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Linux

Practical no - 1

- Aim :-
- ① Install your choice of linux distribution
eg] Ubuntu, Fedora.
 - ② Customizing desktop environment by changing different default options like changing default background themes, screen saver.
 - ③ Screen resolution
 - ④ Time settings.

Steps to Install Ubuntu :-

Step 1 :- Install Virtual box

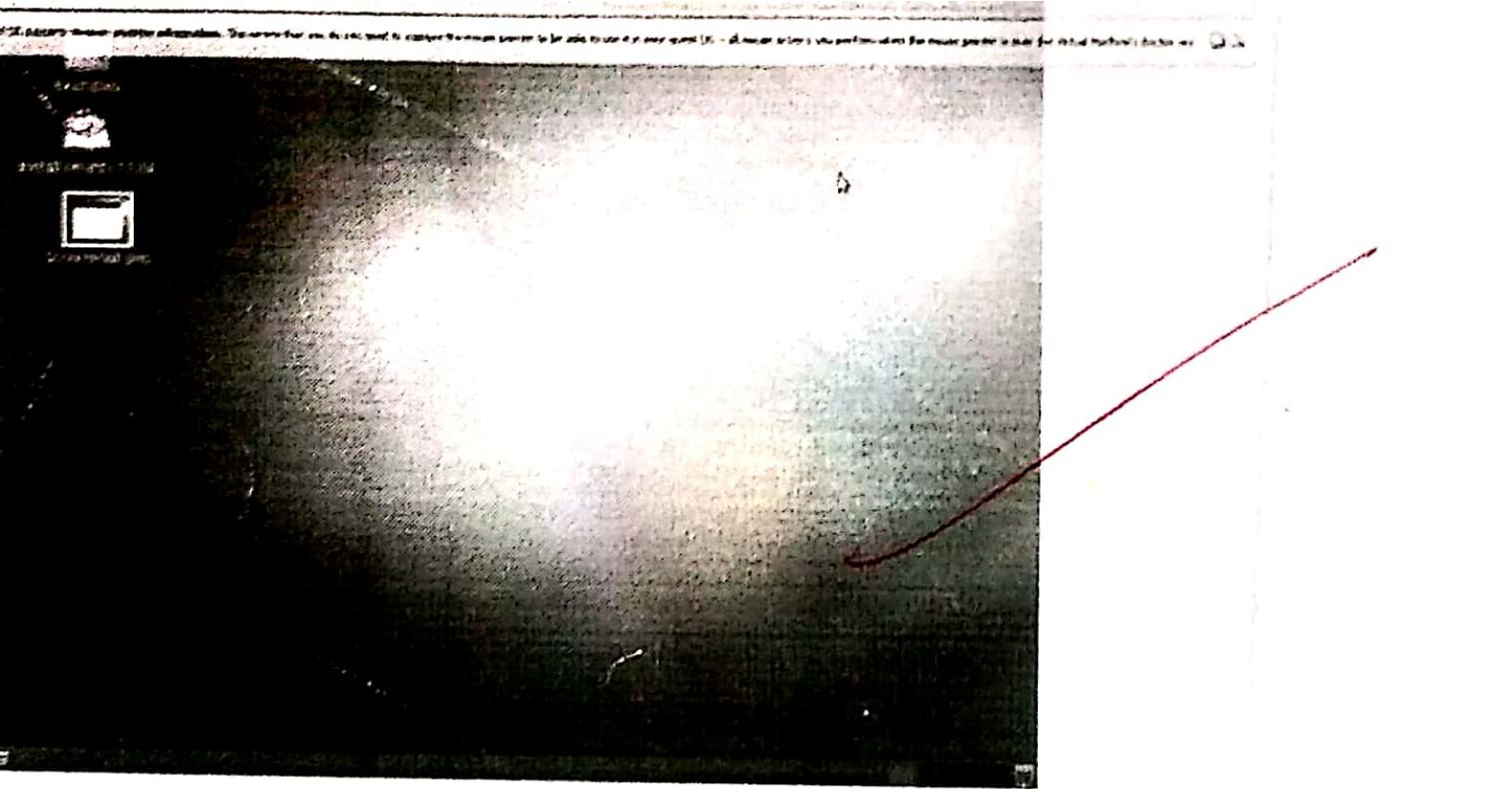
Step 2 :- Open virtual box, double click the virtual box app.

Step 3 :- Click new. It's a table box in the upper left corner of the virtual box column.

Step 4 :- Enter the name of your virtual box. Type whole variety by its name and it should be in single quotes.

Step 5 :- Select linux as the type. Click on type or scroll down a box will appear then click on the name

Step 6 :- Select ubuntu as the version name, ubuntu should be selected by default after you set 'type' value to linux, select on ubuntu (64 bit) by proceeding.

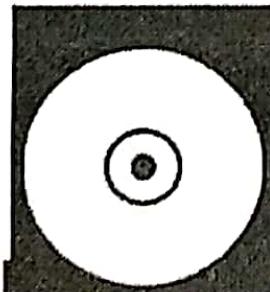


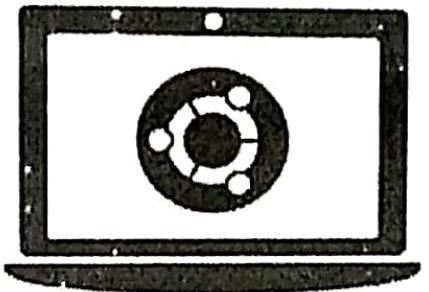
Wed 04:30

Install

Welcome

Español
Esperanto
Euskara
Français
Gaeilge
Gallego
Hrvatski
Íslenska
Italiano
Kurdî
Latviski
Lietuviškai
Magyar
Nederlands
Norsk bokmål
Norsk nynorsk
Polski

 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.

You may wish to read the release notes.

click the plus icon below the "Numerically" and "From
in pop-up window", select the path to our custom
folder and choose the picture inside of it.

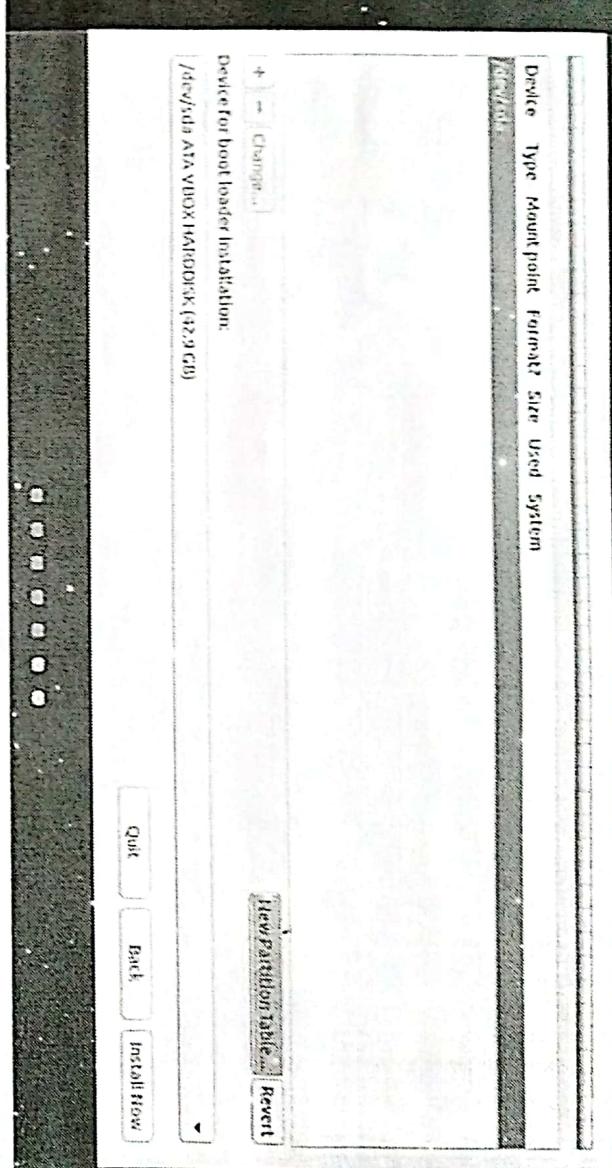
changing Ubuntu theme is
Ubuntu also has an option to change the desktop
theme, which in one click will change the
entire way your computer looks.

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

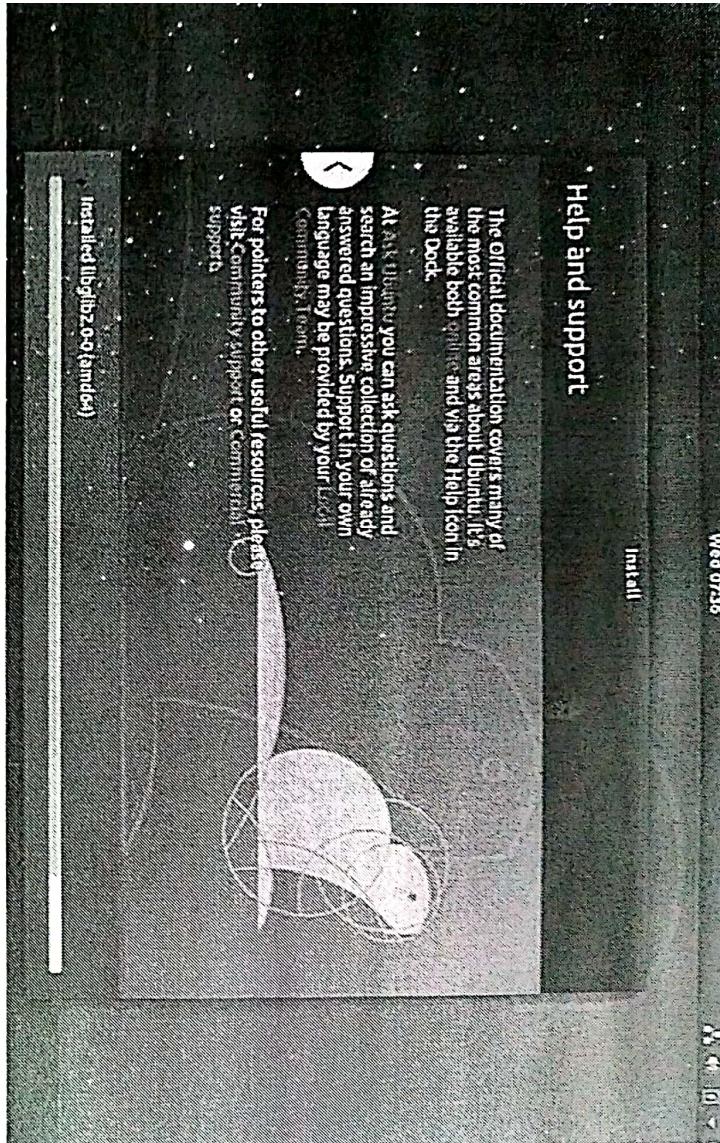
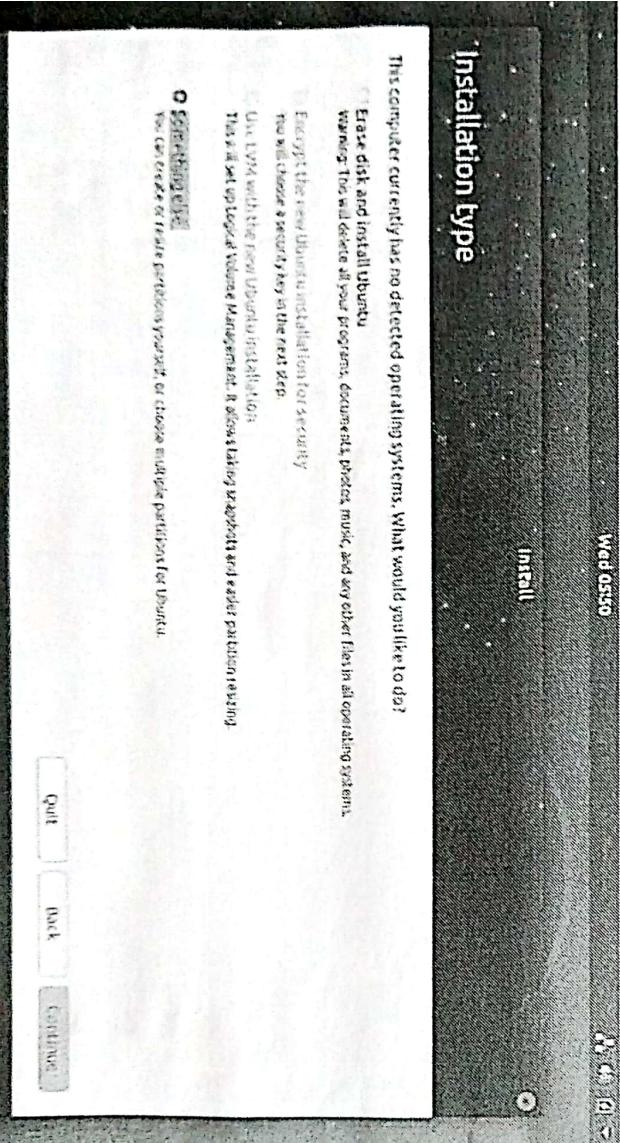
Ambiance is a light theme that looks a bit more Mac-like
while Radiance is darker brown theme used in Ubuntu
by default.

Wednesday
Install

Installation type:



Ubuntu 18.04



Help and support

The Official documentation covers many of the most common areas about Brightleaf.

At Ask Us Anything you can ask questions and search an impressive collection of already answered questions. Support in your own language may be provided by your local community, *etc.*

For pointers to other useful resources, please visit Community Support or Commercial support.

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[Digitized by srujanika@gmail.com]

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You can expect to receive detailed instructions on how to make maximum participation for yourself.

三

Customize desktop environment by changing different default option like changing default back ground, themes, screensaver.

Accessing Appearance settings :
To access Appearance settings in Ubuntu, let's click on user menu at the top right corner, on the top menu bar and select system settings.

A window will appear with all settings and 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 part wallpaper.

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

If you want to select wallpaper from your picture folder, click the drop down menu above thumbnails where you can select them as your wallpaper.

To add wallpaper that is in another folder, just

Step 7 : click next its at the bottom of the menu.

Step 8 : select an amount of Ram house . click and drag the sliders left or right to decrease or increase the amount of RAM . The needed amount of RAM will be negative when you click.

Step 9 : Then click on next . its at the bottom of the menu

Step 10 : Create your virtual machine virtual hard drive
The virtual hardware is a section of your complete
hardware space which will use the to store your
virtual machine program

click create

click next

below an amount of space to be used.
click create

Step 11 : Make sure that your abunue is down and
you can create you work working on it.

3) screen Resolution :- As certain the current screen resolution for your desktop.

change the size of 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 may up things appear (for example if you have a rotating display) by changing the rotation.

click on the icon on the very right of the menu bar and select system settings.

Open screen display :

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

Select your desired resolution and rotation.

Click apply. The new setting will be applied for 30 seconds before reverting back. that way, if you can't see anything with the resolution.

Keyboard layout

Choose your keyboard layout:

Traditional

Standard

Norwegian

Norwegian

USA - American International
USA - Cherokee

USA - Classic German

USA - Danish

USA - French

USA - Polish alternative international (no dead keys)

USA - Danish international (with dead keys)

USA - Norwegian (with dead keys)

USA - International (with dead keys)

Display Keyboard Layout

Back

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Time settings change the time zone of your system (or New York Time)

If you are currently in Indian Time.

How does the display time change.

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



Scanned with CamScanner

Practical - 29

Qn :- Installing and removing software.

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 than 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 install GCC compiler.

In GCC 5.1.0, although there is no ~~copy~~ installed target, some directories do have it, in particular gcc, so you can do.

Type : cd build/gcc
make uninstall

This does not remove everything that was installed, but if remain major executables like gcc, g++, Cpp... contained in that directory.

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Practical - 3

Aim : Utilization of grep, man commands.

Documentation :

q] Find info documentation from the command line:
bring up the info page for the grep command
Bring up the worg section.

In: 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
(back space = down) keys

~~Another one summarized form of showing info is the
man command. The command is same as 'info' but
requires data.~~

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The man command

(b) finding pages from the man page is command
Bring up the man page
is the example section.

[Ans] To use the 'man' command simply type
'man [command name]'

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

c] finding pages by topic : what man pages
available that document file compression.

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

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(brickwork)
area

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A "resumption program" (model #5) emphasizes the retrieval of material previously learned by pupils. Content is presented in a series of short, simple, easily understood units. Each unit contains one or more activities designed to help pupils review and reinforce previous achievement. In recent days, the effectiveness of this approach has been demonstrated in many fields of learning. It is particularly effective in helping pupils learn to read and write. Also, it can be used effectively in helping pupils learn to add, subtract, multiply, divide, etc. The following section illustrates how resumption programs can be used effectively in teaching reading and writing skills.

1. *Wātū* (water) *Wātū* (water) *Wātū* (water) *Wātū* (water) *Wātū* (water)

a) Finding man pages by the section from the command lines bring up the man page from the print and lib function which manual page section au library function found.

The number corresponds to what section of the manual page is from; 1 is user command while 8 is sysadmin stuff. The man page for man itself explains it and lists the std one.

There are certain 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 -o to show everything matching page in row.

~~You can tell what section a term falls in with 'man -t'
(equivalent to apropos command)
It will do substring matches to
and to use term " to limit it.~~

Ron

practical - 4

3] sudo find / - name password

→ / user / bin / password
/ user / share / bash - completion / completions - password

/ user / share / doc / password
/ user / share / hintion / over ride / password

/ etc / pam.d / password
/ etc / pam.d / password

/ etc / password

2] sudo find / - max depth 2 - name password

→ / etc / password

3] sudo find / - max depth 3 - name password

→ / user / bin / password

/ etc / pam.d / password

/ etc / pam.d / password

/ etc / password

4] sudo find / - max depth 3 - max depth 3 - name pass

→ / user / bin / password
/ user / share / bash - completion / completions - password

/ user / share / doc / password
/ user / share / hintion / over ride / password

/ etc / pam.d / password
/ etc / pam.d / password

/ etc / password

5) where is ls

ls : /bin/ls/wen/share/man/man1/ls.1.g2

6) where is ps

ps : /bin/ps/wen/share/man/man1/ps.1.g2

7) where is bash

bash : /bin/bash/etc/bash.bashrc/wen/share/man/man1/bash.1.g2

1/2

File Operations

~~Explore mounted file systems on your computer.~~

$$df = k$$

Filesystem	1K-blocks	Used	Available	Use%	Mounted on
udev	494436	0	494436	0%	/dev
tmpfs	102416	3676	98740	4%	/run
/dev/sda1	7692728	3383372	3326924	51%	/
tmpfs	512676	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

2. What are the different ways of exploring moon?

file : mount ~~the~~ store

Available	Use%	Mounted on
494436	0%	/dev
98740	4%	/run
3326024	51%	/
511860	1%	/dev/shm
5116	1%	/run/lock
512076	0%	/sys/fs/cgroup
102368	1%	/run/user/1000

copying text from files
and my command

cp command

```
touch ss.txt  
mv gg.txt ss.txt  
cat gg.txt  
ss.txt
```

Archiving and backup the work directory using tar, gzip and bzip 2 commands.

A
1 gzip file name .txt
B bzip2 file name .txt

Q) Use diff command to create diff of two files.
Ans : diff file name 1 file name 2

of use patch command to patch a file and analyze the patch using patch command again.

a) which account you are logged in? How do you find out?
 b) who login and who are in

- b) Display /etc/shadow file using cat command and understand the importance of shadow file. How its different than passwd file.
 → cat /etc/shadow

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

- Username, up to 8 characters. Case-sensitive, usually all lower case. 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~~ any time). The number of days after password must be changed (9999 indicates user can keep his or her password unchanged for many, many years)

- The number of days to warn user of an 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 that an account has been disabled.

A reserved field for possible future use

```
[root@jebat ~]# ls -l /etc/passwd
root:x:0:0:root:/root:/bin/sh
daemon:x:1:1:daemon:/var/empty:/bin/sh
bin:x:2:2:bin:/var/empty:/bin/sh
sys:x:3:3:sys:/var/empty:/bin/sh
games:x:4:4:games:/var/empty:/bin/sh
man:x:5:5:man:/var/empty:/bin/sh
lp:x:6:6:lp:/var/empty:/bin/sh
mail:x:8:8:mail:/var/empty:/bin/sh
news:x:16911:0:99999:7:::
```

- Each field is a password entry is separated with ":" colon characters, and are as follows
- username, up to 8 characters . Case-sensitive , usually all lower case

- 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 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/jsmith) . All user's personal files , web pages , mail forwarding , etc will be stored here .

This is a shall account often set to "bank/bank" to provide access to the cash shell my personal financial shell.

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a) Set your current working directory:

```
jeba@jeba-VirtualBox:~  
jeba@jeba-VirtualBox:~$ cd /home/jeba  
jeba@jeba-VirtualBox:~$ ls
```

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

Ans : history

```
jeba@jeba-VirtualBox: ~ history
1 who
2 whoami
3 who -l
4 clear
5 w
6 w -s
7 w -h
8 w -t
9 clear
10 cat /etc/shadow
11 sude cat /etc/shadow
12 clear
13 sudo cat /etc/passwd
14 pwd
15 clear
16 history
jeba@jeba-VirtualBox: ~ history
who -l
LOGNAME=tty1
LOGINUID=1000:13
TIMEOUT=10000:13
2015-01-15 20:30
```

↳ Create alias to run commonly used commands.
Aka command instructs the shell to replace one string
with another during while executing the commands.

↳ alias label = " command"

```
alias ll='ls -lR --color=auto' # make new  
alias lla='ls -lR --color=auto > /tmp/ll.out'  
alias lla2='cat /tmp/ll.out | less'  
alias lla3='cat /tmp/ll.out | less -R'  
alias lla4='cat /tmp/ll.out | less -R -S'  
alias lla5='cat /tmp/ll.out | less -R -S -E'  
alias lla6='cat /tmp/ll.out | less -R -S -E -F'  
alias lla7='cat /tmp/ll.out | less -R -S -E -F -M'  
alias lla8='cat /tmp/ll.out | less -R -S -E -F -M -P'  
alias lla9='cat /tmp/ll.out | less -R -S -E -F -M -P -T'  
alias lla10='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U'  
alias lla11='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X'  
alias lla12='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X -N'  
alias lla13='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X -N -C'  
alias lla14='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X -N -C -L'  
alias lla15='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X -N -C -L -O'  
alias lla16='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X -N -C -L -O -I'  
alias lla17='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X -N -C -L -O -I -D'  
alias lla18='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X -N -C -L -O -I -D -F'  
alias lla19='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X -N -C -L -O -I -D -F -M'  
alias lla20='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X -N -C -L -O -I -D -F -M -P'  
alias lla21='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X -N -C -L -O -I -D -F -M -P -T'  
alias lla22='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X -N -C -L -O -I -D -F -M -P -T -U'  
alias lla23='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X -N -C -L -O -I -D -F -M -P -T -U -X'  
alias lla24='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X -N -C -L -O -I -D -F -M -P -T -U -X -N'  
alias lla25='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X -N -C -L -O -I -D -F -M -P -T -U -X -N -C'  
alias lla26='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X -N -C -L -O -I -D -F -M -P -T -U -X -N -C -L'  
alias lla27='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X -N -C -L -O -I -D -F -M -P -T -U -X -N -C -L -O'  
alias lla28='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X -N -C -L -O -I -D -F -M -P -T -U -X -N -C -L -O -I'  
alias lla29='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X -N -C -L -O -I -D -F -M -P -T -U -X -N -C -L -O -I -D'  
alias lla30='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X -N -C -L -O -I -D -F -M -P -T -U -X -N -C -L -O -I -D -F'  
alias lla31='cat /tmp/ll.out | less -R -S -E -F -M -P -T -U -X -N -C -L -O -I -D -F -M -P -T -U -X -N -C -L -O -I -D -F -M'
```

Practical no. 7

LINUX EDITORS : Vi

i] Create, modify, search and navigate a file in editor

ii] Creating a file

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

iii] modifying the file :

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

iv] search in a file :

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

v] Navigates :

Movement in four directions :

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

word Navigation

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
0 (zero)	Moves to first character of line
g	Moves to end of line

scrolling key	Action
ctrl + f	scrolls forward
ctrl + b	scrolls backward
ctrl + d	scrolls half page
ctrl + u	scrolls half page backward.

b) known all essential command like search / replace, highlights, shows line numbers

i) Replace

Symbol : ~~10 word to be replaced is // new word / g~~

Hello
This is my Linux example
Welcome
Well done
This is vi Editor
Thank you

:q!/my/stuff/vi.c

File: /home/jebajebavincilabbox/

1. main.c
2. my .aux example
3. my .aux example
4. my .aux example
5. my .aux example

Hello
This is my Linux example
Welcome
Well done
This is vi Editor
Thank you

jebajebavincilabbox:

Hello
This is our Linux example
Welcome
Well done
This is Vim Editor
Thank you

Practical - 8

Use of sudo to change user privileges to root.

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

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

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

```
# 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/bin:/usr/bin:/usr/sbin:/bin"
Defaults !secure_path

# Host alias specification

# User alias specification

# Cmnd alias specification

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

abstractions that sacrifice sudo privileges

[user1] ~ % su user1
[user1] ~ % cd /home/jebas/mkdir/folder1; permission denied
[user1] ~ % mkdir folder1; permission denied
[user1] ~ % sudo mkdir folder1; permission denied
[user1] ~ % sudo rm -rf /home/jebas/mkdir/folder1; permission denied
[user1] ~ % rm -rf /home/jebas/mkdir/folder1; permission denied
[user1] ~ %

c) Modify expiration date for new user using policy
aging

```
jeba@jeba-VirtualBox:~$ sudo chage -t user1
jeba@jeba-VirtualBox:~$ sudo chage -t 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 -t 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 [-1]: 5
      Password Inactive [-1]: 2020-01-31
      Account Expiration Date (YYYY-MM-DD) [-1]: 2020-01-31
jeba@jeba-VirtualBox:~$ sudo chage -t 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
```

sudo	chage	-t	user1
last password change		:	Jan 21, 2020
password expires		:	Apr 20, 2020
password inactive		:	May 29, 2020
account expires		:	Jan 31, 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	

rE : Expiration Date

r_m : Minimum number of days before password change

r_M : Number of days password is valid

r_I : Account Inactive

r_w : Number of days of warning before a password change is required

a] Delete newly added user.

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

✓

Protocol - 9

Network Management

Get IP address of your machine using ifconfig

```
jeba@jeba-virtualBox:~$ ifconfig
jeba@jeba-VirtualBox:~$ ifconfig
enp0s3      Link encap:Ethernet Hwaddr 08:00:27:0e:6b:69
            inet addr:16.0.2.15 Bcast:16.0.2.255 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
             inet6_scope_id:1
             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)
```

Get host name of your machine.

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

Use ping To check the network connectivity to remote machines

```
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=82.6 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=3 ttl=54 time=84 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=4 ttl=54 time=84.8 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=5 ttl=54 time=87.1 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=6 ttl=54 time=93.5 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=7 ttl=54 time=86.9 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=8 ttl=54 time=64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=9 ttl=54 time=98.6 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=10 ttl=54 time=90.9 ms
[1] Stopped ping www.google.com
```

Use of dig command.

```
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: 0
;; OPT_PSEUDOSECTION:
;; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;www.google.com. IN
;; 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 26 22:40:06 IST 2020
;; MSG SIZE rcvd: 59
```

Troubleshooting network using traceroute , route command.

a) use of host command

b) use of netstat command & Nmap command.



8] Use of arp command

```

Kernel IP routing table
Destination      Gateway         Genmask        Flags Metric Ref Use Iface
default         10.0.3.1       0.0.0.0         UG    0      0  eth0

```

le datojeba virtuálnom
bezpečnostných rozpráv
acerca zo www.google.com (77.176.166.105), 20 hod. max., do výročia
10.10.2012 (10.0.2.1) 0.190 ms, 0.143 ms, 0.165 ms

File	Address	State
1 - Node	/run/user/1000/system	Path
42149	/run/systemd/journal/	
9694	/run/systemd/journal/	
9695	/run/systemd/journal/	
9704	/run/systemd/journal/	
9684	/run/systemd/notify	
14042	@/tmp/dbus-CyrTe7AQC	
43331	@/tmp/dbus-CMGG6C7PS	
42988	@/run/systemd/journal/	
42690		
13242		
43143	/run/systemd/journal/	
43013		
42935		

```

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
DNS record for 216.58.196.68: b0m05s11-in-f4.1e100.net
Port shown: 998 filtered ports
PORT      STATE SERVICE
80/tcp    open  http
443/tcp   open  https
Map done: 1 IP address (1 host up) scanned in 26.32 seconds
jeba@jeba-VirtualBox: ~
```

Practical - 10

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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 variables.

- d) The echo command just returns whatever you type in #!/bin/bash - it is called shebang. If it is written at the top of a shell script and it passes the instruction to the program /bin/bash.

Echo \$ SHELL



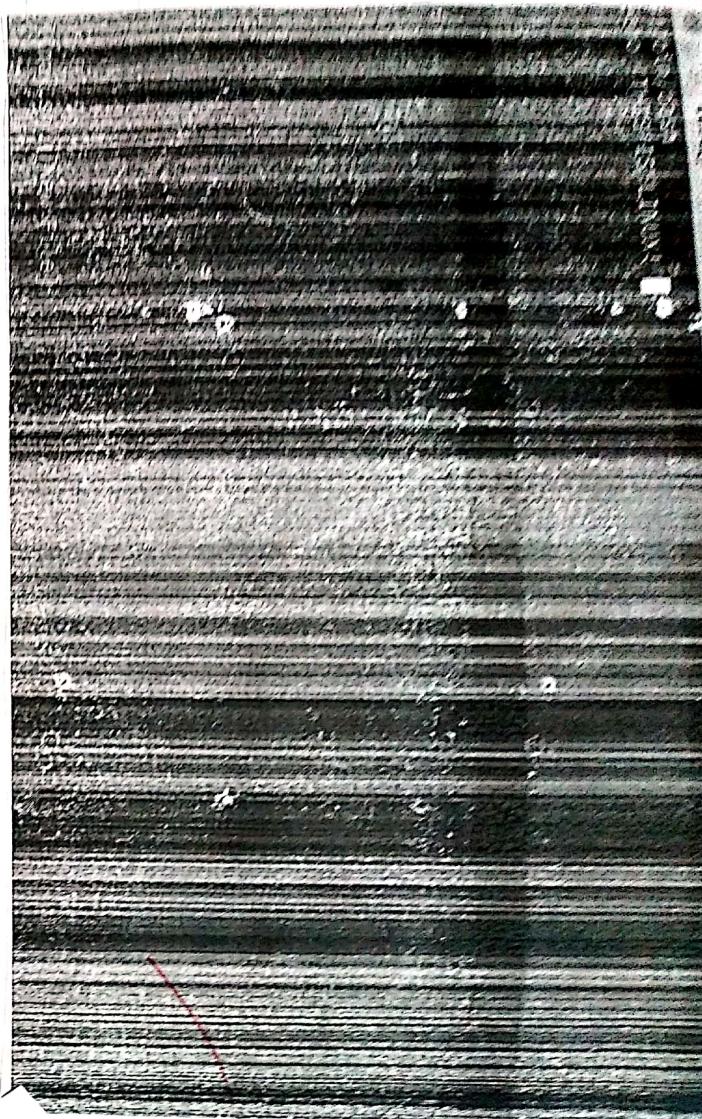
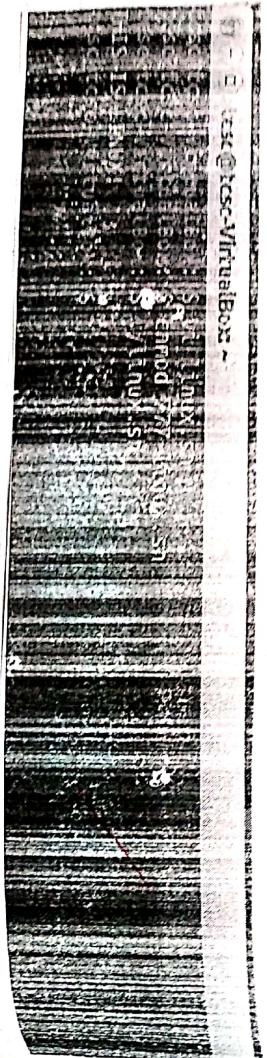
```
root@rcsc-virtualBox: ~ echo $SHELL
sh
rcsc@rcsc-virtualBox: ~
```

- vi file name.sh
- #!/bin/bash
- echo "This is LINUX!"

Steps to write and execute a shell script.
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.

```
ch mod 777 file name.sh  
./file name.sh
```



c) Touch file name.sh

d] vi file name.sh [You can use your favorite editor
edit the script]

e] chmod 777 filenam.sh [for making the script executable]

f] sh file name.sh or ./filenam.sh [for running the script]

program to display your name

```
#!/bin/bash
```

Echo "Enter your name."

Read name

Echo "My name is:\$name"

tcsc@tcsc-VirtualBox:~

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

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to find sum of two variables

program
in file name - sh

#!/bin/bash

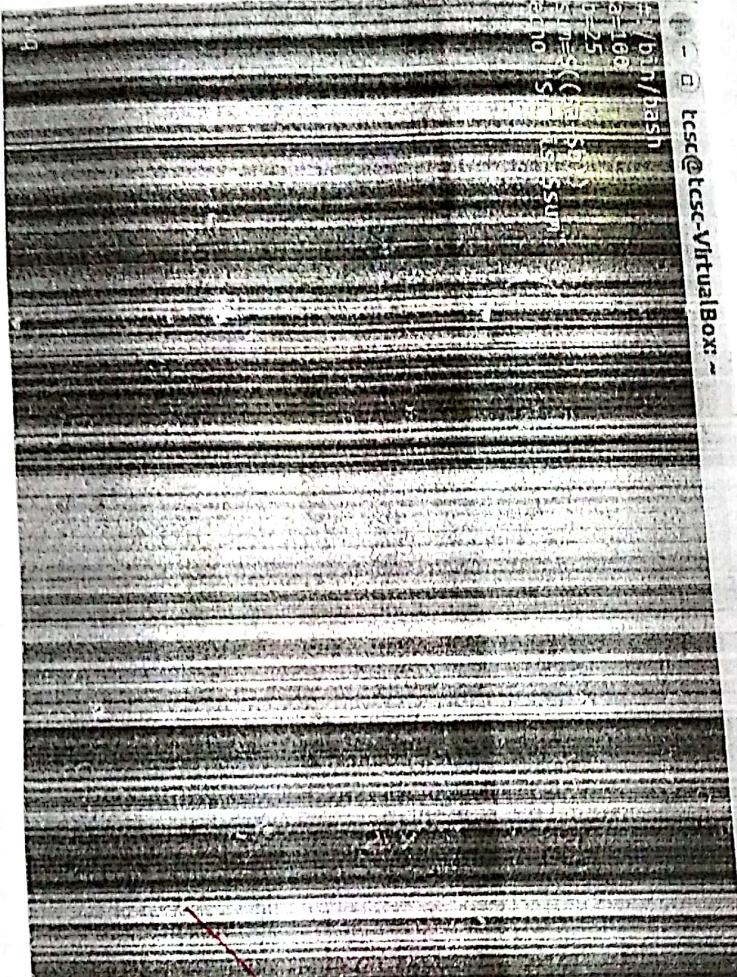
a=100
b=25

sum=\$((\$a + \$b))

echo "sum is : \$sum"

tcsc@tcsc-VirtualBox:~

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

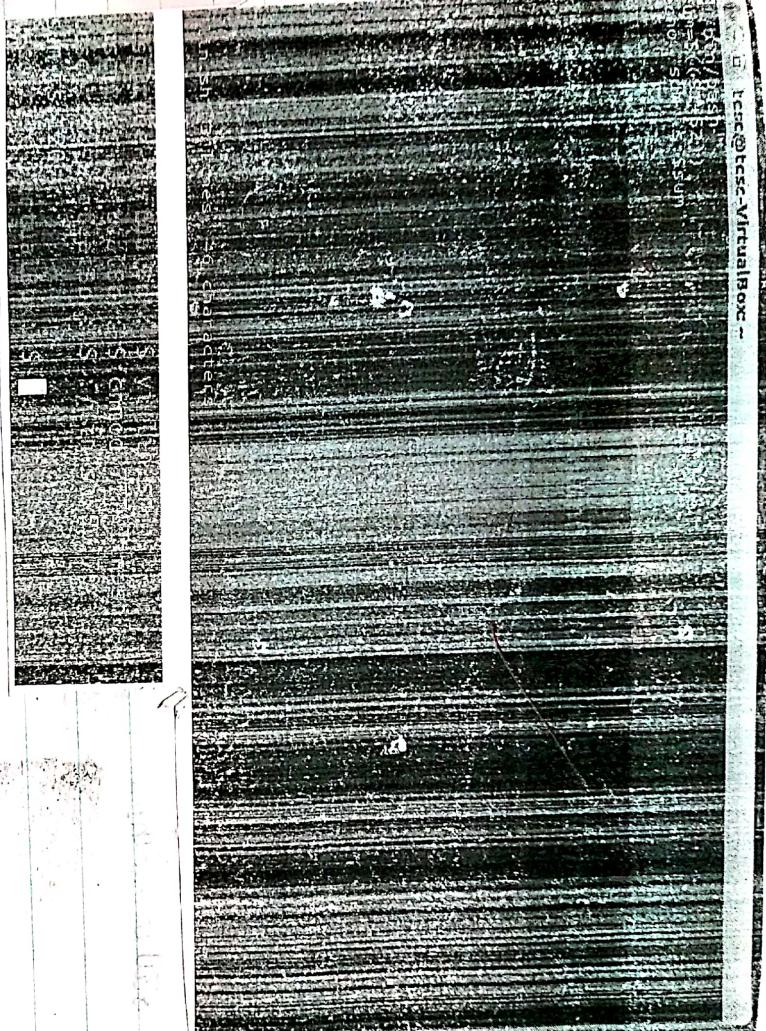


program to find the sum of two numbers (values passed during execution)

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

Consider the following text file.



Subjects offered in CS
1) Database management
2) Linux
3) Python
4) Java
5) C/C++
6) Data structures
7) DBMS
8) OS
9) Compiler design
10) Computer architecture

Q) Is playing partial test of a file.
With sed , we can view only part of a file.

```
trsc@trsc-VirtualBox:~$ cd /tmp  
trsc@trsc-VirtualBox:~/tmp$ cat file1.txt  
Database management  
Linux  
Python  
C/C++  
Java  
OS  
Compiler design  
DBMS  
trsc@trsc-VirtualBox:~/tmp$ sed -n 3,5p file1.txt
```

- 2) Display all except some portion . To display all content of a file except for some portion , use option -d of a file.

discusses Mr. Quigley's subjects offered during 1947-48.

③ Deleting a line

To date no line, was line number followed by a

```
[root@tcsc tcsc]# tcsc@tcsc-VirtualBox:~
```

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

```
*csc@csc-VirtualBox: $ sed 's/cs/computer/' cs.txt
```

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

7

```
subjects offered in cs  
this is linux  
datastructure  
database management  
linux  
python  
green tech  
softskill  
stats  
calculus  
computer basic
```

7 Add a line after / before the matched string

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

```
subjects offered in cs  
this is linux  
datastructure  
database management  
linux  
python  
green tech  
softskill  
stats  
calculus  
computer basic
```

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

```
this is linux  
subjects offered in cs  
datastructure  
database management
```

```
linux
```

```
python
```

```
green tech
```

```
softskill
```

```
stats
```

```
calculus
```

```
computer basic
```

```
is added.
```

To change a whole line with matched pattern
To change a whole line to a new line
when a search pattern matches , use option

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

Appending lines :

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

