days between password change: 999999
Number of days of warning before password expires: 5
Number of days of inactivity before password expires: 1

```

- L: Expiration date
 - m: Minimum number of days before payment change
 - n: Number of days payment is valid
 - T: Account inactive
 - w: Number of days of warning before a payment change is triggered

Boarnd many unfor. cases, alwys made estim's wh.

卷之三

PRACTICAL - 9 LOGISTICS

Bim - Network management

Enter IP address of your machine using it under a

```

jeb0@jeb0-VirtualBox: ~ $ ifconfig
jeb0@jeb0-VirtualBox: ~ $ ifconfig
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::c00:27ff:fe0e:6b69/64 Scope:Link
          link-layer-MTU:1500 Metric:1
UP BROADCAST MULTICAST MTU:1500 Metric:1
RX packets:2 errors:0 dropped:0 overruns:0 frame:0
TX packets:3 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:1180 (1.1 kB) TX bytes:8518 (8.5 kB)

Link encap:Local Loopback
inet addr:127.0.0.1 Mask:255.0.0.0
      inet6 addr: ::1/128 Scope:Host
          link-layer-MTU:65536 Metric:1
UP LOOPBACK RUNNING MTU:65536 Metric:1
RX packets:5340 errors:0 dropped:0 overruns:0 frame:0
TX packets:5340 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1
RX bytes:25672 (4.2 kB) TX bytes:4225072 (4.2 kB)

```

BRIEF HISTORY

Use ping to check the network connectivity to remote monitoring.

17:30:35.44 [root@localhost ~]# ping www.google.com
PING www.google.com (172.217.31.196) 56(84) bytes of data.
64 bytes from maa3320-in-f4.1e100.net (172.217.31.196): ICMP_seq=1 ttl=54 time=
97.8 ms
64 bytes from maa3323-in-f4.1e100.net (172.217.31.196): ICMP_seq=2 ttl=54 time=
32.0 ms
64 bytes from maa3325-in-f4.1e100.net (172.217.31.196): ICMP_seq=3 ttl=54 time=
94.8 ms
64 bytes from maa3323-in-f4.1e100.net (172.217.31.196): ICMP_seq=4 ttl=54 time=
97.7 ms
64 bytes from maa3323-in-f4.1e100.net (172.217.31.196): ICMP_seq=5 ttl=54 time=
32.5 ms
64 bytes from maa3323-in-f4.1e100.net (172.217.31.196): ICMP_seq=6 ttl=54 time=
36.9 ms
64 bytes from maa3323-in-f4.1e100.net (172.217.31.196): ICMP_seq=7 ttl=54 time=
33.0 ms
64 bytes from maa3323-in-f4.1e100.net (172.217.31.196): ICMP_seq=8 ttl=54 time=
30.9 ms

051

Q) Use of host command

```
jeba@jeba-VirtualBox: ~
host 9.10.3.94 Ubuntu
host 9.10.3.94
```

051

A) Use of dig command.

```
jeba@jeba-VirtualBox: ~
dig @9.10.3.94 Ubuntu +short www.google.com
;; Global options: +cmd
;; Got answer:
;ubuntu                                     status: query
;+HEADER+: obcode: QUERY, status: INERRORTLD: 52068
;flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;
; OPT PSEUDOSECTION:
; EDIST: 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: Mon Jan 20 22:40:06 IST 2020
; WHEN: Mon Jan 20 22:40:06 IST 2020
; MSG SIZE rcvd: 59
;
jeba@jeba-VirtualBox: ~
```

B) Use of nmap command

```
jeba@jeba-VirtualBox: ~
nmap -s host -v
host 9.10.3.94 Ubuntu
host 9.10.3.94
```

C) Troubleshooting network using traceroute, route command

```
jeba@jeba-VirtualBox: ~
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) 0.9 * 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
10.0.2.0        0.0.0.0        0.0.0.0        UG    100    0    0 enp0s3
          255.255.255.0   U        100    0    0 enp0s3
          255.255.0.0    U        1000   0    0 enp0s3
```

```
jeba@jeba-VirtualBox: ~
nmap -s host -v
host 9.10.3.94
```

D) Use of arp command

```
jeba@jeba-VirtualBox: ~
arp -a
Interface: ens3 [eth0]
inet 10.0.2.2 brd 10.0.2.2 mask 255.255.255.0
      HWaddr 52:54:00:12:35:02
      Flags Mask
          BROADCAST, NOARP
          Interface ens3
```

Practical 10 (Linux Shell Scripting)

Aim :- Shell Scripting

- Basic of shell scripting
- a) To get a shell , you need to start a terminal.
- b) To see what shell you have , run : whoami
- c) In Linux , the dollar sign (\$) stands for shell variable

d) The echo command just displays 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

052

echo "THIS IS A BASH"

```
● tcc@tcc-VirtualBox: ~
$ /bin/bash
echo "THIS IS A BASH"
```

[New file] [Save File]

Unmodified 777 filename.sh

```
tcc@tcc-VirtualBox: ~
$ chmod 777 filename.sh
```

```
● tcc@tcc-VirtualBox: ~
$ ./filename.sh
LINUX!
```

Step 10: Write and execute a shell script
Shell script is just a simple text file with .sh extension having executable permission .

- a) Open Terminal
- b) Navigate to the place where you want to write a script using cd command .
- c) Touch filename.sh
- d) vi filename.sh [You can use your favorite editor , the default is vim]
- e) chmod 777 filename.sh [for making the file executable]
- f) ./filename.sh or ./filename.sh [for running the file]

vi filename.sh
#!/bin/bash
who "THIS IS LINUX!"

520

Program to display your name

```
#!/bin/bash  
echo "Enter your name".  
read name  
echo "My name is $name"
```

```
tscs@tscs-VirtualBox:~$ ./script.sh  
Enter your name:  
TANVI  
My name is: TANVI
```

```
tscs@tscs-VirtualBox:~$ ./script.sh  
Enter your name:  
TANVI  
My name is: TANVI
```

Program to find the sum of two variables.

vi filename.sh

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

053

```
tscs@tscs-VirtualBox:~$ ./filename.sh  
a=100  
b=25  
sum=$((a+b))  
echo "sum is: $sum"  
sum is: 125
```

```
tscs@tscs-VirtualBox:~$ ./filename.sh  
a=100  
b=25  
sum=$((a+b))  
echo "sum is: $sum"  
sum is: 125
```

Program to find the sum of two user (values passed during execution).

```
tcs@tcs-VirtualBox:~$ cd /bin/shell
tcs@tcs-VirtualBox:~/bin$ sum -t
tcs@tcs-VirtualBox:~/bin$ echo
tcs@tcs-VirtualBox:~/bin$ ls
ls: /bin/sh: 3 lines, 46 characters
tcs@tcs-VirtualBox:~/bin$
```

1) Displaying partial lines of a file

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

```
tcs@tcs-VirtualBox:~$ vi lin.sh
tcs@tcs-VirtualBox:~$ chmod 777 lin.sh
tcs@tcs-VirtualBox:~$ ./lin.sh 50 70
sum 1s:120
tcs@tcs-VirtualBox:~$
```

```
tcs@tcs-VirtualBox:~$ cat cs.txt
Subjects offered in CS
datastructure
database management
Linux
python
green tech
sortstl
stats
calculus
computer basic
tcs@tcs-VirtualBox:~$
```

```
tcs@tcs-VirtualBox:~$ sed -n 3,5p cs.txt
Subjects offered in CS
datastructure
database management
Linux
python
tcs@tcs-VirtualBox:~$
```

sed:-

sed command or stream editor is very powerful utility offered by Linux system. It is mainly used for doing substitution, find & replace but it can perform other functions.

- 1) display all except some lines.
- 2) display all content of a file except for some portion.

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

3) deleting a line
To delete a line , use line no follow
by d

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

4) search and replacing a string
's' option is for searching or word

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

5) Replacing a string on a particular line
To replace a string on a particular
line , use line no with 's' option

```
tcsd@tcsd-VirtualBox:~$ sed 6 s/cs/computer system / cs.txt
subjects offered in CS
datastructure
Linux
python
green tech
softskill
stats
calculus
computer basic
```

6) Add a line after before the matched string
To add a new line with some content after
matched line

```
tcsd@tcsd-VirtualBox:~$ sed '/this is Linux' cs.txt
subjects offered in CS
"this is Linux"
datastructure
Linux
python
green tech
softskill
stats
calculus
computer basic
```

To add a new line with some content before
matched line . use option "i".

```
tcsd@tcsd-VirtualBox:~$ sed 'i/this is Linux' cs.txt
subjects offered in CS
"this is Linux"
datastructure
Linux
python
green tech
softskill
stats
calculus
computer basic
```

7) To change a whole line with matched
pattern .

To change a whole line to a newline 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
calculus
computer basic
```

8) Appending lines

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

```
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 calculus
Thanks computer basic
```