NETWORK LAB RECORD

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TOPIC:

Basic Linux Commands with examples.

Contents:

BASIC COMMAND IN UBUNTU TERMINALS

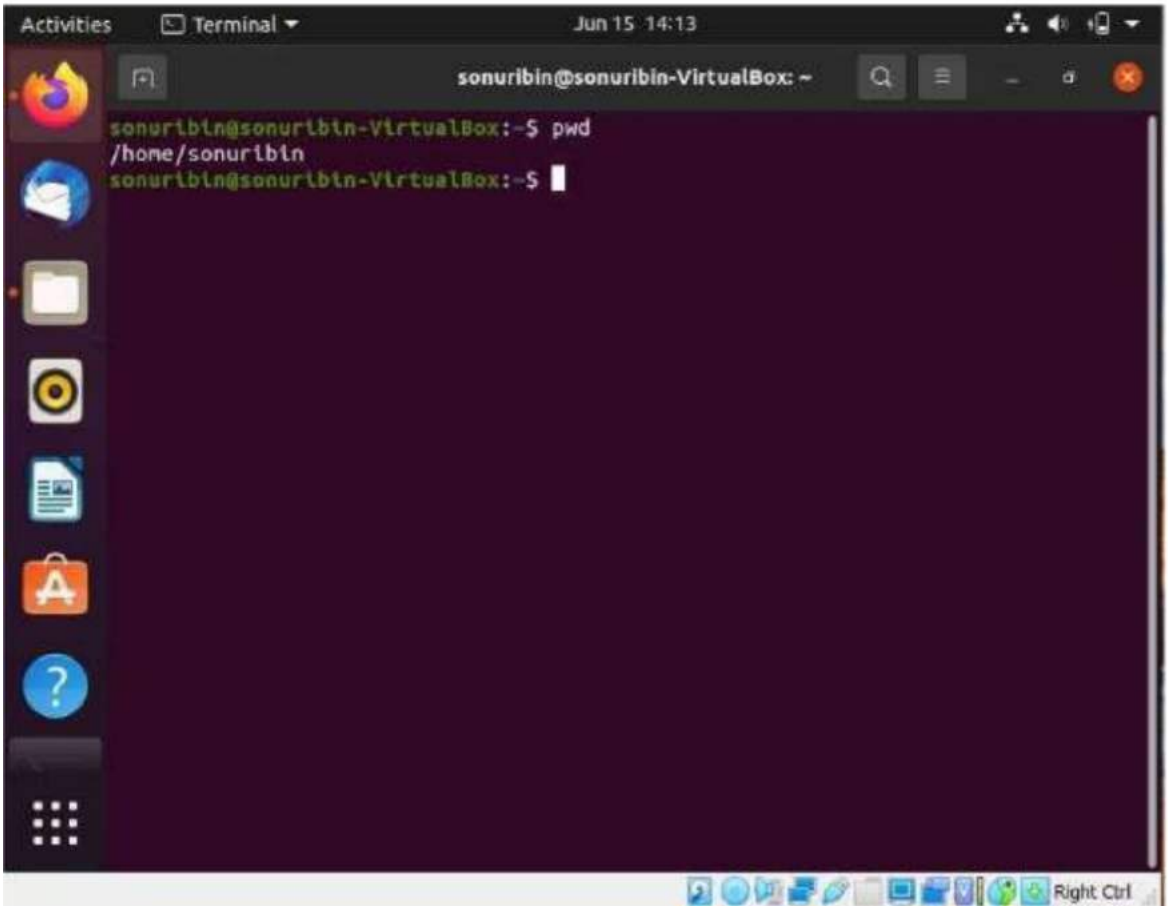
1.pwd:

linux pwd(print working directory) command displays your location currently you are working on .It will gives the whole path starting from the root ending to **the directory.**

Syntax:

$pwd

Example:



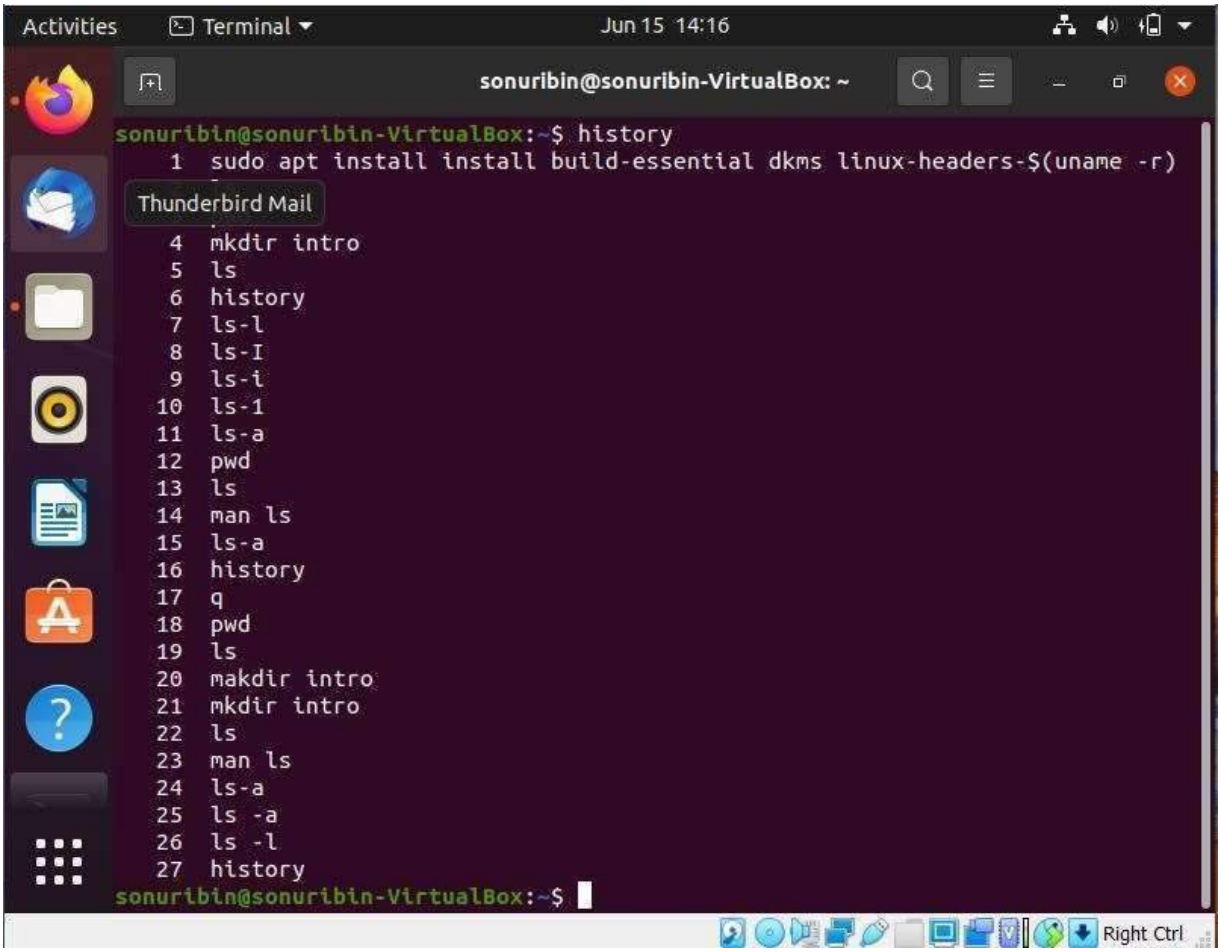
2.history:

History command is used to view the previously executed command . When you have been using Linux for a certain period of time, you will quickly notice that you can run hundreds of commands every day. As such, running history command is particularly useful if you want to review the commands you have entered before.

Syntax:

$ history

Example:



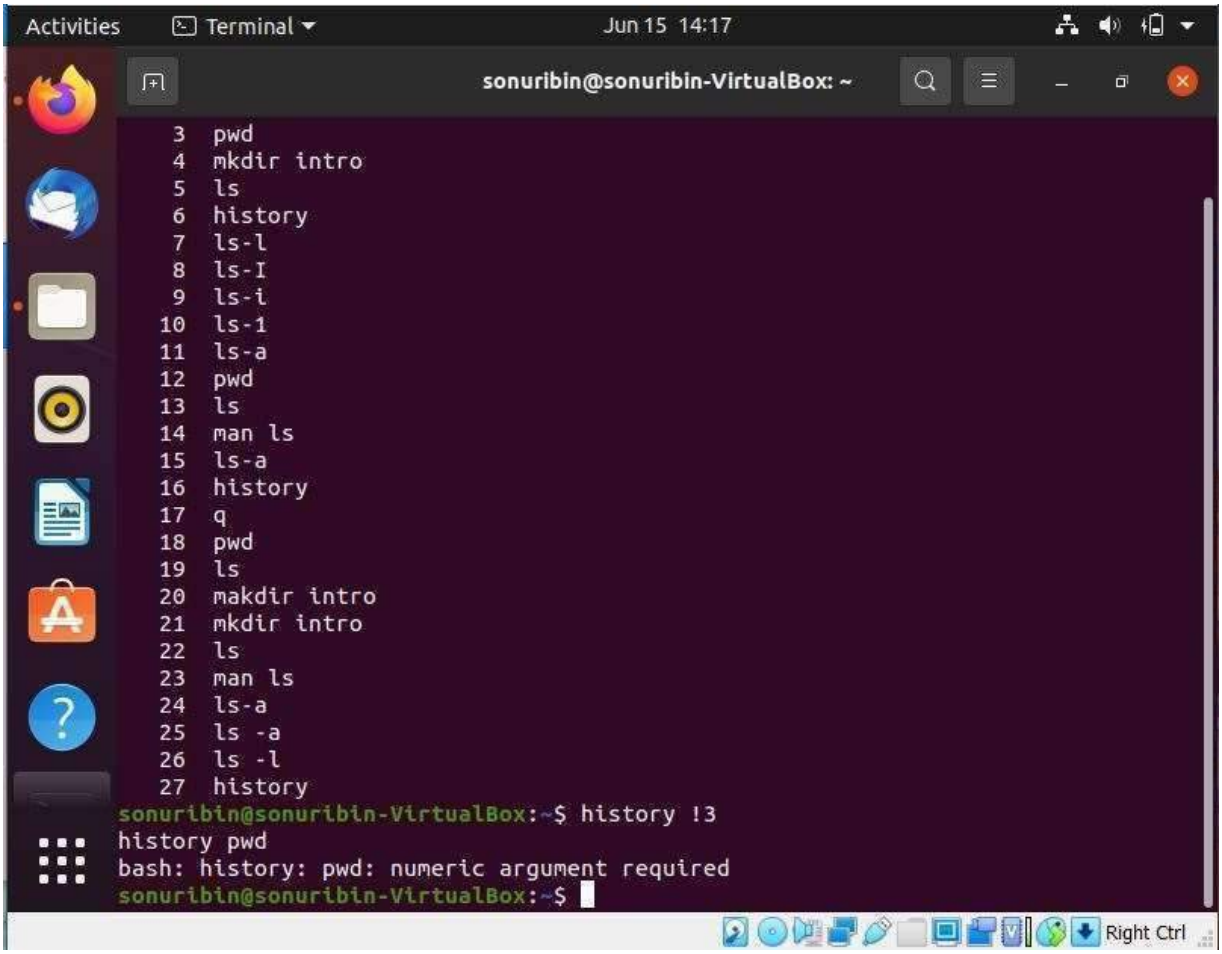
Display the nth commands from the history:

We can display the specific number of commands by specifying it as "!<command number>". For example, we want to show the most recent command which is 500th in our history file, execute the command as follows:

Syntax:

! Command number

Example:


Activities
Terminal
Jun 15 14:17
sonuribin@sonuribin-VirtualBox: ~
3 pwd
4 mkdir intro
5 ls
6 history
7 ls-l
8 ls-I
9 ls-i
10 ls-1
11 ls-a
12 pwd
13 ls
14 man ls
15 ls-a
16 history
17 q
18 pwd
19 ls
20 makdir intro
21 mkdir intro
22 ls
23 man ls
24 ls-a
25 ls -a
26 ls -l
27 history
sonuribin@sonuribin-VirtualBox:~$ history !3
history pwd
bash: history: pwd: numeric argument required
sonuribin@sonuribin-VirtualBox:~$
Right Ctrl

Basic Linux Commands

- Echo
- Head
- Tail
- read
- more
- less
- cut
- paste
- uname
- cp
- mv
- locate
- find
- grep
- df
- du
- useradd
- userdel
- sudo
- passwd

1.echo:

- echo command is used to move some data into a file.
- **echo** command in linux is used to display line of text/string that are

- If more than one file name is provided then data from each file is preceded by its file name.

•

Example:

4 read:

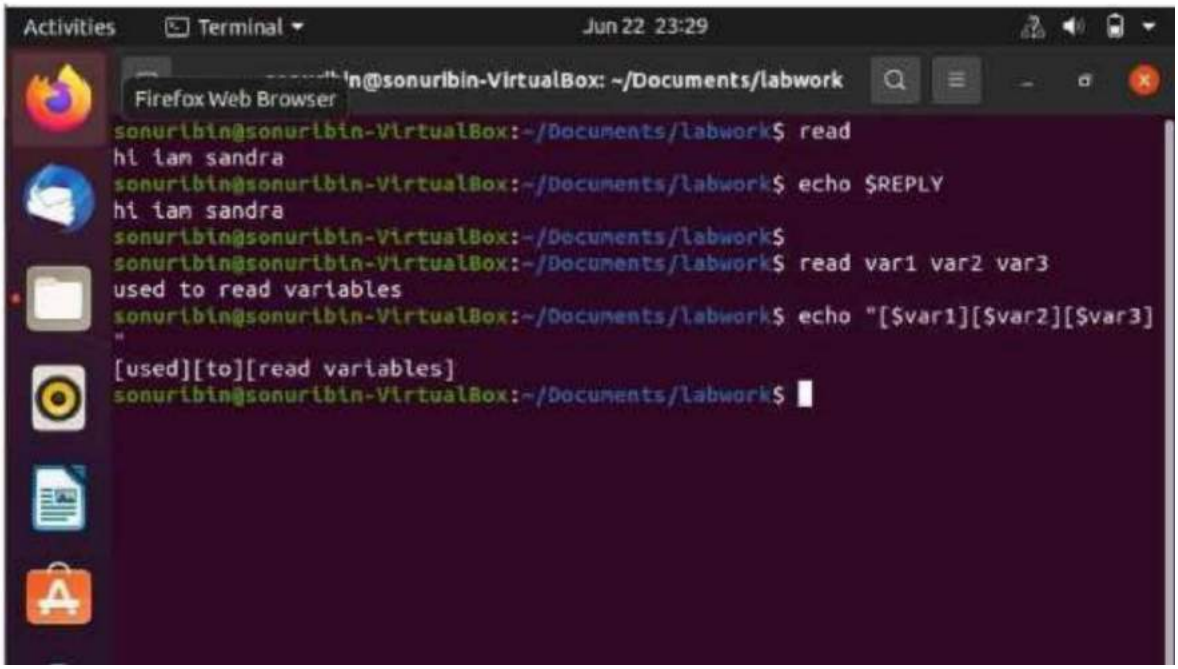
- read the contents of a line into a variable.
- The read command can be used with and without arguments
- read command is used to read [options] [name...]

syntax:

$read

$read var1 var2 var3

$echo "[$var1] [$var2] [$var3]"



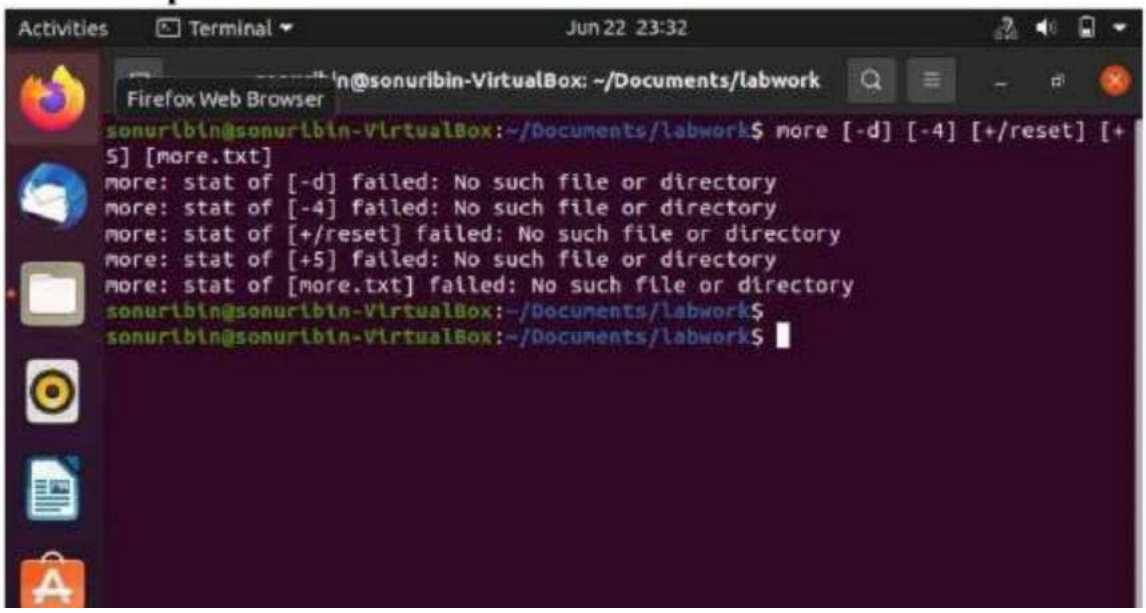
5 more:

- Like cat command, more command displays the content of a file.
- Only difference is that, in case of larger files, 'cat' command output will scroll off your screen while 'more' command displays output one screenful at a time.
- Enter key: To scroll down page line by line.
- Space bar: To go to next page.
- b key: To go to the backward page.
- / key: Lets you search the string.
- more -num :Limits the line displayed per page.
- more -d :Displays user message at right corner
- more –s: Squeeze blank lines
- more +/string name: It helps to find the string.
- more +num :Used to display the content from a specific line.

Syntax:

$more
$ more /etc/passwd

Example:



•

less :

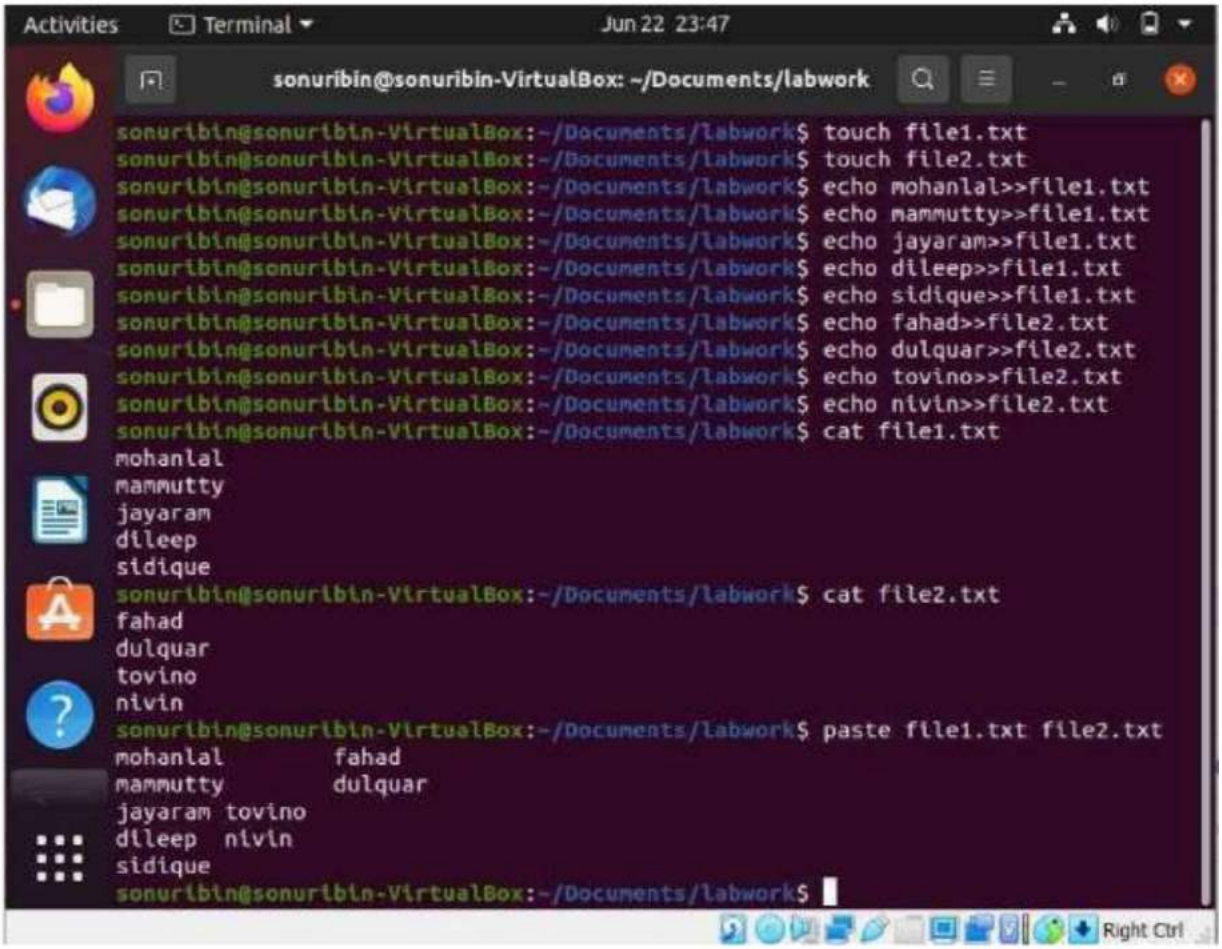
- The 'less' command is same as 'more' command but include some more features.
- It automatically adjust with the width and height of the teminal window,

8.paste:

It is used to join files horizontally (parallel merging) by outputting lines consisting of lines from each file specified, separated by tab as delimiter, to the standard output.

Syntax :
$ paste [OPTION]... [FILES]...
$ paste file1.txt file2.txt

Example:



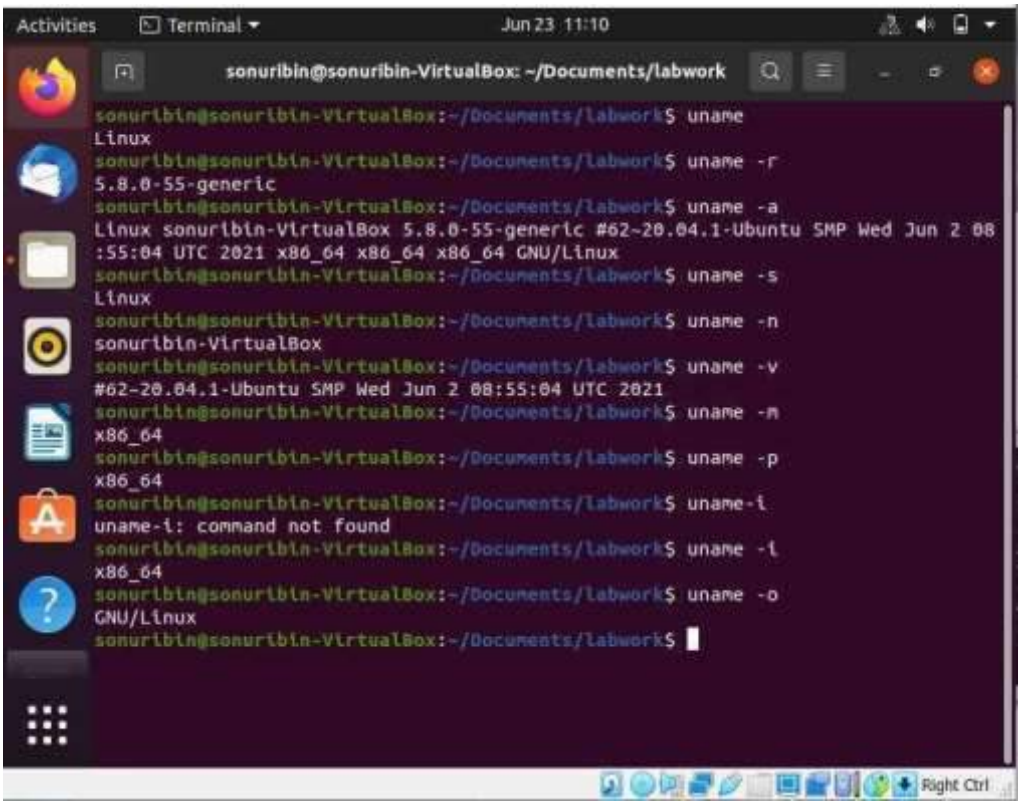
2.uname:

The uname command, short for Unix Name, will print detailed information about your Linux system like the machine name, operating system, kernel, and so on.

Syntax:

$uname
$uname –r
$uname –a
$uname –s
$uname –n
$uname –v
$uname –m
$uname –p
$uname –i
$uname -o

Examples:


Activities
Terminal
Jun 23 11:10
sonuribin@sonuribin-VirtualBox: ~/Documents/labwork
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ uname
Linux
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ uname -r
5.8.0-55-generic
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ uname -a
Linux sonuribin-VirtualBox 5.8.0-55-generic #62~20.04.1-Ubuntu SMP Wed Jun 2 08
:55:04 UTC 2021 x86_64 x86_64 x86_64 GNU/Linux
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ uname -s
Linux
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ uname -n
sonuribin-VirtualBox
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ uname -v
#62~20.04.1-Ubuntu SMP Wed Jun 2 08:55:04 UTC 2021
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ uname -m
x86_64
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ uname -p
x86_64
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ uname-i
uname-i: command not found
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ uname -i
x86_64
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ uname -o
GNU/Linux
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$
Right Ctrl

10.cp

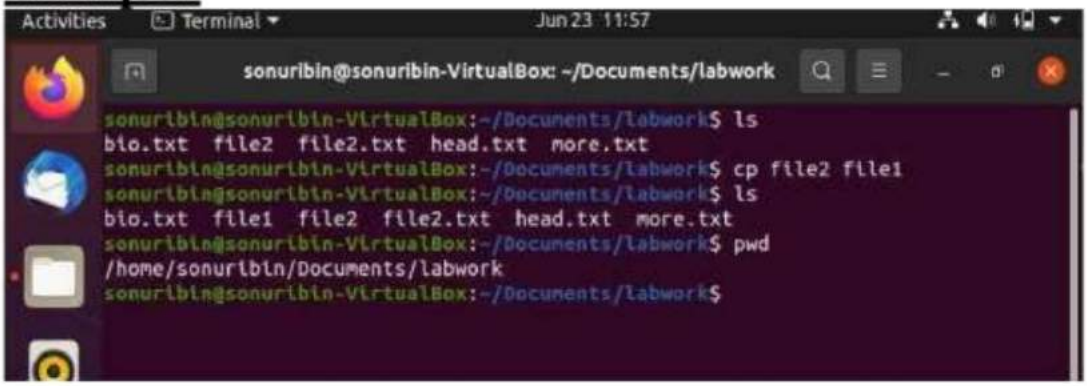
cp command is used to copy files from the current directory to a different directory.

- cp -i will ask for user's consent in case of a potential file overwrite.
- cp -p will preserve source files' mode, ownership and timestamp.
- cp -r will copy directories recursively.
- cp -u copies files only if the destination file is not existing or the source file is newer than the destination file

syntax:

cp src_file dest_file

example:



If the command has one or more arguments,

Syntax:

$Cp src_file 1 src_file2 dest_directory

11.mv :

The primary use of the mv command is to move files, it can also be used to rename files. The arguments in mv are similar to the cp command. You need to type mv, the file's name, and the destination's directory.

Syntax:
Let us consider 4 files having file1,file2,file3.to rename file ,file1 to linux
$mv file1 linux
Example:

```
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ ls
bio.txt  file1.txt  file2.txt  head.txt  more.txt
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ mv file1.txt linux
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ ls
bio.txt  file2.txt  head.txt  linux  more.txt
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ cat linux
mohanlal
mammutty
jayaram
dileep
sidique
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ echo hai>>linux
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ echo hello>>linux
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ cat file2.txt
mohanlal
mammutty
jayaram
dileep
sidique
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ mv linux file2
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ mv linux file2.txt
mv: cannot stat 'linux': No such file or directory
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ ls
bio.txt  file2  file2.txt  head.txt  more.txt
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ cat file2
mohanlal
mammutty
jayaram
dileep
```

12.locate:

- To locate a file, just like the search command in Windows.

14.grep:

Another basic Linux command that is undoubtedly helpful for everyday use is grep. It lets you search through all the text in a given file. • To illustrate, grep blue notepad.txt will search for the word blue in the notepad file. Lines that contain the searched word will be displayed fully. Usually output of a previous command is piped into the grep command. For example ls -l | grep "kernel"

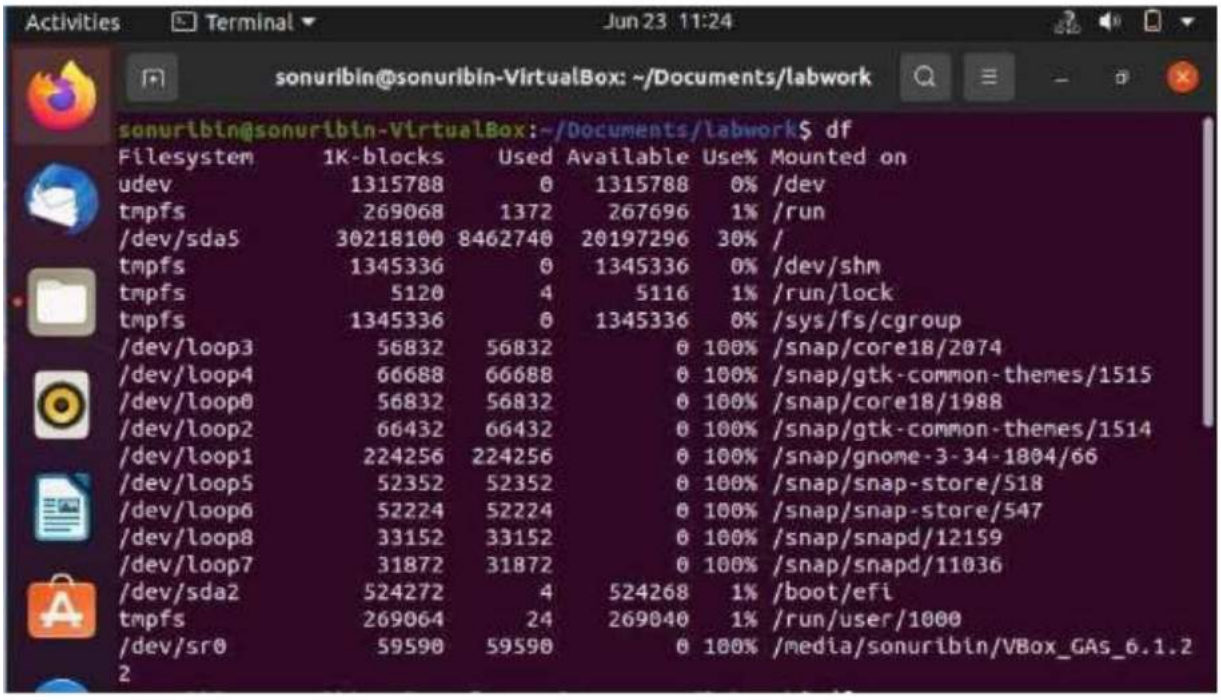
Example:

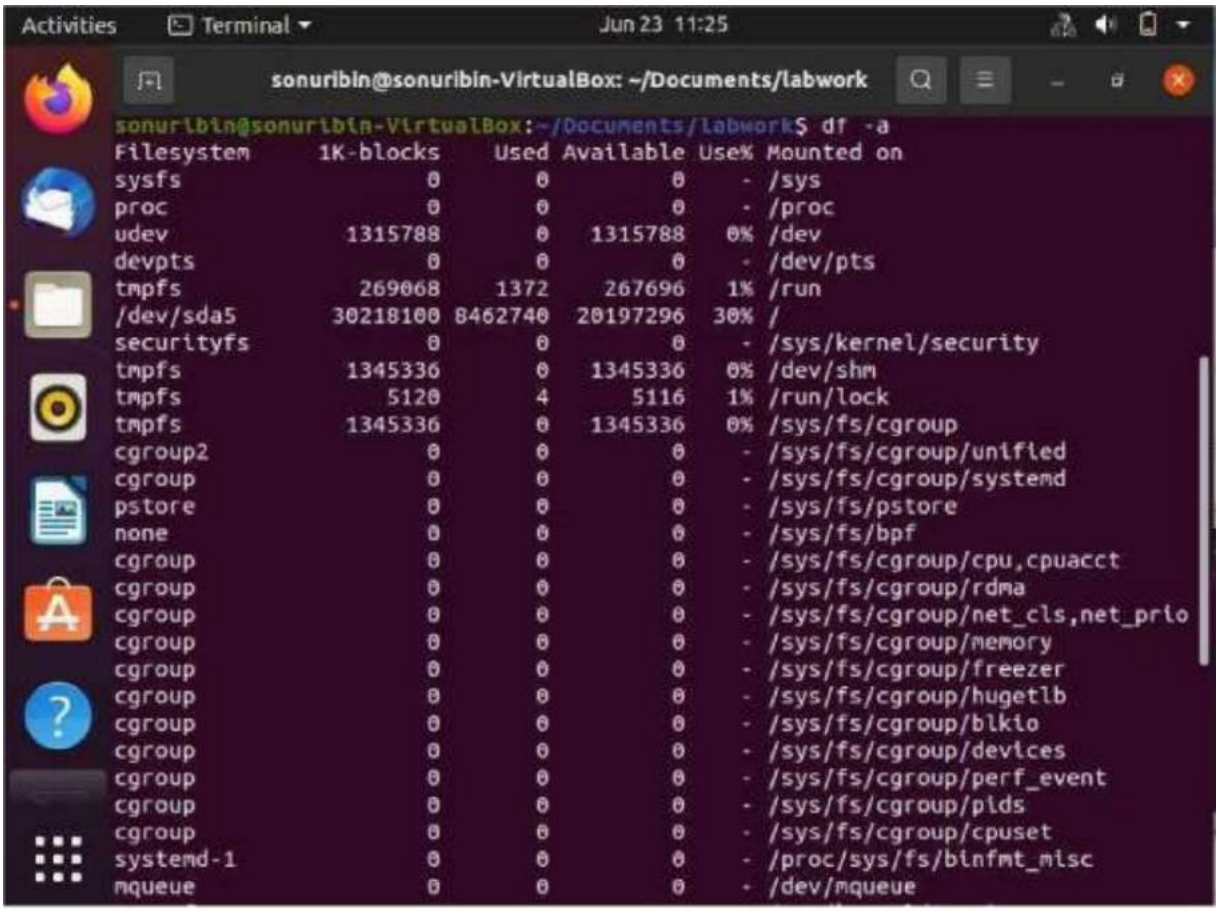
15.df:

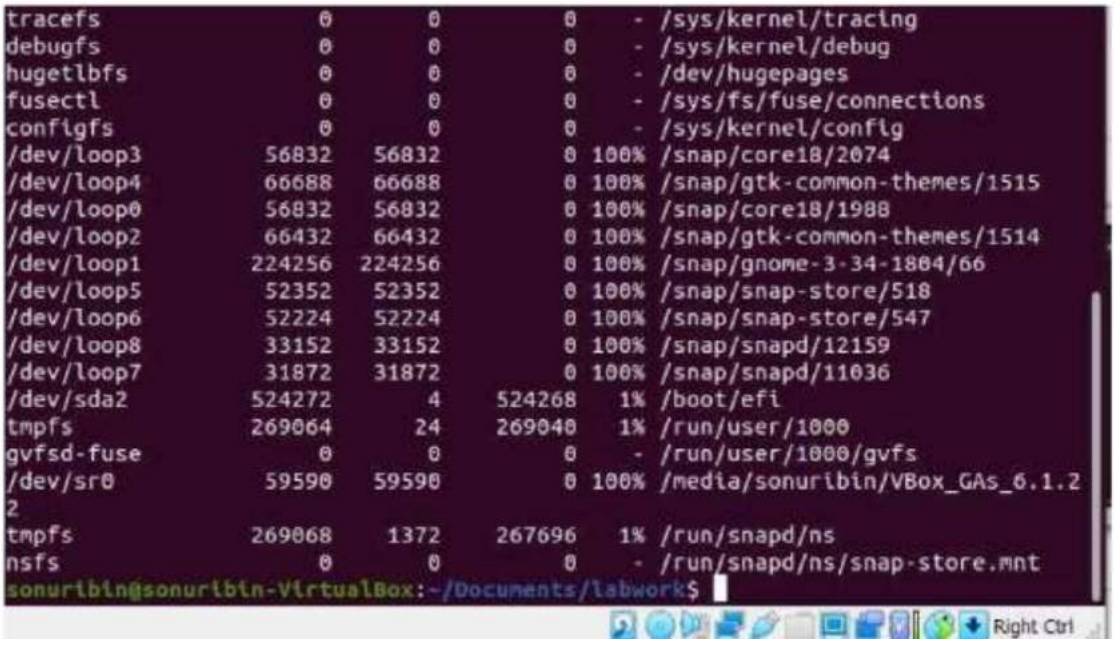
• Use df command to get a report on the system's disk space usage, shown in percentage and KBs.

If you want to see the report in megabytes, type df -m.

Example:



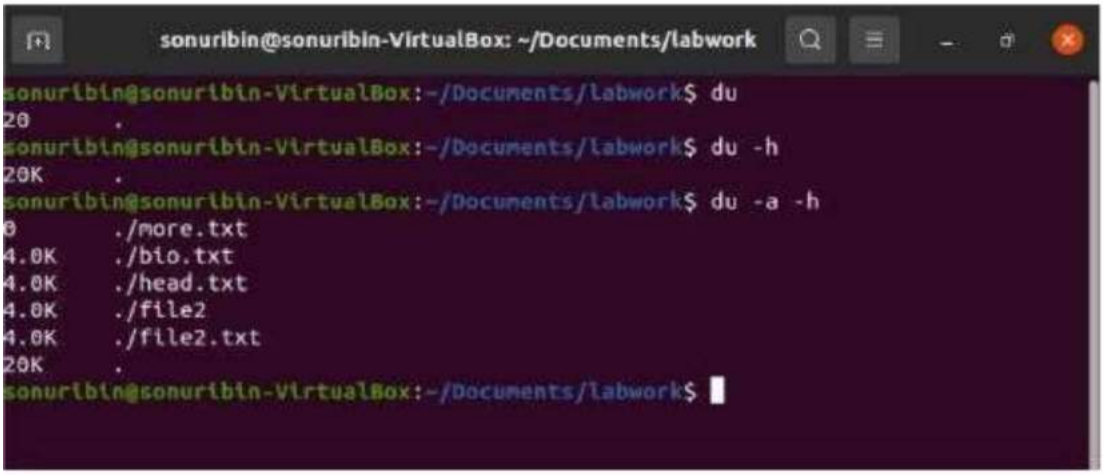

Activities
Terminal
Jun 23 11:25
sonuribin@sonuribin-VirtualBox: ~/Documents/labwork
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ df -a
Filesystem 1K-blocks Used Available Use% Mounted on
sysfs 0 0 0 - /sys
proc 0 0 0 - /proc
udev 1315788 0 1315788 0% /dev
devpts 0 0 0 - /dev/pts
tmpfs 269068 1372 267696 1% /run
/dev/sda5 30218100 8462740 20197296 30% /
securityfs 0 0 0 - /sys/kernel/security
tmpfs 1345336 0 1345336 0% /dev/shm
tmpfs 5120 4 5116 1% /run/lock
tmpfs 1345336 0 1345336 0% /sys/fs/cgroup
cgroup2 0 0 0 - /sys/fs/cgroup/unified
cgroup 0 0 0 - /sys/fs/cgroup/systemd
pstore 0 0 0 - /sys/fs/pstore
none 0 0 0 - /sys/fs/bpf
cgroup 0 0 0 - /sys/fs/cgroup/cpu,cpuacct
cgroup 0 0 0 - /sys/fs/cgroup/rdma
cgroup 0 0 0 - /sys/fs/cgroup/net_cls,net_prio
cgroup 0 0 0 - /sys/fs/cgroup/memory
cgroup 0 0 0 - /sys/fs/cgroup/freezer
cgroup 0 0 0 - /sys/fs/cgroup/hugetlb
cgroup 0 0 0 - /sys/fs/cgroup/blkio
cgroup 0 0 0 - /sys/fs/cgroup/devices
cgroup 0 0 0 - /sys/fs/cgroup/perf_event
cgroup 0 0 0 - /sys/fs/cgroup/pids
cgroup 0 0 0 - /sys/fs/cgroup/cpuset
systemd-1 0 0 0 - /proc/sys/fs/binfmt_misc
mqueue 0 0 0 - /dev/mqueue


tracefs 0 0 0 - /sys/kernel/tracing
debugfs 0 0 0 - /sys/kernel/debug
hugetlbfs 0 0 0 - /dev/hugepages
fusectl 0 0 0 - /sys/fs/fuse/connections
configfs 0 0 0 - /sys/kernel/config
/dev/loop3 56832 56832 0 100% /snap/core18/2074
/dev/loop4 66688 66688 0 100% /snap/gtk-common-themes/1515
/dev/loop0 56832 56832 0 100% /snap/core18/1988
/dev/loop2 66432 66432 0 100% /snap/gtk-common-themes/1514
/dev/loop1 224256 224256 0 100% /snap/gnome-3-34-1804/66
/dev/loop5 52352 52352 0 100% /snap/snap-store/518
/dev/loop6 52224 52224 0 100% /snap/snap-store/547
/dev/loop8 33152 33152 0 100% /snap/snapd/12159
/dev/loop7 31872 31872 0 100% /snap/snapd/11036
/dev/sda2 524272 4 524268 1% /boot/efi
tmpfs 269064 24 269040 1% /run/user/1000
gvfsd-fuse 0 0 0 - /run/user/1000/gvfs
/dev/sr0 59590 59590 0 100% /media/sonuribin/VBox_GAs_6.1.2
2
tmpfs 269068 1372 267696 1% /run/snapd/ns
nsfs 0 0 0 - /run/snapd/ns/snap-store.mnt
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$
Right Ctrl

16.du:

• If you want to check how much space a file or a directory takes, the du (Disk Usage) command is the answer. However, the disk usage summary will show disk block numbers instead of the usual size format. • If you want to see it in bytes, kilobytes, and megabytes, add the -h argument to the command line. • $du -h

Examples:



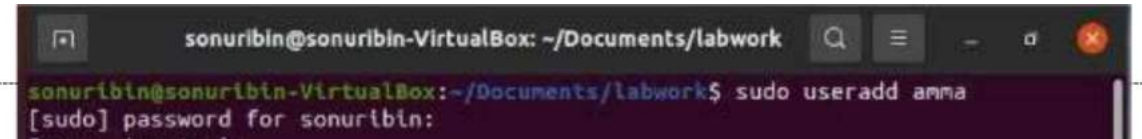
17.useradd

• This is available only to system admins

• Since Linux is a multi-user system, this means more than one person can interact with the same system at the same time.

• useradd is used to create a new user, while passwd is adding a password to that user's account. To add a new person named John type, useradd John and then to add his password type, passwd 123456789

Example:

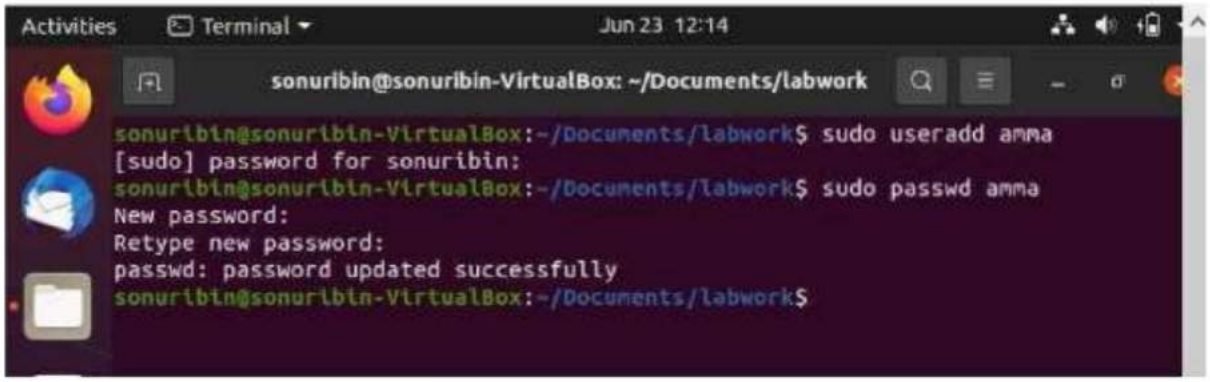

sonuribin@sonuribin-VirtualBox: ~/Documents/labwork
sonuribin@sonuribin-VirtualBox:~/Documents/labwork$ sudo useradd amma
[sudo] password for sonuribin:

19.sudo:

• Short for "SuperUser Do", this command enables you to perform tasks that require administrative or root permissions. You must have sufficient permissions to use this command.

• sudo useradd amma

Example:



Explain linux commands usermod, groupadd, groups, groupmod, groupdel, chmod, chown, id, ps, top with examples

1. usermod

- usermod command is used to change the properties of a user

in Linux through the command line

- command-line utility that allows you to modify a user's login

information

- #usermod --help
- #usermod –u 2000 student
-

```
sonuribin@sonuribin:~/Desktop$ usermod --help
Usage: usermod [options] LOGIN

Options:
  -b, --badnames                allow bad names
  -c, --comment COMMENT         new value of the GECOS field
  -d, --home HOME_DIR           new home directory for the user account
  -e, --expiredate EXPIRE_DATE  set account expiration date to EXPIRE_DATE
  -f, --inactive INACTIVE       set password inactive after expiration
                                to INACTIVE
  -g, --gid GROUP               force use GROUP as new primary group
  -G, --groups GROUPS           new list of supplementary GROUPS
  -a, --append                  append the user to the supplemental GROUPS
                                mentioned by the -G option without removing
                                the user from other groups
  -h, --help                    display this help message and exit
  -l, --login NEW_LOGIN         new value of the login name
  -L, --lock                    lock the user account
  -m, --move-home               move contents of the home directory to the
                                new location (use only with -d)
  -o, --non-unique              allow using duplicate (non-unique) UID
  -p, --password PASSWORD       use encrypted password for the new password
  -R, --root CHROOT_DIR         directory to chroot into
  -P, --prefix PREFIX_DIR       prefix directory where are located the /etc/* f
iles
  -s, --shell SHELL             new login shell for the user account
  -u, --uid UID                 new UID for the user account
  -U, --unlock                  unlock the user account
  -v, --add-subuids FIRST-LAST  add range of subordinate uids
```

```
sonuribin@sonuribin:~/Desktop$ sudo usermod -u 2000 student
[sudo] password for sonuribin:
usermod: no changes
sonuribin@sonuribin:~/Desktop$
```

2. groupadd

- groupadd command creates a new group account using the values specified on the command line and the default values from the system.

```
sonuribin@sonuribin:~/Desktop$ sudo usermod -u 2000 student
[sudo] password for sonuribin:
usermod: no changes
sonuribin@sonuribin:~/Desktop$ sudo groupadd sonu10
sonuribin@sonuribin:~/Desktop$ sudo groupadd sonu10
groupadd: group 'sonu10' already exists
sonuribin@sonuribin:~/Desktop$ sudo groupadd sonu1
sonuribin@sonuribin:~/Desktop$ sudo groupadd sonu12
sonuribin@sonuribin:~/Desktop$ sudo groupadd sonu13
sonuribin@sonuribin:~/Desktop$ compgen -g sonu
sonuribin
sonu10
sonu1
sonu12
sonu13
```

3. groups - print the groups a user is in

```
sonuribin@sonuribin:~/Desktop$ groups sonuribin
sonuribin : sonuribin adm cdrom sudo dip plugdev lpadmin lxd sambashare
sonuribin@sonuribin:~/Desktop$
```

4.groupdel - groupdel command modifies the system account files, deleting all entries that refer to group. The named group must exist

```
sonuribin@sonuribin:~/Desktop$ compgen -g sonu
sonuribin
sonu10
sonu12
sonu13
sonu11
sonuribin@sonuribin:~/Desktop$ sudo groupdel sonu11
[sudo] password for sonuribin:
sonuribin@sonuribin:~/Desktop$ compgen -g sonu
sonuribin
sonu10
sonu12
sonu13
sonuribin@sonuribin:~/Desktop$
```

5.groupmod - The groupmod command modifies the definition of the specified group by modifying the appropriate entry in the group database.

groupmod -n group1 group2

```
sonuribin@sonuribin:~/Desktop$ compgen -g sonu
sonuribin
sonu10
sonu12
sonu13
sonuribin@sonuribin:~/Desktop$ sudo groupmod -n new_group sonu10
[sudo] password for sonuribin:
sonuribin@sonuribin:~/Desktop$ sudo groupmod -n new_group sonu10
groupmod: group 'sonu10' does not exist
sonuribin@sonuribin:~/Desktop$ compgen -g sonu
sonuribin
sonu12
sonu13
sonuribin@sonuribin:~/Desktop$ compgen -g new_group
new_group
sonuribin@sonuribin:~/Desktop$
```

6.chmod - To change directory permissions of file/ Directory in Linux.

#chmod whowhatwhich file/directory

- chmod +rwx filename to add permissions.
- chmod -rwx directoryname to remove permissions.
- chmod +x filename to allow executable permissions.
- chmod -wx filename to take out write and executable permissions.

#chmod u+x test #chmod g-rwx test #chmod o-r test

7.chown - The chown command allows you to change the user and/or group ownership of a given file, directory.

```
sonuribin@sonuribin:~/Desktop$ chmod +rwx sonuu.txt
sonuribin@sonuribin:~/Desktop$
```

```
sonuribin@sonuribin:~/Desktop$ chown sonuribin sonuu.txt
sonuribin@sonuribin:~/Desktop$ ls -1 sonuu.txt
sonuu.txt
```

8.ps - The ps command, short for Process Status, is a command line utility that is used to display or view information related to the processes running in a Linux system.

- PID – This is the unique process ID
- TTY –This is the type of terminal that the user is logged in to
- TIME – This is the time in minutes and seconds that the process has been running
- CMD – The command that launched the process #ps -a

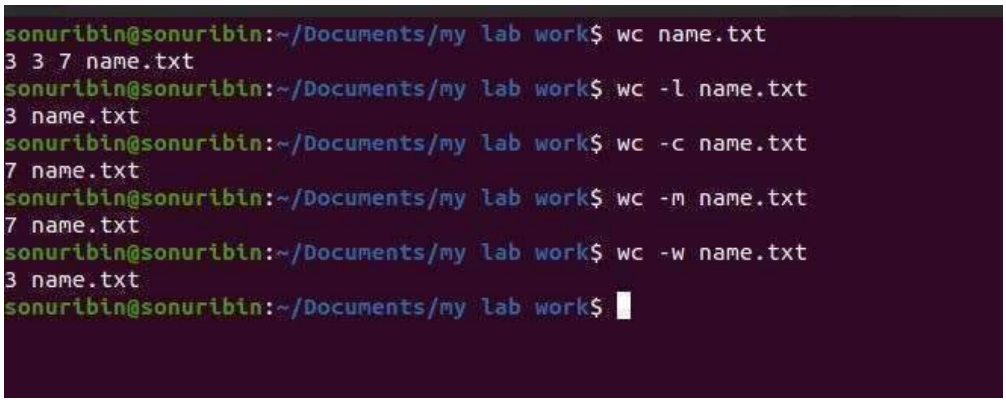
```
sonuribin@sonuribin:~/Desktop$ ps -a
    PID TTY          TIME CMD
    933 tty2     00:00:03 Xorg
   1061 tty2     00:00:00 gnome-session-b
   2146 pts/0    00:00:00 ps
sonuribin@sonuribin:~/Desktop$
```

Basic Linux Commands: Explain linux commands wc, tar(create, extract using gzip, xz, bzip2), expr,
redirections and piping, ssh, ssh-keygen, scp, ssh-copy-id with examples

1. wc

wc stands for word count.
Used for counting purpose.
It is used to find out number of lines, word count, byte and characters count in the files specified in the file arguments.

```
#wc state.txt
#wc state.txt capital.txt
wc -l state.txt
wc -w state.txt capital.txt
wc -c state.txt
wc -m state.txt
```



2. tar

The Linux 'tar' stands for tape archive, is used to create Archive and extract the Archive files

Linux tar command to create compressed or uncompressed Archive files

Options:

-c : Creates Archive

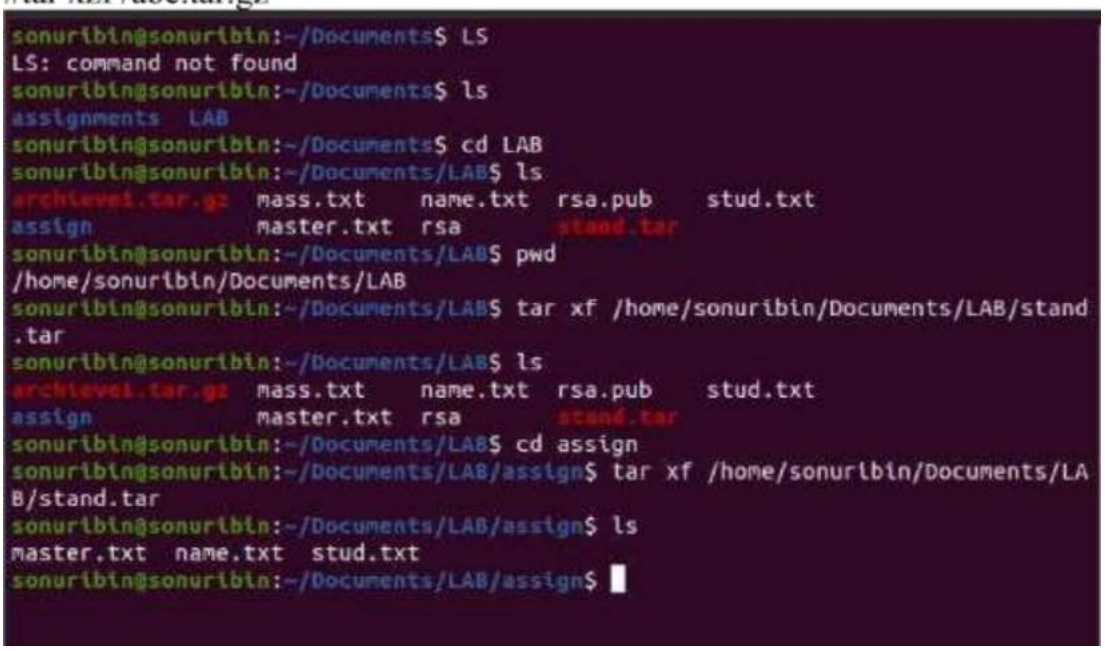
-x : Extract the archive

-f : creates archive with given filename

-t : displays or lists files in archived file

-u : archives and adds to an existing archive file

-v : Displays Verbose Information
-A : Concatenates the archive files
-z : zip, tells tar command that creates tar file using gzip
-j : filter archive tar file using tbzip
-W : Verify a archive file
-r : update or add file or directory in already existed .tar file
#tar cf archive.tar state.txt capital.txt //create archive file
#ls archive.tar
#tar tf /archive.tar // list contents of tar archive file
• Extract an archive created with tar
#mkdir backup
#cd backup
#tar xf /home/meera/Documents/Meera_Linux/archive.tar
• Compression Types
gzip(z),bzip2(j), xz(J)
#tar czf /abc.tar.gz /etc
#mkdir backup2
#tar cjf /abcd.tar.bz2 /etc
#cd backup2
#tar cJf /abcde.tar.xz /etc
#tar xjf /abcd.tar.bz2
Extract an archive
#mkdir backup3
#mkdir backup1
#cd backup3
#cd backup1
#tar xJf /abcde.tar.xz
#tar xzf /abc.tar.gz



3.expr

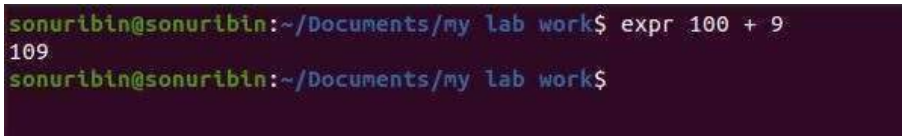
The expr command evaluates a given expression and displays its 6 corresponding output. It is used for:

Basic operations like addition, subtraction, multiplication, division, and modulus on integers.

Evaluating regular expressions, string operations like substring, length of strings etc.

Performing operations on variables inside a shell script

#expr 10 + 2



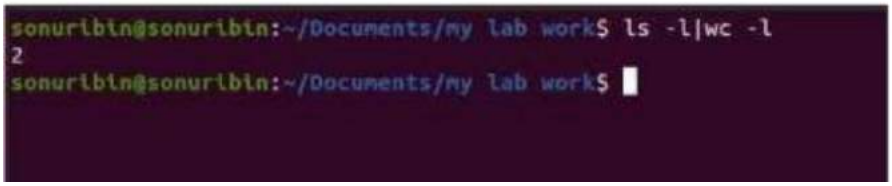
4. Redirections & Piping

A pipe is a form of redirection to send the output of one command/program/process to another command/program/process for further processing.

Pipe is used to combine two or more commands, the output of one command acts as input to another command, and this command's output may act as input to the next command and so on.

#ls -l | wc - l

#cat /etc.passwd.txt | head -7 | tail -5



5. ssh

ssh stands for "Secure Shell".

It is a protocol used to securely connect to a remote server/system.

ssh is secure in the sense that it transfers the data in encrypted form between the host and the client.

It transfers inputs from the client to the host and relays back the output. ssh runs at TCP/IP port 22.

#ssh user_name@host(IP/Domain_name)

#ssh –X root@server1.example.com

```
sonuribin@sonuribin:~/Documents/my lab work$ ls -l|wc -l
2
sonuribin@sonuribin:~/Documents/my lab work$ ssh -x root@server1.sonuu.txt
ssh: Could not resolve hostname server1.sonuu.txt: Name or service not known
sonuribin@sonuribin:~/Documents/my lab work$
```

6.ssh-keygen

ssh-keygen command to generate a public/private authentication

10

key pair. Authentication keys allow a user to connect to a remote system without supplying a password. Keys must be generated for each user separately. If you generate key pairs as the root user, only the root can use the keys.

$ssh-keygen -t rsa

```
sonuribin@sonuribin:~/Documents/my lab work$ ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/home/sonuribin/.ssh/id_rsa): rsa
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in rsa
Your public key has been saved in rsa.pub
The key fingerprint is:
SHA256:5nSp2o4xgr97mYL8X5zxLxYXJ2+YqH/91G6y+VM7Pu8 sonuribin@sonuribin
The key's randomart image is:
+---[RSA 3072]----+
|                 |
|                 |
|                 |
|           .o .  |
|        S o. B   |
|    .    = *o + o o|
| .... oo*..o o  =|
|  o...+B. o.. oO.|
|    .=*+.oo.o. +OE|
+----[SHA256]-----+
sonuribin@sonuribin:~/Documents/my lab work$
```

1. Managing Files, Creating Users and Groups Using Command-line tools

a. Create six files with name of the form songX.mp3

b. Create six files with name of the form snapX.mp3

c. Create six files with name of the form filmX.mp3 (In each set, replace X with the numbers 1 through 6)

```
sonuribin@sonuribin:~/Documents/my lab work$ touch song1.mp3 song2.mp3 song3.mp
3 song4.mp3 song5.mp3 song6.mp3
sonuribin@sonuribin:~/Documents/my lab work$ touch snap1.jpg snap2.jpg snap3.jp
g snap4.jpg snap5.jpg snap6.jpg
sonuribin@sonuribin:~/Documents/my lab work$ touch film1.mp4 film2.mp4 film3.mp
4 film4.mp4 film5.mp4 film6.mp4
sonuribin@sonuribin:~/Documents/my lab work$ ls
film1.mp4  film4.mp4  snap1.jpg  snap4.jpg  song1.mp3  song4.mp3
film2.mp4  film5.mp4  snap2.jpg  snap5.jpg  song2.mp3  song5.mp3
film3.mp4  film6.mp4  snap3.jpg  snap6.jpg  song3.mp3  song6.mp3
sonuribin@sonuribin:~/Documents/my lab work$
```

2. From your home directory, move the song files into your music subdirectory, the snapshot files into your pictures subdirectory, and the movie files into videos subdirectory.

```
sonuribin@sonuribin:~/Documents/my lab work$ ls
film1.mp4  film4.mp4  music     snap2.jpg  snap5.jpg  song2.mp3  song5.mp3
film2.mp4  film5.mp4  pictures  snap3.jpg  snap6.jpg  song3.mp3  song6.mp3
film3.mp4  film6.mp4  snap1.jpg  snap4.jpg  song1.mp3  song4.mp3  videos
sonuribin@sonuribin:~/Documents/my lab work$ mv *.mp3 ./music/
sonuribin@sonuribin:~/Documents/my lab work$ mv *.jpg ./pictures/
sonuribin@sonuribin:~/Documents/my lab work$ mv *.mp4 ./vidoes/
mv: target './vidoes/' is not a directory
sonuribin@sonuribin:~/Documents/my lab work$ mv *.mp4 ./videos/
sonuribin@sonuribin:~/Documents/my lab work$
```

3. In your home directory, create three subdirectories for organizing your files. Call these directories friends, family, and work. Create all three with one command.

```
sonuribin@sonuribin:~/Documents/my lab work$ mkdir -p {friends,famil,work}
sonuribin@sonuribin:~/Documents/my lab work$ ls
famil  friends  music  pictures  videos  work
sonuribin@sonuribin:~/Documents/my lab work$
```

4. Copy song files to the friends folder and snap files to family folder.

```
sonuribin@sonuribin:~/Documents/assignments$ cp /home/sonuribin/documnets/assig
nments/music song1.mp3 song2.mp3 song3.mp3 song4.mp3 song5.mp3 song6.mp3 /home/
sonuribin/documents/assignments/friends/
```

```
sonuribin@sonuribin:~$ cp /home/documents/assignments/picture snap1.jpg snap2.j
pg snap3.jpg snap4.jpg snap5.jpg snap6.jpg /home/documnets/assignments/famil/
```

5.Attempt to delete both family and friends projects with a single rmdir command

```
sonuribin@sonuribin:~/Documents/assignments$ rm dir{friends,famil}
```

6. Redirect a long listing of all home directory files, including hidden, into a file named allfiles.txt. Confirm that the file contains the listing.

```
sonuribin@sonuribin:~/Documents/assignments$ ls -a > allfiles.txt
sonuribin@sonuribin:~/Documents/assignments$ ls
allfiles.txt  music  pictures  videos  work
sonuribin@sonuribin:~/Documents/assignments$
```

7. In the command window, display today's date with day of the week, month, date and year

```
sonuribin@sonuribin:~/Documents/assignments$ date
Thursday 19 August 2021 01:03:38 PM IST
sonuribin@sonuribin:~/Documents/assignments$
```

8. Add the user Juliet

```
sonuribin@sonuribin:~/Desktop$ sudo useradd juliet
[sudo] password for sonuribin:
sonuribin@sonuribin:~/Desktop$
```

9. Confirm that Juliet has been added by examining the /etc/passwd file

```
sonuribin@sonuribin:~/Desktop$ sudo useradd juliet
[sudo] password for sonuribin:
sonuribin@sonuribin:~/Desktop$ cat /etc/passwd | grep juliet
juliet:x:2001:2001::/home/juliet:/bin/sh
sonuribin@sonuribin:~/Desktop$
```

10. Use the passwd command to initialize Juliet's password

```
sonuribin@sonuribin:~/Desktop$ sudo passwd juliet
[sudo] password for sonuribin:
New password:
Retype new password:
passwd: password updated successfully
sonuribin@sonuribin:~/Desktop$
```

11. Create a supplementary group called Shakespeare with a group id of 300

```
sonuribin@sonuribin:~/Documents/my lab work$ sudo groupadd -g 30000 mohanlal
[sudo] password for sonuribin:
sonuribin@sonuribin:~/Documents/my lab work$
```

12. Create a supplementary group called artists.

```
sonuribin@sonuribin:~/Desktop$ sudo groupadd artist
```

13. Add the Juliet user to the Shakespeare group as a supplementary group.

```
sonuribin@sonuribin:~/Desktop$ sudo groupmod -g shakespeare juliet
```

14. Confirm that Juliet has been added using the id command.

```
sonuribin@sonuribin:~/Desktop$ id juliet uid=1001(juliet) gid=1001(juliet) grou
ps=1001(juliet),3000shakespeare
```

15. Add Romeo and Hamlet to the Shakespeare group.

```
sonuribin@sonuribin:~/Desktop$ sudo useradd romeo
[sudo] password for sonuribin:
sonuribin@sonuribin:~/Desktop$ sudo useradd hamlet
sonuribin@sonuribin:~/Desktop$ sudo usermod -g shakespeare romeo
sonuribin@sonuribin:~/Desktop$ sudo usermod -g shakespeare hamlet
sonuribin@sonuribin:~/Desktop$
```

16. Add Reba, Dolly and Elvis to the artists group.

```
sonuribin@sonuribin:~/Desktop$ sudo useradd reba
[sudo] password for sonuribin:
sonuribin@sonuribin:~/Desktop$ sudo useradd dolly
sonuribin@sonuribin:~/Desktop$ sudo useradd elvis
```

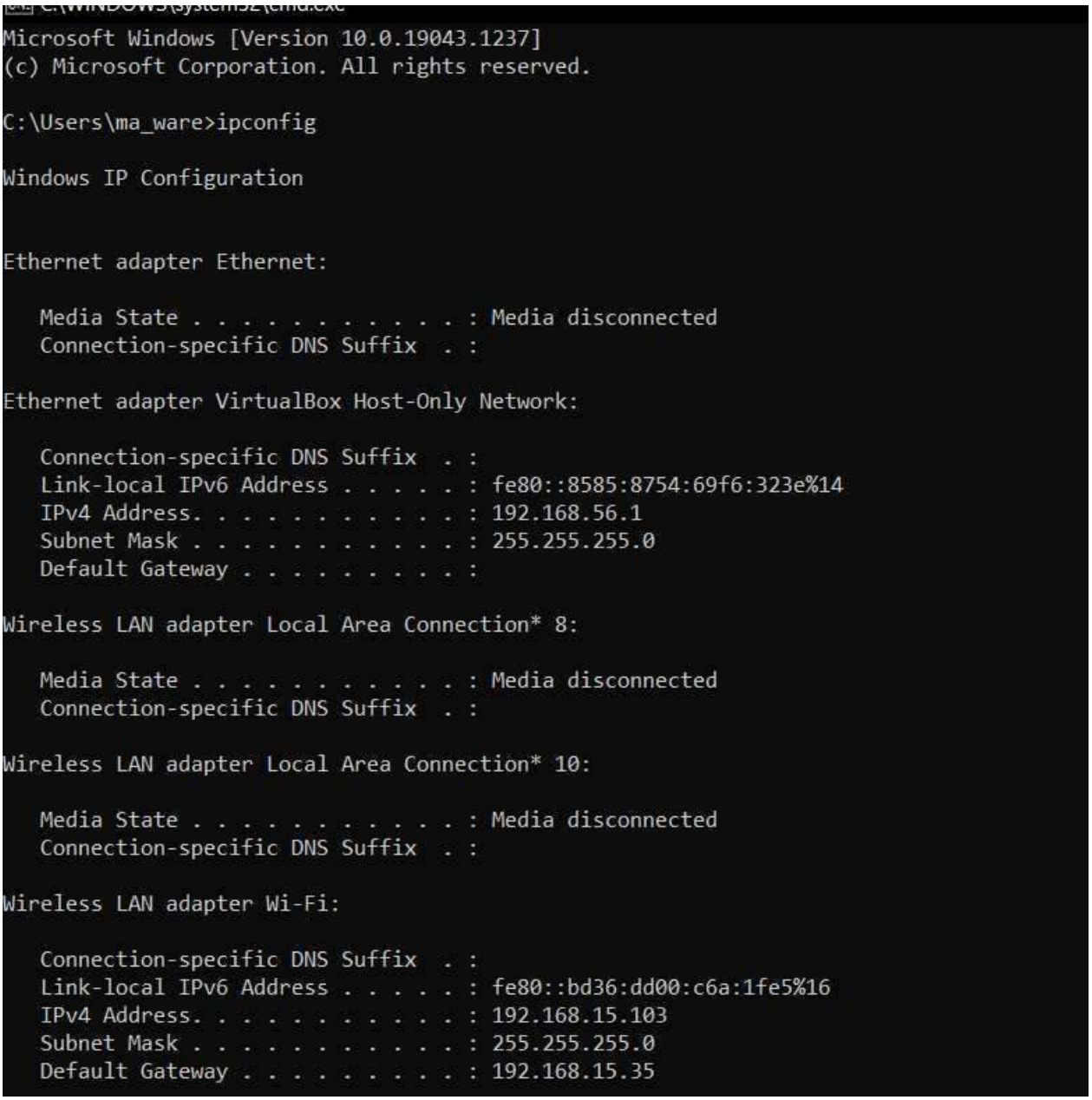
```
sonuribin@sonuribin:~/Desktop$ sudo usermod -g artist reba
sonuribin@sonuribin:~/Desktop$ sudo usermod -g artist dolly
sonuribin@sonuribin:~/Desktop$ sudo usermod -g artist elvis
sonuribin@sonuribin:~/Desktop$
```

17. Attempt to remove user Dolly

```
sonuribin@sonuribin:~/Desktop$ sudo userdel dolly
[sudo] password for sonuribin:
userdel: group dolly not removed because it is not the primary group of user do
lly.
sonuribin@sonuribin:~/Desktop$
```

```
> arp -a                                              .... Displays the

C:\Users\ma_ware>ARP -a

Interface: 192.168.56.1 --- 0xe
  Internet Address      Physical Address      Type
  192.168.56.255        ff-ff-ff-ff-ff-ff     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.251           01-00-5e-00-00-fb     static
  224.0.0.252           01-00-5e-00-00-fc     static
  239.255.255.250       01-00-5e-7f-ff-fa     static
  255.255.255.255       ff-ff-ff-ff-ff-ff     static

Interface: 192.168.15.103 --- 0x10
  Internet Address      Physical Address      Type
  192.168.15.35         02-78-c7-7a-1c-31     dynamic
  192.168.15.255        ff-ff-ff-ff-ff-ff     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.251           01-00-5e-00-00-fb     static
  224.0.0.252           01-00-5e-00-00-fc     static
  239.255.255.250       01-00-5e-7f-ff-fa     static
  255.255.255.255       ff-ff-ff-ff-ff-ff     static
```

```
C:\Users\ma_ware>Getmac

Physical Address    Transport Name
=================== ============================================================
0A-00-27-00-00-0E   \Device\Tcpip_{A3144AFB-707C-4696-9636-90E7A0D45A23}
D0-AB-D5-C8-FB-54   \Device\Tcpip_{D4C2A79E-545F-40AA-9AB2-FE6FE70B77B6}
80-E8-2C-C6-9E-B7   Media disconnected

C:\Users\ma_ware>
```


C:\WINDOWS\system32\cmd.exe
Microsoft Windows [Version 10.0.19043.1237]
(c) Microsoft Corporation. All rights reserved.
C:\Users\ma_ware>ipconfig
Windows IP Configuration
Ethernet adapter Ethernet:
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :
Ethernet adapter VirtualBox Host-Only Network:
Connection-specific DNS Suffix . :
Link-local IPv6 Address . . . . . : fe80::8585:8754:69f6:323e%14
IPv4 Address. . . . . : 192.168.56.1
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . :
Wireless LAN adapter Local Area Connection* 8:
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :
Wireless LAN adapter Local Area Connection* 10:
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :
Wireless LAN adapter Wi-Fi:
Connection-specific DNS Suffix . :
Link-local IPv6 Address . . . . . : fe80::bd36:dd00:c6a:1fe5%16
IPv4 Address. . . . . : 192.168.15.103
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.15.35

```
C:\Users\ma_ware>Nbtstat

Displays protocol statistics and current TCP/IP connections using NBT
(NetBIOS over TCP/IP).

NBTSTAT [ [-a RemoteName] [-A IP address] [-c] [-n]
        [-r] [-R] [-RR] [-s] [-S] [interval] ]

  -a   (adapter status) Lists the remote machine's name table given its name
  -A   (Adapter status) Lists the remote machine's name table given its
                        IP address.
  -c   (cache)          Lists NBT's cache of remote [machine] names and their IP addr
  -n   (names)          Lists local NetBIOS names.
  -r   (resolved)       Lists names resolved by broadcast and via WINS
  -R   (Reload)         Purges and reloads the remote cache name table
  -S   (Sessions)       Lists sessions table with the destination IP addresses
  -s   (sessions)       Lists sessions table converting destination IP
                        addresses to computer NETBIOS names.
  -RR  (ReleaseRefresh) Sends Name Release packets to WINS and then, starts Refresh

  RemoteName   Remote host machine name.
  IP address   Dotted decimal representation of the IP address.
  interval     Redisplays selected statistics, pausing interval seconds
               between each display. Press Ctrl+C to stop redisplaying
               statistics.
```

```
^C
C:\Users\ma_ware>netstat -a

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    0.0.0.0:135            MalWaRE:0              LISTENING
  TCP    0.0.0.0:445            MalWaRE:0              LISTENING
  TCP    0.0.0.0:1043           MalWaRE:0              LISTENING
  TCP    0.0.0.0:5040           MalWaRE:0              LISTENING
  TCP    0.0.0.0:8733           MalWaRE:0              LISTENING
  TCP    0.0.0.0:27036          MalWaRE:0              LISTENING
  TCP    0.0.0.0:30622          MalWaRE:0              LISTENING
  TCP    0.0.0.0:49664          MalWaRE:0              LISTENING
  TCP    0.0.0.0:49665          MalWaRE:0              LISTENING
  TCP    0.0.0.0:49666          MalWaRE:0              LISTENING
  TCP    0.0.0.0:49667          MalWaRE:0              LISTENING
  TCP    0.0.0.0:49668          MalWaRE:0              LISTENING
  TCP    127.0.0.1:2952         MalWaRE:0              LISTENING
  TCP    127.0.0.1:3213         MalWaRE:0              LISTENING
  TCP    127.0.0.1:4887         MalWaRE:65001          ESTABLISHED
  TCP    127.0.0.1:4915         MalWaRE:0              LISTENING
  TCP    127.0.0.1:4915         MalWaRE:4939           ESTABLISHED
  TCP    127.0.0.1:4939         MalWaRE:4915           ESTABLISHED
  TCP    127.0.0.1:8564         MalWaRE:12124          ESTABLISHED
  TCP    127.0.0.1:12123        MalWaRE:0              LISTENING
  TCP    127.0.0.1:12124        MalWaRE:8564           ESTABLISHED
  TCP    127.0.0.1:27017        MalWaRE:0              LISTENING
  TCP    127.0.0.1:27060        MalWaRE:0              LISTENING
  TCP    127.0.0.1:50911        MalWaRE:0              LISTENING
  TCP    127.0.0.1:65001        MalWaRE:0              LISTENING
  TCP    127.0.0.1:65001        MalWaRE:4887           ESTABLISHED
  TCP    192.168.15.103:139     MalWaRE:0              LISTENING
  TCP    192.168.15.103:1360    a-0001:https           ESTABLISHED
```

```
C:\Users\ma_ware>netstat

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    127.0.0.1:4887         MalWaRE:65001          ESTABLISHED
  TCP    127.0.0.1:4915         MalWaRE:4939           ESTABLISHED
  TCP    127.0.0.1:4939         MalWaRE:4915           ESTABLISHED
  TCP    127.0.0.1:8564         MalWaRE:12124          ESTABLISHED
  TCP    127.0.0.1:12124        MalWaRE:8564           ESTABLISHED
  TCP    127.0.0.1:65001        MalWaRE:4887           ESTABLISHED
  TCP    192.168.15.103:2041    51.105.218.222:https   ESTABLISHED
```

```
C:\Users\ma_ware>nslookup google.com
DNS request timed out.
    timeout was 2 seconds.
Server:  UnKnown
Address:  192.168.15.35

Non-authoritative answer:
Name:    google.com
Addresses:  2404:6800:4007:80f::200e
          142.250.195.142


C:\Users\ma_ware>
```

```
C:\Users\ma_ware>

C:\Users\ma_ware>Ping /t 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:
Reply from 8.8.8.8: bytes=32 time=1525ms TTL=118
Reply from 8.8.8.8: bytes=32 time=1047ms TTL=118
Reply from 8.8.8.8: bytes=32 time=1177ms TTL=118
Reply from 8.8.8.8: bytes=32 time=1265ms TTL=118
Reply from 8.8.8.8: bytes=32 time=1183ms TTL=118
Reply from 8.8.8.8: bytes=32 time=1273ms TTL=118
```

```
C:\Users\ma_ware>route -cn

Manipulates network routing tables.

ROUTE [-f] [-p] [-4|-6] command [destination]
                  [MASK netmask]  [gateway] [METRIC metric]  [IF interface]

  -f           Clears the routing tables of all gateway entries.  If this is
               used in conjunction with one of the commands, the tables are
               cleared prior to running the command.

  -p           When used with the ADD command, makes a route persistent across
               boots of the system. By default, routes are not preserved
               when the system is restarted. Ignored for all other commands,
               which always affect the appropriate persistent routes.

  -4           Force using IPv4.

  -6           Force using IPv6.

  command      One of these:
                 PRINT     Prints  a route
                 ADD       Adds    a route
                 DELETE    Deletes a route
                 CHANGE    Modifies an existing route
  destination  Specifies the host.
  MASK         Specifies that the next parameter is the 'netmask' value.
  netmask      Specifies a subnet mask value for this route entry.
               If not specified, it defaults to 255.255.255.255.
  gateway      Specifies gateway.
  interface    the interface number for the specified route.
  METRIC       specifies the metric, ie. cost for the destination.

All symbolic names used for destination are looked up in the network database
file NETWORKS. The symbolic names for gateway are looked up in the host name
database file HOSTS.
```

```
C:\Users\ma_ware>route -n

Manipulates network routing tables.

ROUTE [-f] [-p] [-4|-6] command [destination]
                  [MASK netmask]  [gateway] [METRIC metric]  [IF interface]

  -f           Clears the routing tables of all gateway entries.  If this is
               used in conjunction with one of the commands, the tables are
               cleared prior to running the command.

  -p           When used with the ADD command, makes a route persistent across
               boots of the system. By default, routes are not preserved
               when the system is restarted. Ignored for all other commands,
               which always affect the appropriate persistent routes.

  -4           Force using IPv4.

  -6           Force using IPv6.

  command      One of these:
                 PRINT     Prints  a route
                 ADD       Adds    a route
                 DELETE    Deletes a route
                 CHANGE    Modifies an existing route
  destination  Specifies the host.
  MASK         Specifies that the next parameter is the 'netmask' value.
  netmask      Specifies a subnet mask value for this route entry.
               If not specified, it defaults to 255.255.255.255.
  gateway      Specifies gateway.
  interface    the interface number for the specified route.
  METRIC       specifies the metric, ie. cost for the destination.

All symbolic names used for destination are looked up in the network database
file NETWORKS. The symbolic names for gateway are looked up in the host name
```

```
C:\Users\ma_ware>route

Manipulates network routing tables.

ROUTE [-f] [-p] [-4|-6] command [destination]
                  [MASK netmask]  [gateway] [METRIC metric]  [IF interface]

  -f           Clears the routing tables of all gateway entries.  If this is
               used in conjunction with one of the commands, the tables are
               cleared prior to running the command.

  -p           When used with the ADD command, makes a route persistent across
               boots of the system. By default, routes are not preserved
               when the system is restarted. Ignored for all other commands,
               which always affect the appropriate persistent routes.

  -4           Force using IPv4.

  -6           Force using IPv6.

  command      One of these:
                 PRINT     Prints  a route
                 ADD       Adds    a route
                 DELETE    Deletes a route
                 CHANGE    Modifies an existing route
  destination  Specifies the host.
  MASK         Specifies that the next parameter is the 'netmask' value.
  netmask      Specifies a subnet mask value for this route entry.
               If not specified, it defaults to 255.255.255.255.
  gateway      Specifies gateway.
  interface    the interface number for the specified route.
  METRIC       specifies the metric, ie. cost for the destination.

All symbolic names used for destination are looked up in the network database
file NETWORKS. The symbolic names for gateway are looked up in the host name
database file HOSTS.

If the command is PRINT or DELETE. Destination or gateway can be a wildcard,
(wildcard is specified as a star '*'), or the gateway argument may be omitted.

If Dest contains a * or ?, it is treated as a shell pattern, and only
matching destination routes are printed. The '*' matches any string,
and '?' matches any one char. Examples: 157.*.1, 157.*, 127.*, *224*.

Pattern match is only allowed in PRINT command.
Diagnostic Notes:
    Invalid MASK generates an error, that is when (DEST & MASK) != DEST.
    Example> route ADD 157.0.0.0 MASK 155.0.0.0 157.55.80.1 IF 1
             The route addition failed: The specified mask parameter is invalid. (Destination & Mask) != Destination.
```

```
C:\Users\ma_ware>systeminfo

Host Name:                 MALWARE
OS Name:                   Microsoft Windows 10 Pro for Workstations
OS Version:                10.0.19043 N/A Build 19043
OS Manufacturer:           Microsoft Corporation
OS Configuration:          Standalone Workstation
OS Build Type:             Multiprocessor Free
Registered Owner:          ma_ware
Registered Organization:   HP
Product ID:                00391-80000-00001-AA996
Original Install Date:     12-12-2020, 08:23:05 PM
System Boot Time:          27-09-2021, 09:11:15 AM
System Manufacturer:       HP
System Model:              HP Pavilion Gaming Laptop 15-dk0xxx
System Type:               x64-based PC
Processor(s):              1 Processor(s) Installed.
                           [01]: Intel64 Family 6 Model 158 Stepping 10 GenuineIntel ~2400
BIOS Version:              Insyde F.20, 22-11-2019
Windows Directory:         C:\WINDOWS
System Directory:          C:\WINDOWS\system32
Boot Device:               \Device\HarddiskVolume4
System Locale:             en-us;English (United States)
Input Locale:              00004009
Time Zone:                 (UTC+05:30) Chennai, Kolkata, Mumbai, New Delhi
Total Physical Memory:     8,033 MB
Available Physical Memory: 3,033 MB
Virtual Memory: Max Size:  17,249 MB
Virtual Memory: Available: 9,279 MB
Virtual Memory: In Use:    7,970 MB
Page File Location(s):     C:\pagefile.sys
Domain:                    WORKGROUP
```

```
C:\Users\ma_ware>tracert -d
A target name or address must be specified.

Usage: tracert [-d] [-h maximum_hops] [-j host-list] [-w timeout]
               [-R] [-S srcaddr] [-4] [-6] target_name

Options:
    -d                 Do not resolve addresses to hostnames.
    -h maximum_hops    Maximum number of hops to search for target.
    -j host-list       Loose source route along host-list (IPv4-only).
    -w timeout         Wait timeout milliseconds for each reply.
    -R                 Trace round-trip path (IPv6-only).
    -S srcaddr         Source address to use (IPv6-only).
    -4                 Force using IPv4.
    -6                 Force using IPv6.

C:\Users\ma_ware>
```

```
C:\Users\ma_ware>tracert -j
A target name or address must be specified.

Usage: tracert [-d] [-h maximum_hops] [-j host-list] [-w timeout]
               [-R] [-S srcaddr] [-4] [-6] target_name

Options:
    -d                 Do not resolve addresses to hostnames.
    -h maximum_hops    Maximum number of hops to search for target.
    -j host-list       Loose source route along host-list (IPv4-only).
    -w timeout         Wait timeout milliseconds for each reply.
    -R                 Trace round-trip path (IPv6-only).
    -S srcaddr         Source address to use (IPv6-only).
    -4                 Force using IPv4.
    -6                 Force using IPv6.

C:\Users\ma_ware>
```

```
C:\Users\ma_ware>tracert -s
-s is not a valid command option.

Usage: tracert [-d] [-h maximum_hops] [-j host-list] [-w timeout]
               [-R] [-S srcaddr] [-4] [-6] target_name

Options:
    -d                 Do not resolve addresses to hostnames.
    -h maximum_hops    Maximum number of hops to search for target.
    -j host-list       Loose source route along host-list (IPv4-only).
    -w timeout         Wait timeout milliseconds for each reply.
    -R                 Trace round-trip path (IPv6-only).
    -S srcaddr         Source address to use (IPv6-only).
    -4                 Force using IPv4.
    -6                 Force using IPv6.

C:\Users\ma_ware>
```

```
C:\Users\ma_ware>tracert

Usage: tracert [-d] [-h maximum_hops] [-j host-list] [-w timeout]
               [-R] [-S srcaddr] [-4] [-6] target_name

Options:
    -d                 Do not resolve addresses to hostnames.
    -h maximum_hops    Maximum number of hops to search for target.
    -j host-list       Loose source route along host-list (IPv4-only).
    -w timeout         Wait timeout milliseconds for each reply.
    -R                 Trace round-trip path (IPv6-only).
    -S srcaddr         Source address to use (IPv6-only).
    -4                 Force using IPv4.
    -6                 Force using IPv6.

C:\Users\ma_ware>
```

Sudo apt update

```
File  Actions  Edit  View  Help

┌──(raman㉿kali)-[~]
└─$ sudo apt update
[sudo] password for raman:
Ign:1 http://repo.mongodb.org/apt/debian buster/mongodb-org/5.0 InRelease
Hit:2 http://repo.mongodb.org/apt/debian buster/mongodb-org/5.0 Release
Get:3 http://ftp.harukasan.org/kali kali-rolling InRelease [30.5 kB]
Get:5 http://ftp.harukasan.org/kali kali-rolling/main amd64 Packages [17.9 MB]
Get:6 http://ftp.harukasan.org/kali kali-rolling/contrib amd64 Packages [108 kB]
Get:7 http://ftp.harukasan.org/kali kali-rolling/non-free amd64 Packages [209 kB]
Fetched 18.3 MB in 1min 46s (173 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
1486 packages can be upgraded. Run 'apt list --upgradable' to see them.
```

sudo apt install apache2

```
┌──(raman㉿kali)-[~]
└─$ sudo apt install apache2
Reading package lists... Done
Building dependency tree
Reading state information... Done
apache2 is already the newest version (2.4.48-4).
apache2 set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 1486 not upgraded.
```

sudo systemctl status apache2

```
┌──(raman㉿kali)-[~]
└─$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/lib/systemd/system/apache2.service; disabled; vendor>
     Active: active (running) since Wed 2021-09-29 09:43:05 IST; 4s ago
       Docs: https://httpd.apache.org/docs/2.4/
    Process: 1431 ExecStart=/usr/sbin/apachectl start (code=exited, status>
   Main PID: 1442 (apache2)
      Tasks: 6 (limit: 2309)
     Memory: 17.9M
     CGroup: /system.slice/apache2.service
             ├─1442 /usr/sbin/apache2 -k start
             ├─1444 /usr/sbin/apache2 -k start
             ├─1445 /usr/sbin/apache2 -k start
             ├─1446 /usr/sbin/apache2 -k start
             ├─1447 /usr/sbin/apache2 -k start
             └─1448 /usr/sbin/apache2 -k start

Sep 29 09:43:04 kali systemd[1]: Starting The Apache HTTP Server...
Sep 29 09:43:05 kali systemd[1]: Started The Apache HTTP Server.
lines 1-18/18 (END)
```

sudo apt install apache2

```
┌──(raman㉿kali)-[~]
└─$ sudo apt install apache2
Reading package lists ... Done
Building dependency tree
Reading state information ... Done
apache2 is already the newest version (2.4.48-4).
apache2 set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 1486 not upgraded.
```

```
┌──(raman㉿kali)-[~]
└─$ sudo apt install mariadb-server mariadb-client                    130 ×
Reading package lists ... Done
Building dependency tree
Reading state information ... Done
The following package was automatically installed and is no longer required
:
  libreadline5
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  default-mysql-server galera-4 mariadb-client-10.5
  mariadb-client-core-10.5 mariadb-common mariadb-server-10.5
  mariadb-server-core-10.5
Suggested packages:
  mailx mariadb-test netcat-openbsd
The following packages will be REMOVED:
  galera-3 mariadb-client-10.3 mariadb-client-core-10.3
  mariadb-server-10.3 mariadb-server-core-10.3
The following NEW packages will be installed:
  galera-4 mariadb-client mariadb-client-10.5 mariadb-client-core-10.5
  mariadb-server mariadb-server-10.5 mariadb-server-core-10.5
The following packages will be upgraded:
  default-mysql-server mariadb-common
2 upgraded, 7 newly installed, 5 to remove and 1483 not upgraded.
Need to get 14.0 MB of archives.
After this operation, 11.7 MB disk space will be freed.
Do you want to continue? [Y/n] y
Get:1 http://ftp.harukasan.org/kali kali-rolling/main amd64 mariadb-common
all 1:10.5.12-1 [36.3 kB]
Get:2 http://ftp.harukasan.org/kali kali-rolling/main amd64 default-mysql-s
erver all 1.0.7 [3,712 B]
```

```
┌──(raman㉿kali)-[~]
└─$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/lib/systemd/system/apache2.service; disabled; vendor>
     Active: active (running) since Wed 2021-09-29 09:43:05 IST; 4s ago
       Docs: https://httpd.apache.org/docs/2.4/
    Process: 1431 ExecStart=/usr/sbin/apachectl start (code=exited, status>
   Main PID: 1442 (apache2)
      Tasks: 6 (limit: 2309)
     Memory: 17.9M
     CGroup: /system.slice/apache2.service
             ├─1442 /usr/sbin/apache2 -k start
             ├─1444 /usr/sbin/apache2 -k start
             ├─1445 /usr/sbin/apache2 -k start
             ├─1446 /usr/sbin/apache2 -k start
             ├─1447 /usr/sbin/apache2 -k start
             └─1448 /usr/sbin/apache2 -k start

ep 29 09:43:04 kali systemd[1]: Starting The Apache HTTP Server ...
ep 29 09:43:05 kali systemd[1]: Started The Apache HTTP Server.
ines 1-18/18 (END)
```

```
└─$ sudo systemctl status mysql
● mariadb.service - MariaDB 10.5.12 database server
     Loaded: loaded (/lib/systemd/system/mariadb.service; disabled; vendor preset: disabled)
     Active: inactive (dead)
       Docs: man:mariadbd(8)
             https://mariadb.com/kb/en/library/systemd/
```

```
└─$ sudo apt install mariadb-server mariadb-client                    130 ×
Reading package lists ... Done
Building dependency tree
Reading state information ... Done
The following package was automatically installed and is no longer required
:
  libreadline5
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  default-mysql-server galera-4 mariadb-client-10.5
  mariadb-client-core-10.5 mariadb-common mariadb-server-10.5
  mariadb-server-core-10.5
Suggested packages:
  mailx mariadb-test netcat-openbsd
The following packages will be REMOVED:
  galera-3 mariadb-client-10.3 mariadb-client-core-10.3
  mariadb-server-10.3 mariadb-server-core-10.3
The following NEW packages will be installed:
  galera-4 mariadb-client mariadb-client-10.5 mariadb-client-core-10.5
  mariadb-server mariadb-server-10.5 mariadb-server-core-10.5
The following packages will be upgraded:
  default-mysql-server mariadb-common
```

Q. Explain the steps for the installation of ansible with your own screenshots.

Install ansible sudo apt install ansible ansible --version

```
root@LAPTOP-4DJ8AO1Q:~# sudo apt install ansible
Reading package lists... Done
Building dependency tree
Reading state information... Done
Suggested packages:
  cowsay sshpass
The following NEW packages will be installed:
  ansible
0 upgraded, 1 newly installed, 0 to remove and 55 not upgraded.
Need to get 5794 kB of archives.
After this operation, 58.0 MB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu focal/universe amd64 ansible all 2.9.6+dfsg-1 [5794 kB]
Fetched 5794 kB in 14s (404 kB/s)
Selecting previously unselected package ansible.
(Reading database ... 36333 files and directories currently installed.)
Preparing to unpack .../ansible_2.9.6+dfsg-1_all.deb ...
Unpacking ansible (2.9.6+dfsg-1) ...
Setting up ansible (2.9.6+dfsg-1) ...
Processing triggers for man-db (2.9.1-1) ...
```

```
root@LAPTOP-4DJ8AO1Q:~# ansible --version
ansible 2.9.6
  config file = /etc/ansible/ansible.cfg
  configured module search path = ['/root/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python3/dist-packages/ansible
  executable location = /usr/bin/ansible
  python version = 3.8.10 (default, Jun  2 2021, 10:49:15) [GCC 9.4.0]
root@LAPTOP-4DJ8AO1Q:~#
```

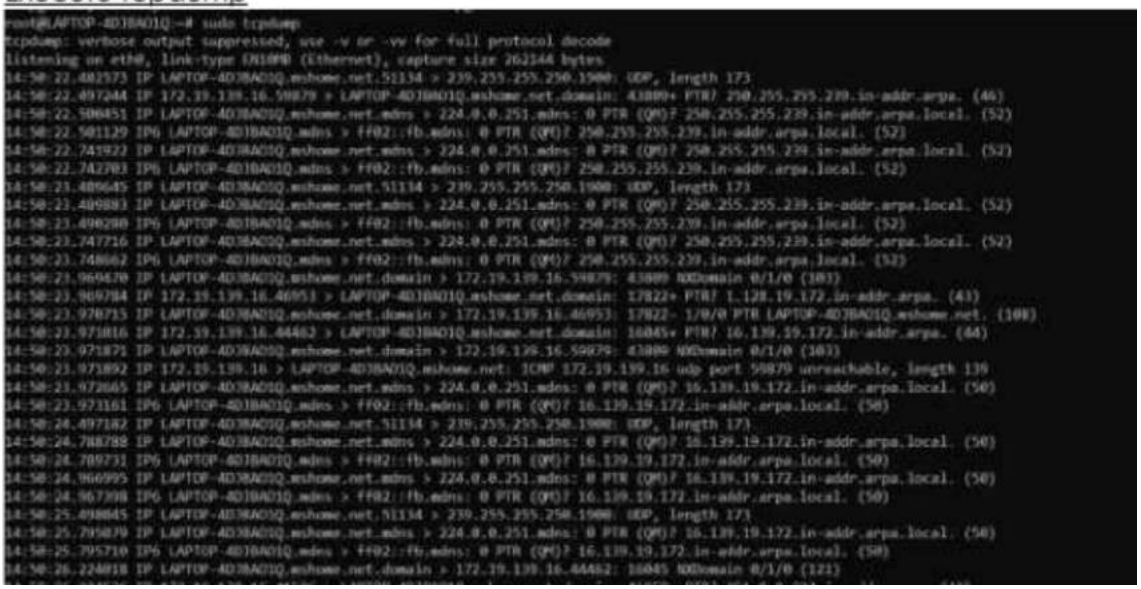
Q. Execute tcpdump and its options on your own system, and submit the output screenshot as a document.

Install tcpdump sudo apt update && sudo apt

install tcpdump

```
root@LAPTOP-4DJBAO1Q:~# sudo apt update && sudo apt install tcpdump
Get:1 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Hit:2 http://archive.ubuntu.com/ubuntu focal InRelease
Get:3 http://archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:4 http://archive.ubuntu.com/ubuntu focal-backports InRelease [101 kB]
Get:5 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [1256 kB]
Fetched 1584 kB in 7s (217 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
55 packages can be upgraded. Run 'apt list --upgradable' to see them.
Reading package lists... Done
Building dependency tree
Reading state information... Done
tcpdump is already the newest version (4.9.3-4).
0 upgraded, 0 newly installed, 0 to remove and 55 not upgraded.
```

Execute tcpdump



tcpdump –D

```
root@LAPTOP-4DJBAO1Q:~# tcpdump -D
1.eth0 [Up, Running]
2.lo [Up, Running, Loopback]
3.any (Pseudo-device that captures on all interfaces) [Up, Running]
4.bluetooth-monitor (Bluetooth Linux Monitor) [none]
5.nflog (Linux netfilter log (NFLOG) interface) [none]
6.nfqueue (Linux netfilter queue (NFQUEUE) interface) [none]
7.dummy0 [none]
8.tunl0 [none]
9.sit0 [none]
10.bond0 [none]
root@LAPTOP-4DJBAO1Q:~#
```

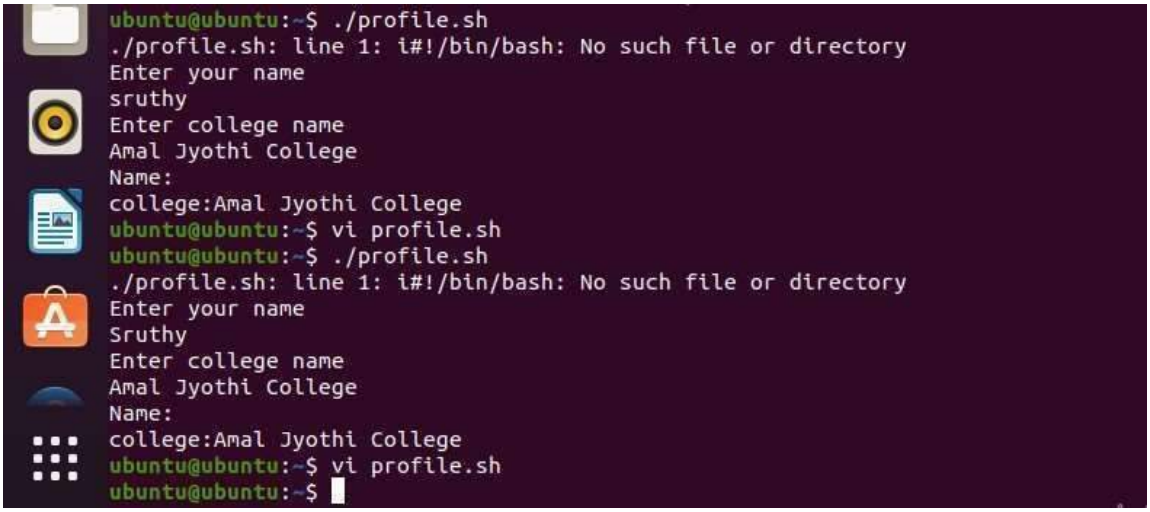
```
root@LAPTOP-4DJBAO1Q:~# tcpdump -i enp2s0
tcpdump: enp2s0: No such device exists
(SIOCGIFHWADDR: No such device)
```

tcpdump -c 5

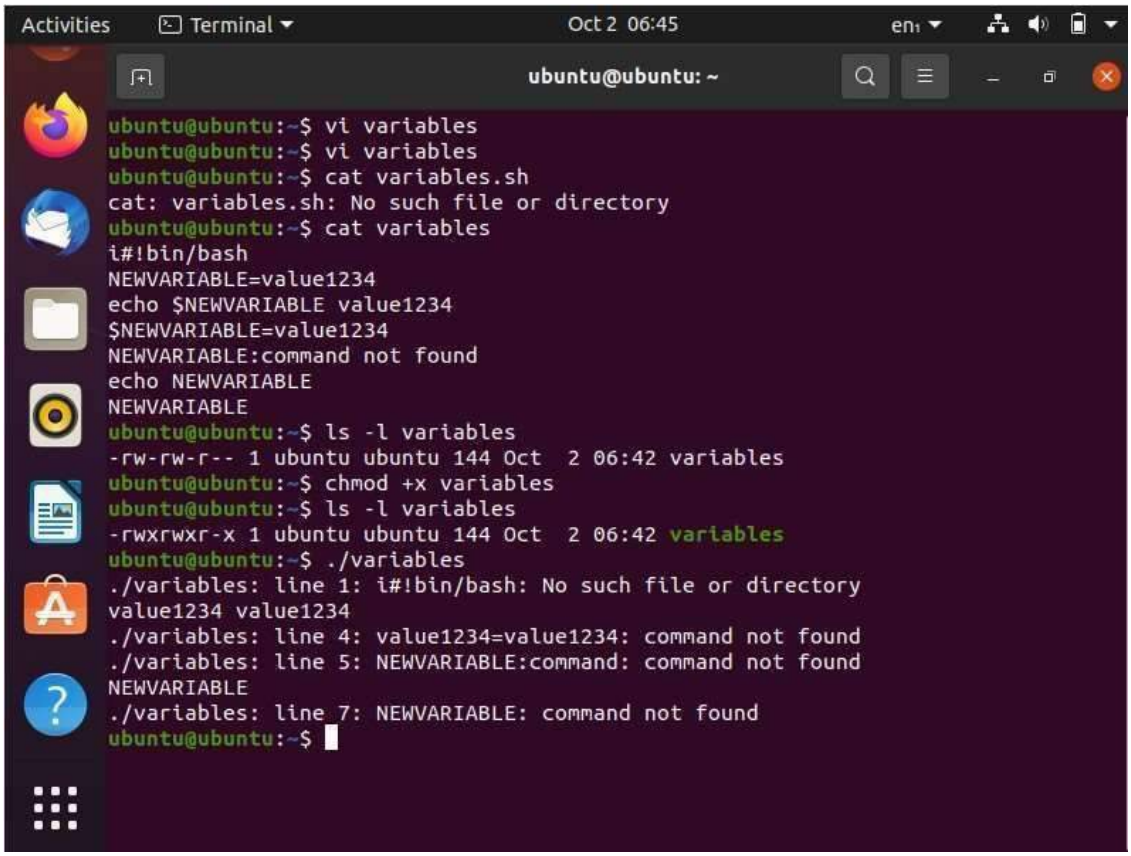
```
root@LAPTOP-4DJBAO1Q:~# tcpdump -c 5
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 262144 bytes
14:55:20.499848 IP LAPTOP-4DJBAO1Q.mshome.net.64256 > 239.255.255.250.1900: UDP, length 173
14:55:20.500513 IP 172.19.139.16.60079 > LAPTOP-4DJBAO1Q.mshome.net.domain: 4675+ PTR? 250.255.255.239.in-addr.arpa. (46)
14:55:20.503343 IP LAPTOP-4DJBAO1Q.mshome.net.mdns > 224.0.0.251.mdns: 0 PTR (QM)? 250.255.255.239.in-addr.arpa.local. (52)
14:55:20.504224 IP6 LAPTOP-4DJBAO1Q.mdns > ff02::fb.mdns: 0 PTR (QM)? 250.255.255.239.in-addr.arpa.local. (52)
14:55:20.727772 IP LAPTOP-4DJBAO1Q.mshome.net.mdns > 224.0.0.251.mdns: 0 PTR (QM)? 250.255.255.239.in-addr.arpa.local. (52)
5 packets captured
74 packets received by filter
39 packets dropped by kernel
```

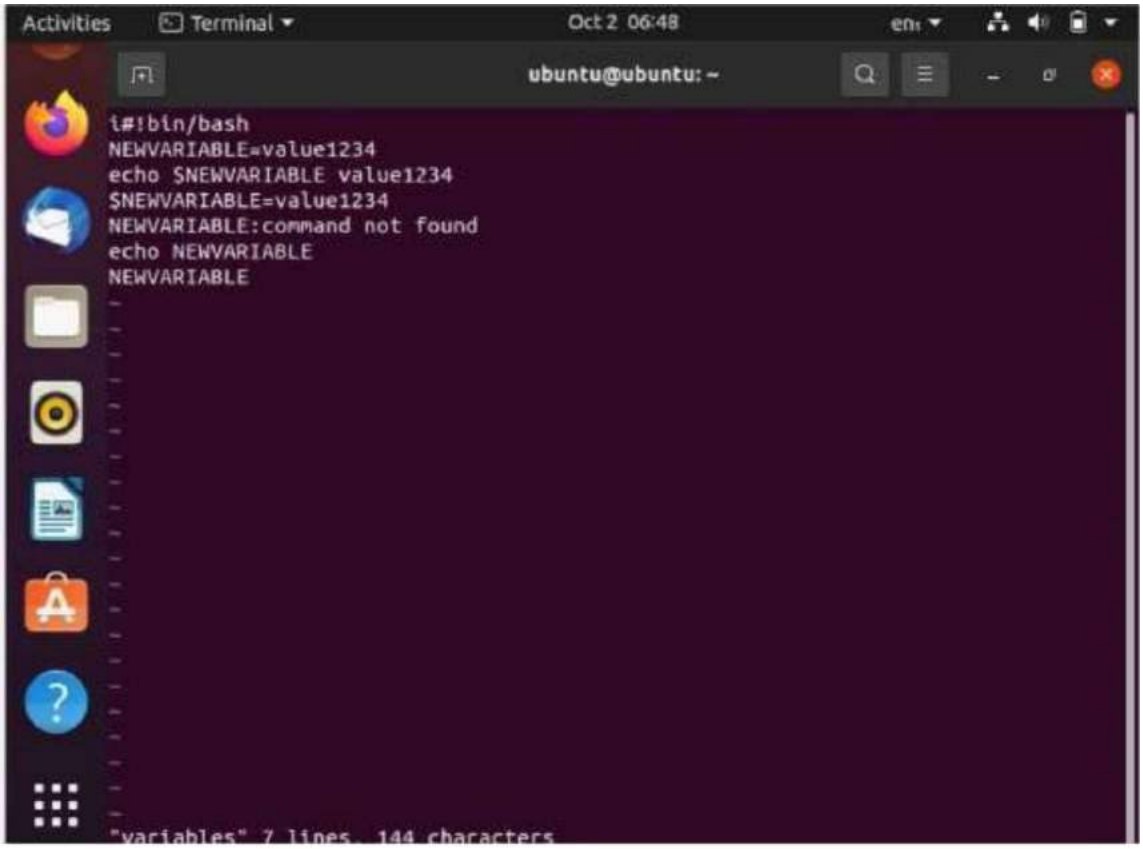
1. vi

```
user@user-VirtualBox:~/Desktop$ vi sonu.sh
user@user-VirtualBox:~/Desktop$ cat vi sonu.sh
cat: vi: No such file or directory

echo enter your name
read sonu
echo enter your college name
read amal jyothi college
echo name:$name
echo college:$amal jyothi college

user@user-VirtualBox:~/Desktop$ ls -l sonu.sh
-rw-rw-r-- 1 user user 137 Oct  2 23:00 sonu.sh
user@user-VirtualBox:~/Desktop$ chmod +x sonu.sh
user@user-VirtualBox:~/Desktop$ ls -l sonu.sh
-rwxrwxr-x 1 user user 137 Oct  2 23:00 sonu.sh
user@user-VirtualBox:~/Desktop$ ./sonu.sh
enter your name
sonu
enter your college name
amal jyothi college
name:
college:amal jyothi college
user@user-VirtualBox:~/Desktop$
```

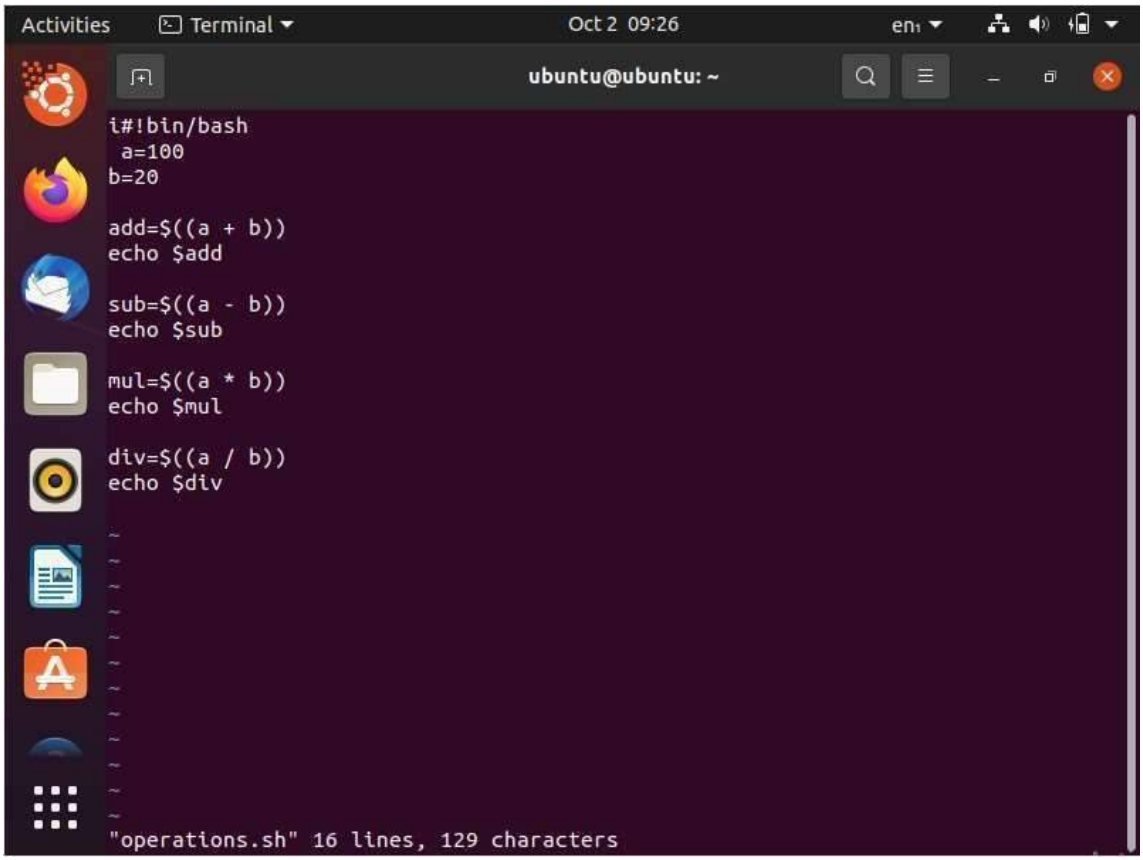


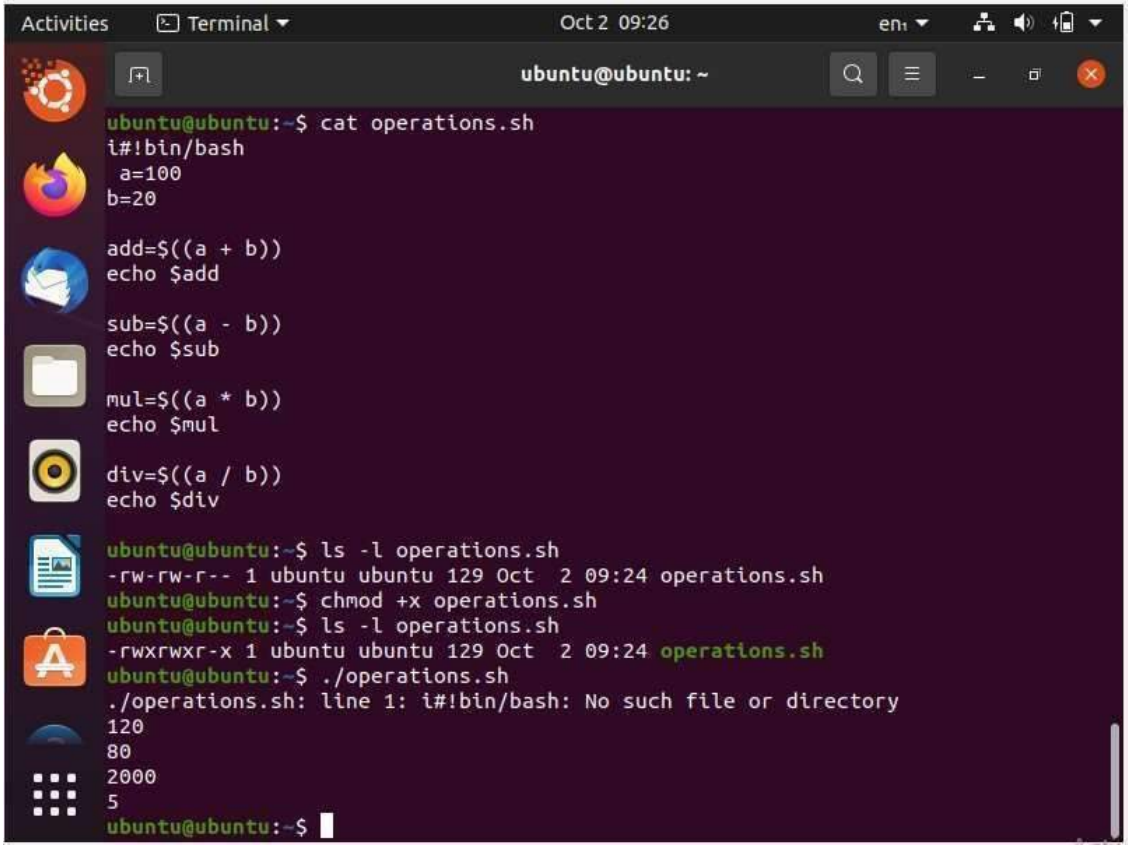
2. **Write a shell script to set a value for a variable and display it on command line interface.**



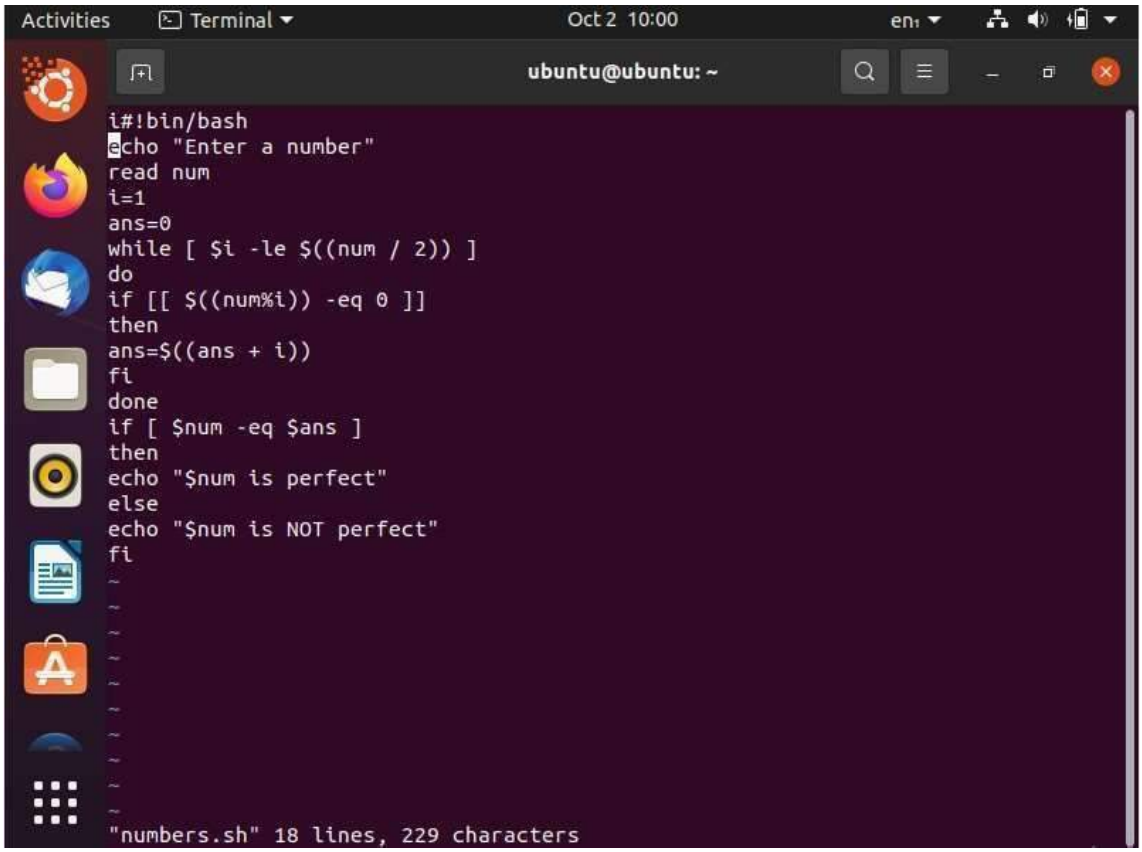


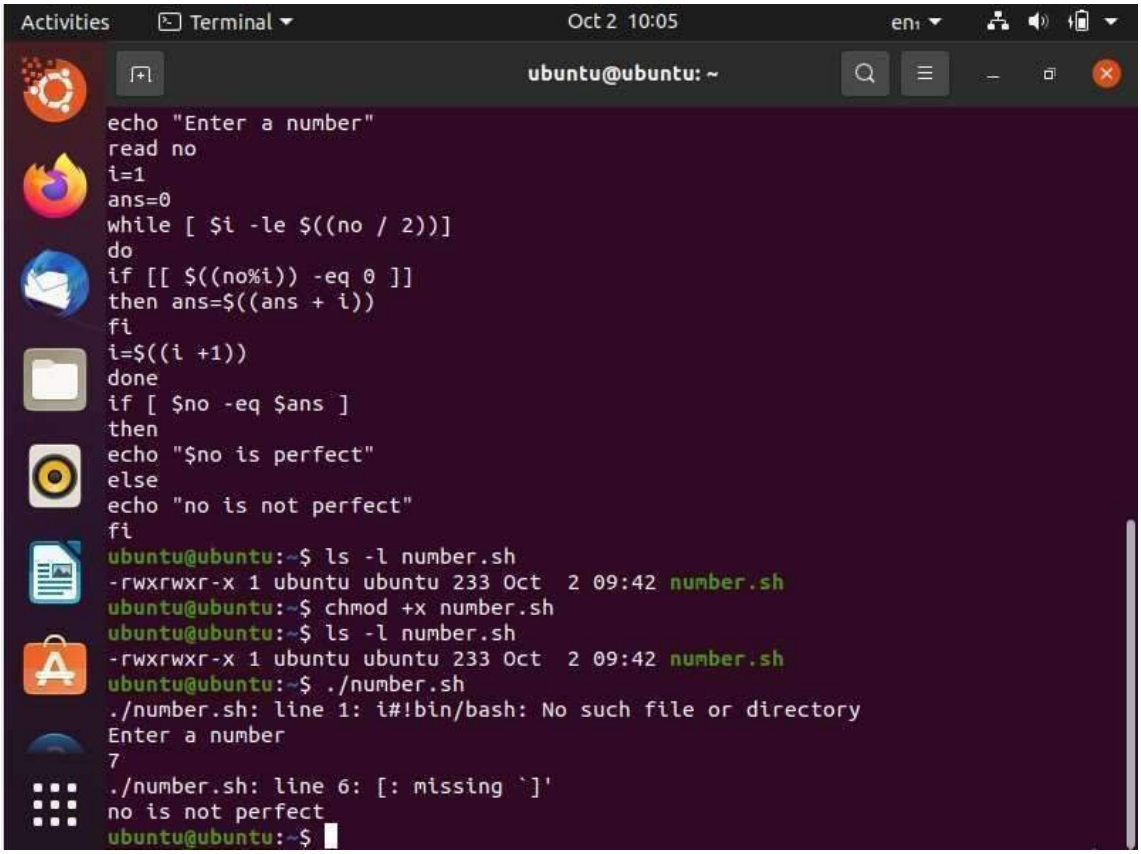
3. **Write a shell script to perform addition, substration, multiplication, division with two numbers that is accepted from user.**


Activities
Terminal
Oct 2 09:26
en
ubuntu@ubuntu: ~
i#!bin/bash
a=100
b=20
add=$((a + b))
echo $add
sub=$((a - b))
echo $sub
mul=$((a * b))
echo $mul
div=$((a / b))
echo $div
"operations.sh" 16 lines, 129 characters

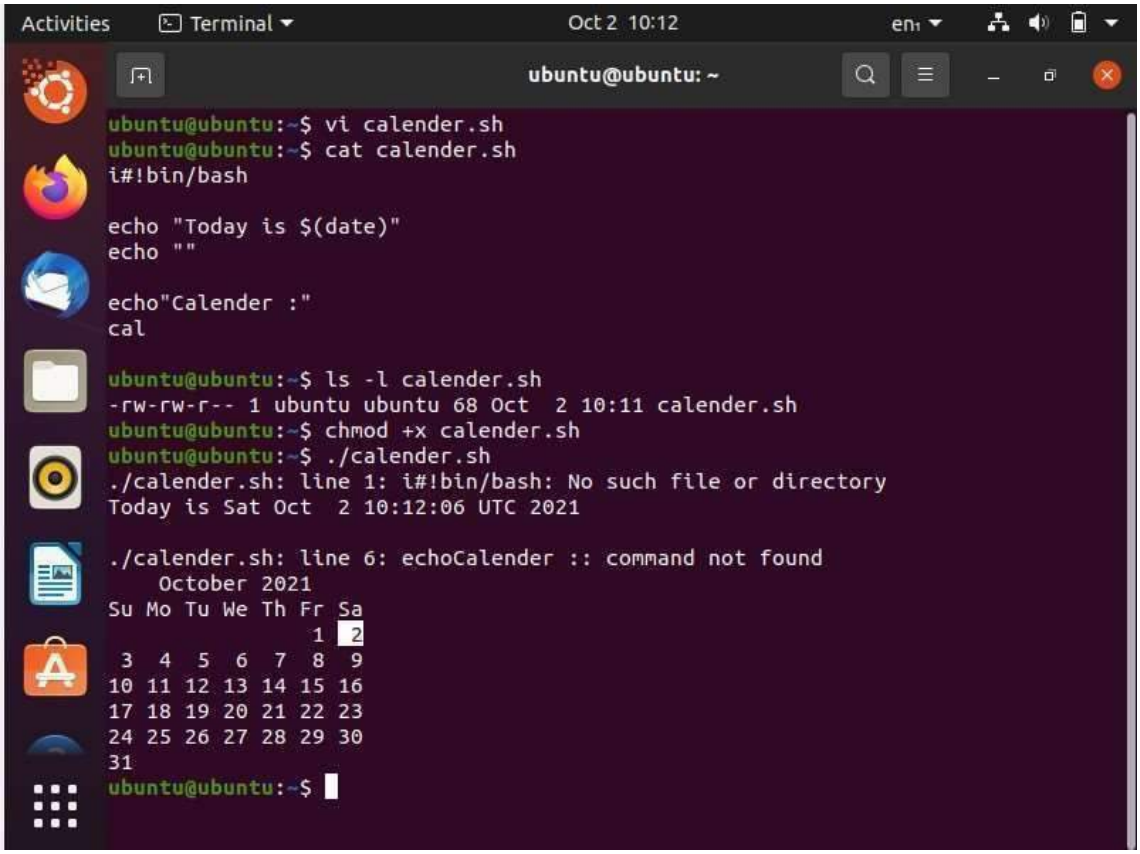

Activities
Terminal
Oct 2 09:26
en
ubuntu@ubuntu: ~
ubuntu@ubuntu:~$ cat operations.sh
i#!bin/bash
a=100
b=20
add=$((a + b))
echo $add
sub=$((a - b))
echo $sub
mul=$((a * b))
echo $mul
div=$((a / b))
echo $div
ubuntu@ubuntu:~$ ls -l operations.sh
-rw-rw-r-- 1 ubuntu ubuntu 129 Oct 2 09:24 operations.sh
ubuntu@ubuntu:~$ chmod +x operations.sh
ubuntu@ubuntu:~$ ls -l operations.sh
-rwxrwxr-x 1 ubuntu ubuntu 129 Oct 2 09:24 operations.sh
ubuntu@ubuntu:~$ ./operations.sh
./operations.sh: line 1: i#!bin/bash: No such file or directory
120
80
2000
5
ubuntu@ubuntu:~$

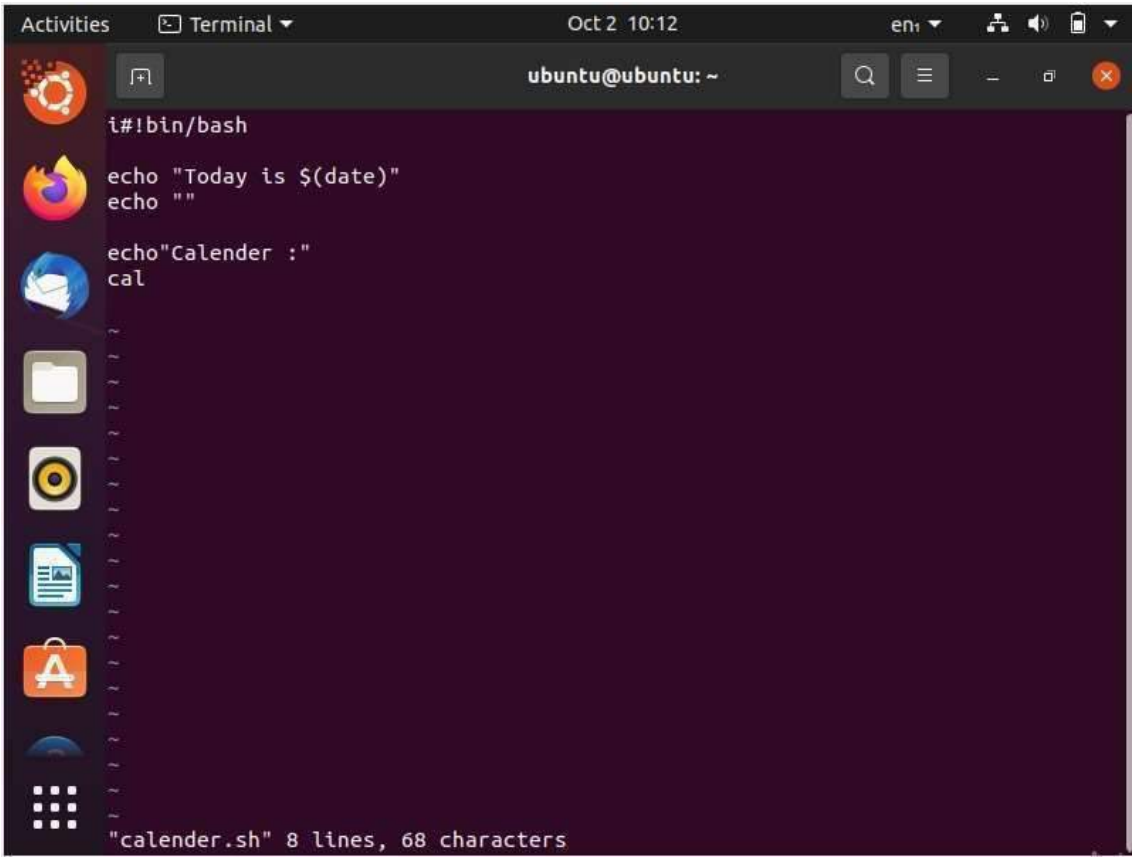
4. **Write a shell script to check the value of a given number and display whether the number is found or not.**



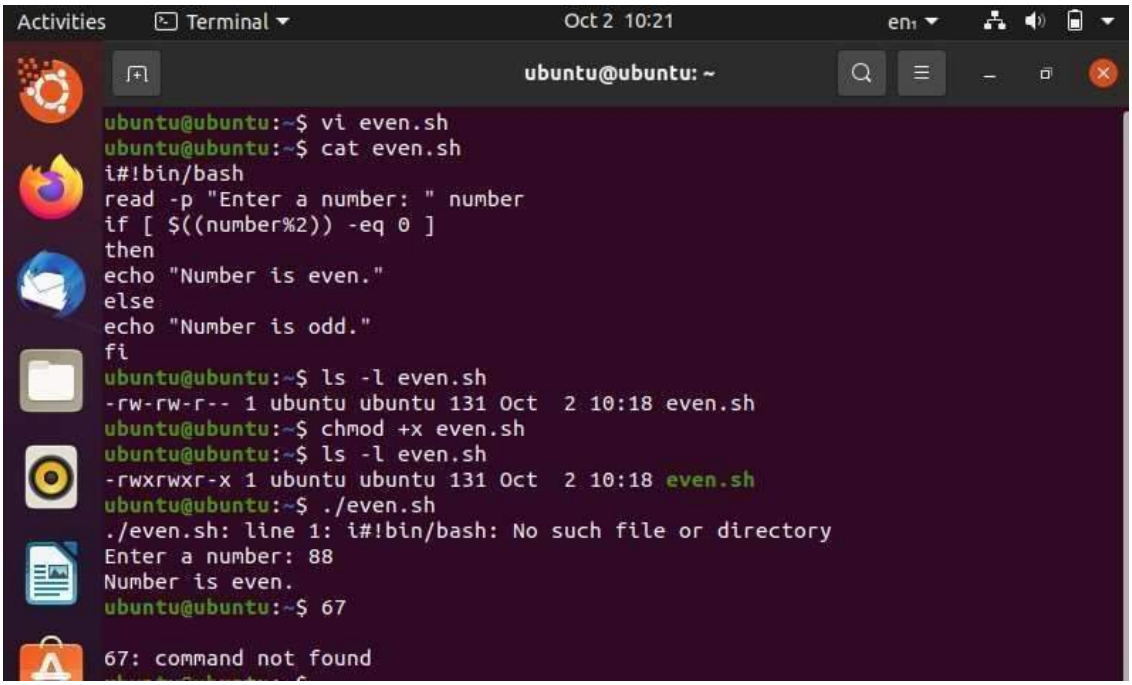

Activities
Terminal
Oct 2 10:05
en
ubuntu@ubuntu: ~
echo "Enter a number"
read no
i=1
ans=0
while [$i -le $((no / 2))]
do
if [[$((no%i)) -eq 0]]
then ans=$((ans + i))
fi
i=$((i +1))
done
if [$no -eq $ans]
then
echo "$no is perfect"
else
echo "no is not perfect"
fi
ubuntu@ubuntu:~$ ls -l number.sh
-rwxrwxr-x 1 ubuntu ubuntu 233 Oct 2 09:42 number.sh
ubuntu@ubuntu:~$ chmod +x number.sh
ubuntu@ubuntu:~$ ls -l number.sh
-rwxrwxr-x 1 ubuntu ubuntu 233 Oct 2 09:42 number.sh
ubuntu@ubuntu:~$ ./number.sh
./number.sh: line 1: i#!bin/bash: No such file or directory
Enter a number
7
./number.sh: line 6: [: missing `]'
no is not perfect
ubuntu@ubuntu:~$

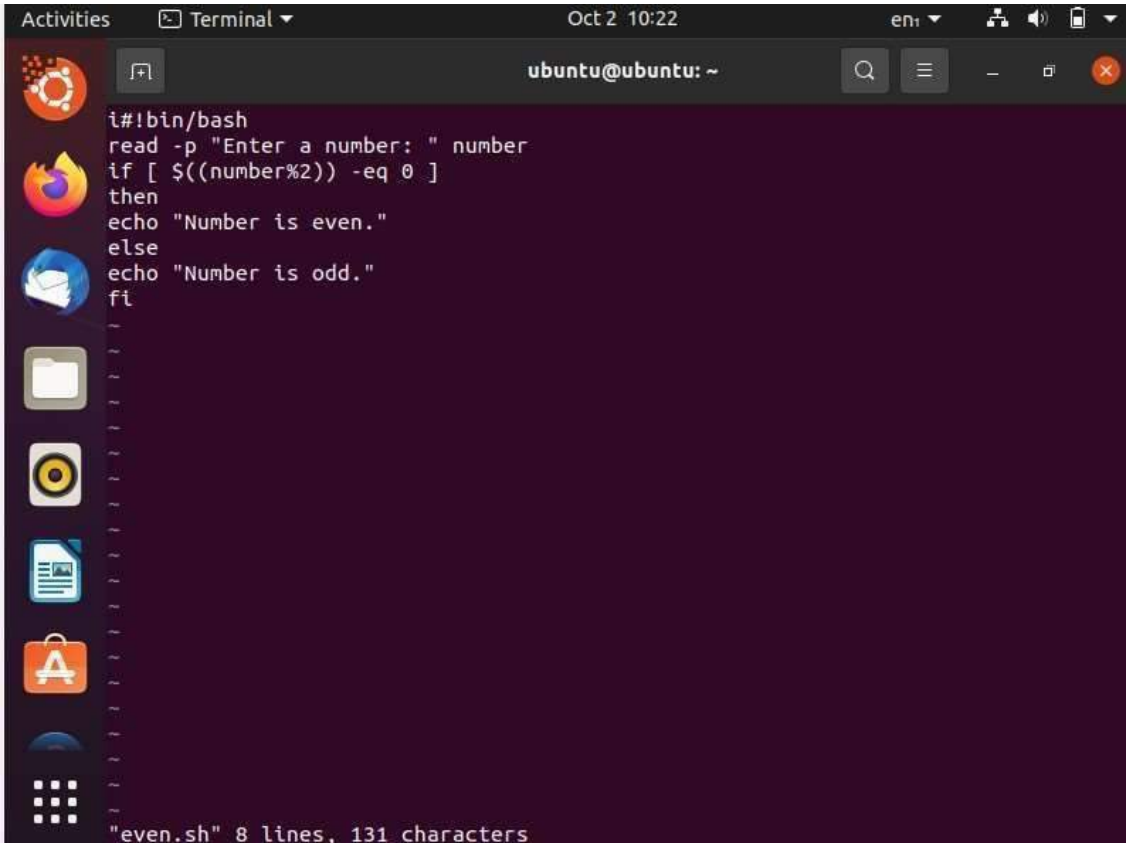
5. Write a shell script to display current date, calendar.



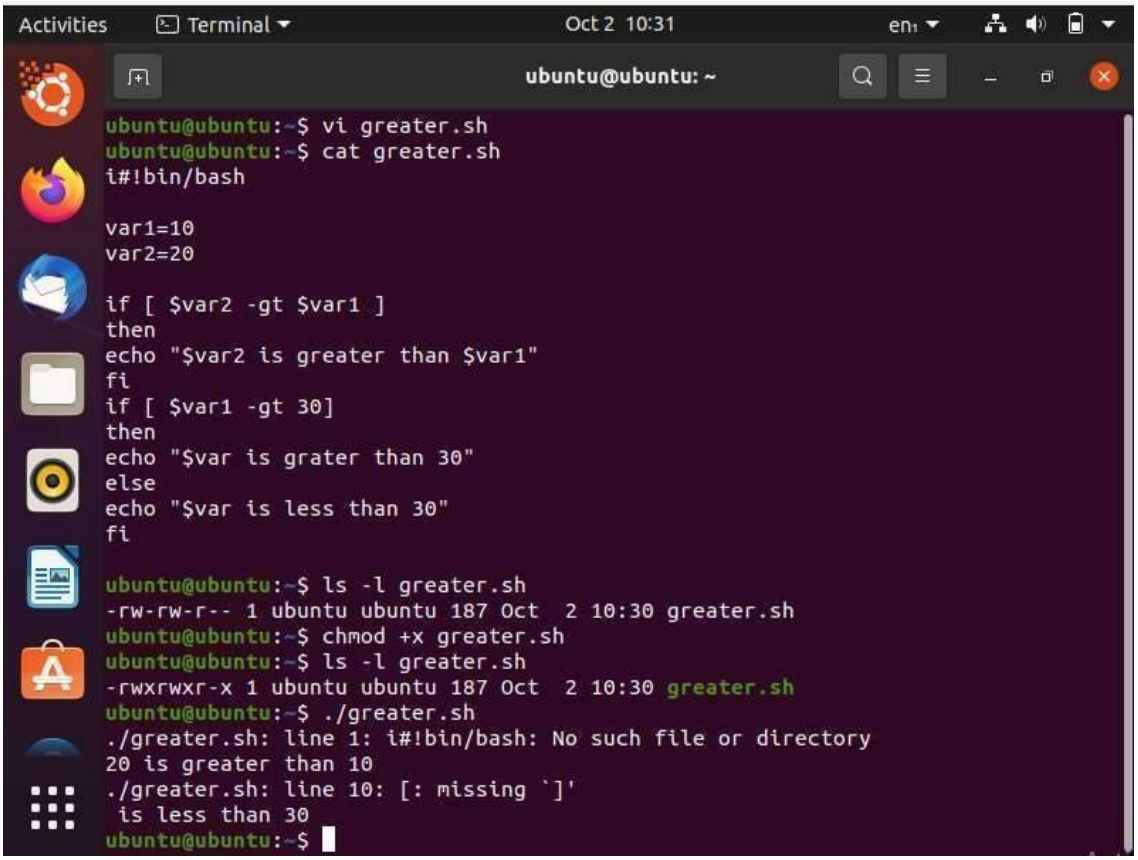


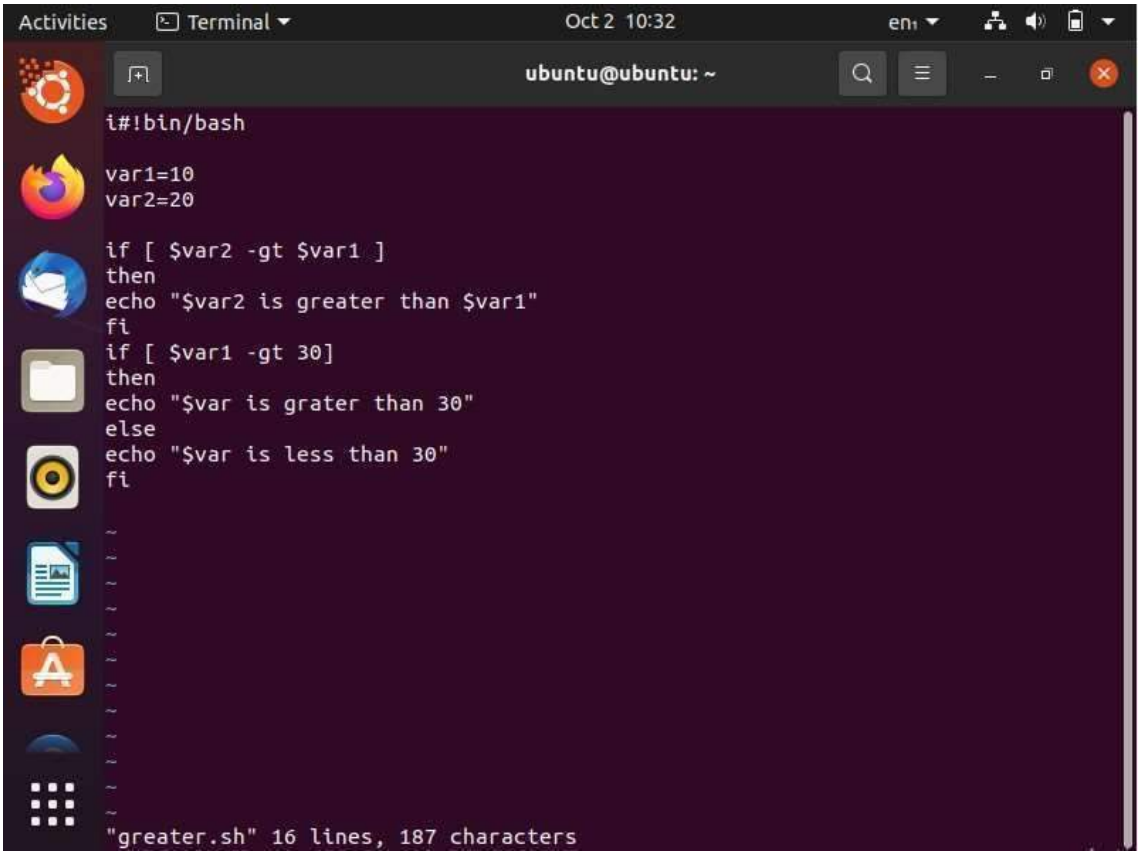
6. Write a shell script to check a number is even or odd.



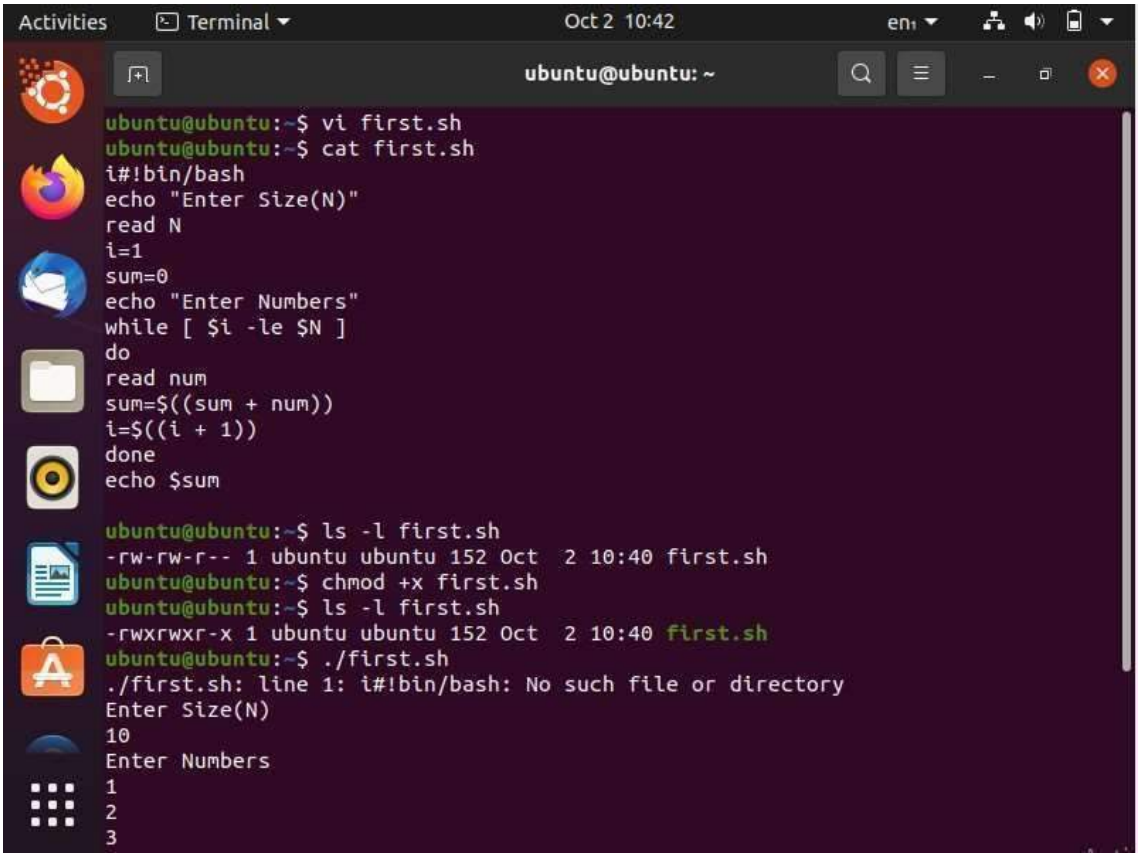

Activities
Terminal
Oct 2 10:22
en
ubuntu@ubuntu: ~
i#!bin/bash
read -p "Enter a number: " number
if [$((number%2)) -eq 0]
then
echo "Number is even."
else
echo "Number is odd."
fi
"even.sh" 8 lines, 131 characters

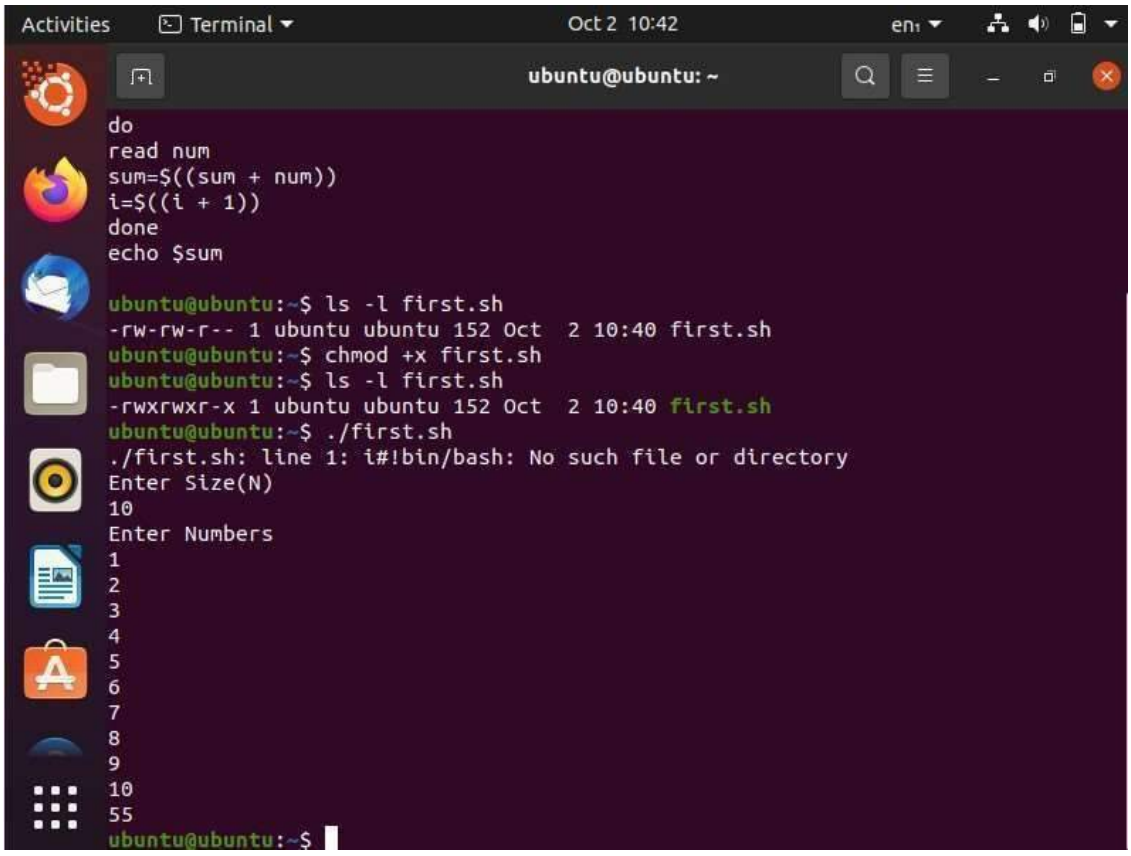
7. **Write a shell script to check a number is greater than, less than or equal to another number.**

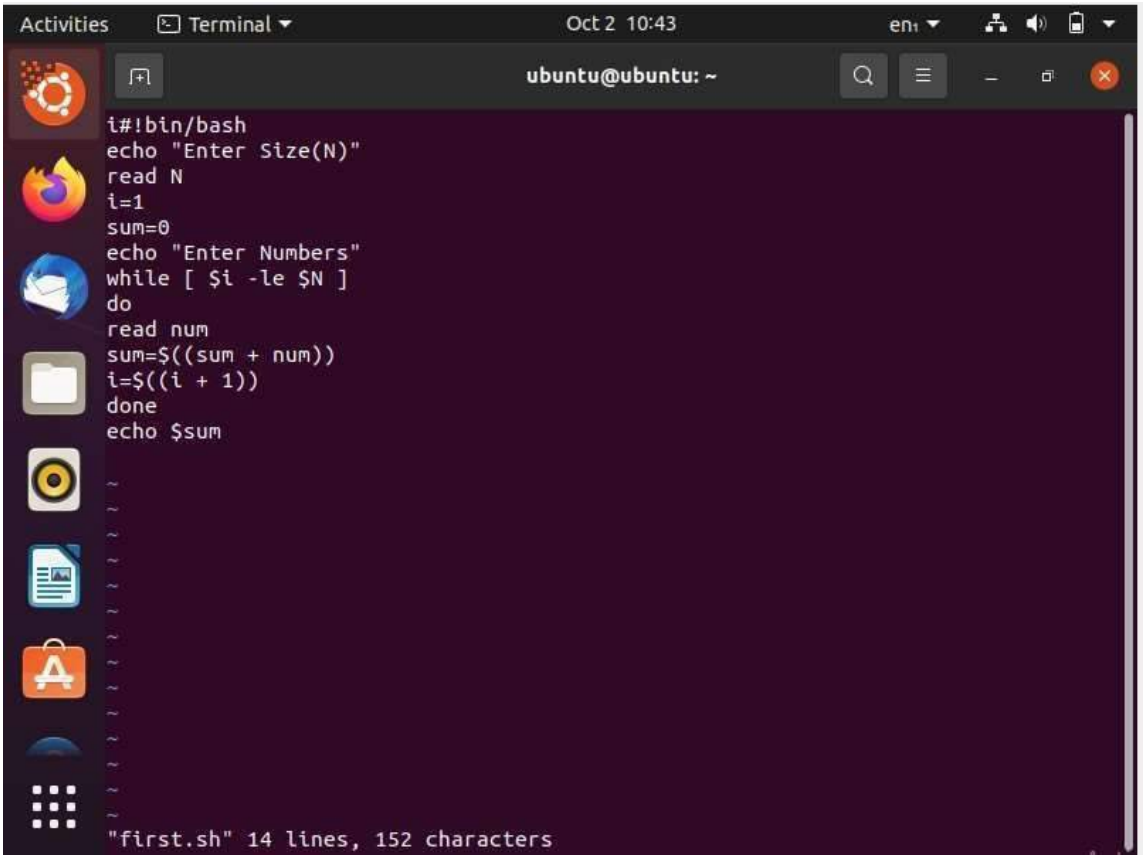




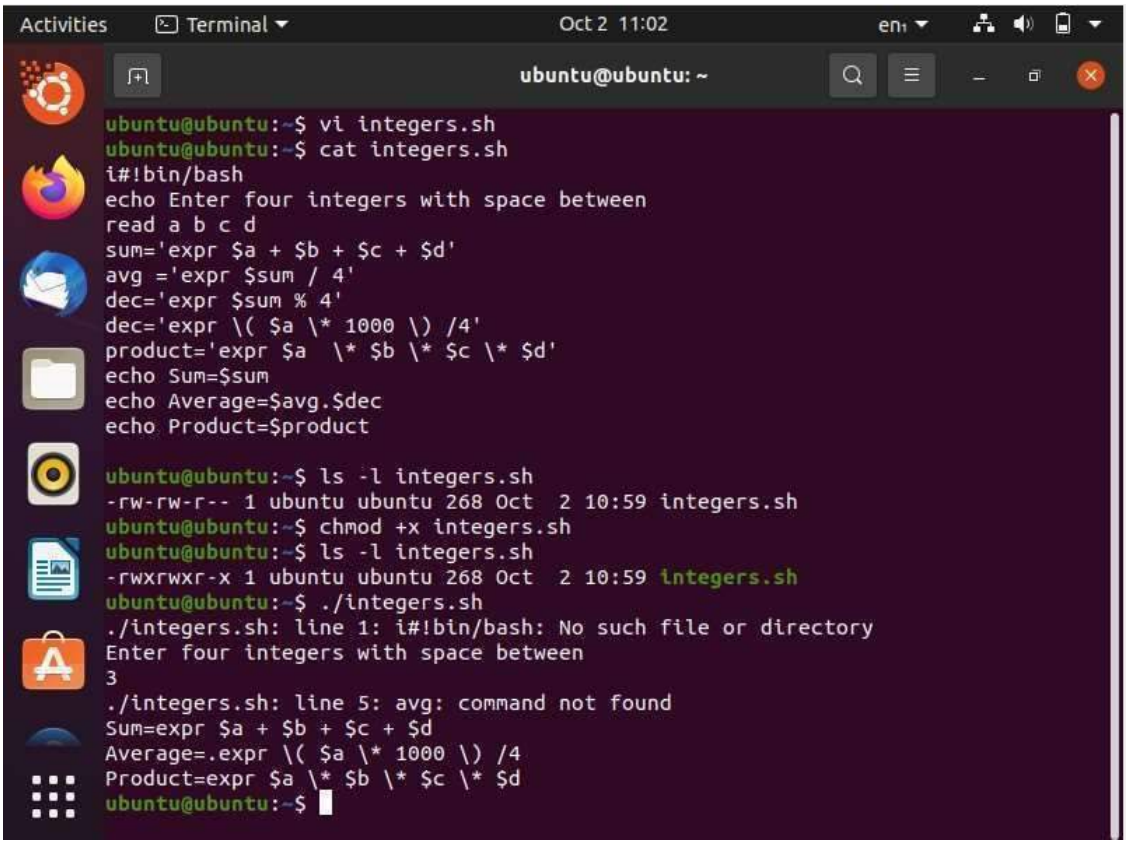
8. Write a shell script to find sum of first 10 numbers.

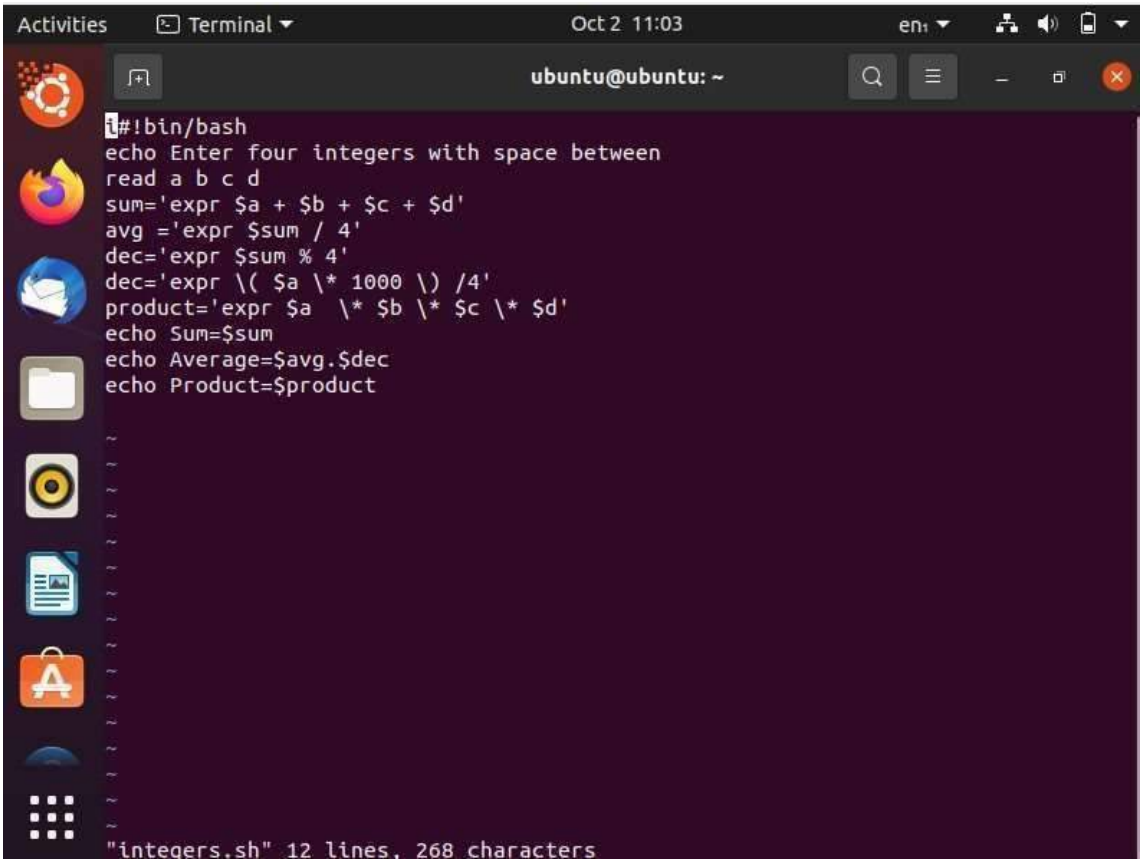

Activities
Terminal
Oct 2 10:42
en
ubuntu@ubuntu: ~
ubuntu@ubuntu:~$ vi first.sh
ubuntu@ubuntu:~$ cat first.sh
i#!bin/bash
echo "Enter Size(N)"
read N
i=1
sum=0
echo "Enter Numbers"
while [$i -le $N]
do
read num
sum=$((sum + num))
i=$((i + 1))
done
echo $sum
ubuntu@ubuntu:~$ ls -l first.sh
-rw-rw-r-- 1 ubuntu ubuntu 152 Oct 2 10:40 first.sh
ubuntu@ubuntu:~$ chmod +x first.sh
ubuntu@ubuntu:~$ ls -l first.sh
-rwxrwxr-x 1 ubuntu ubuntu 152 Oct 2 10:40 first.sh
ubuntu@ubuntu:~$ ./first.sh
./first.sh: line 1: i#!bin/bash: No such file or directory
Enter Size(N)
10
Enter Numbers
1
2
3


Activities
Terminal
Oct 2 10:42
en
ubuntu@ubuntu: ~
do
read num
sum=$((sum + num))
i=$((i + 1))
done
echo $sum
ubuntu@ubuntu:~$ ls -l first.sh
-rw-rw-r-- 1 ubuntu ubuntu 152 Oct 2 10:40 first.sh
ubuntu@ubuntu:~$ chmod +x first.sh
ubuntu@ubuntu:~$ ls -l first.sh
-rwxrwxr-x 1 ubuntu ubuntu 152 Oct 2 10:40 first.sh
ubuntu@ubuntu:~$ ./first.sh
./first.sh: line 1: i#!bin/bash: No such file or directory
Enter Size(N)
10
Enter Numbers
1
2
3
4
5
6
7
8
9
10
55
ubuntu@ubuntu:~$

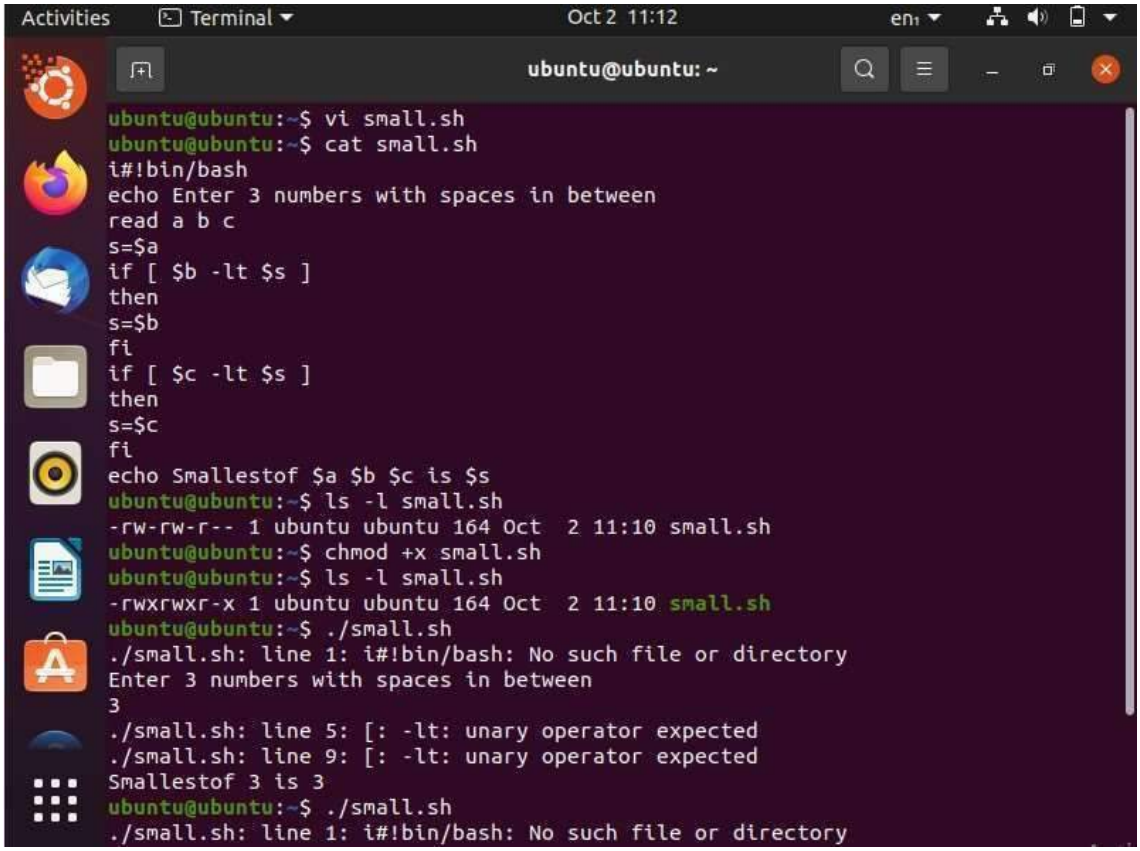


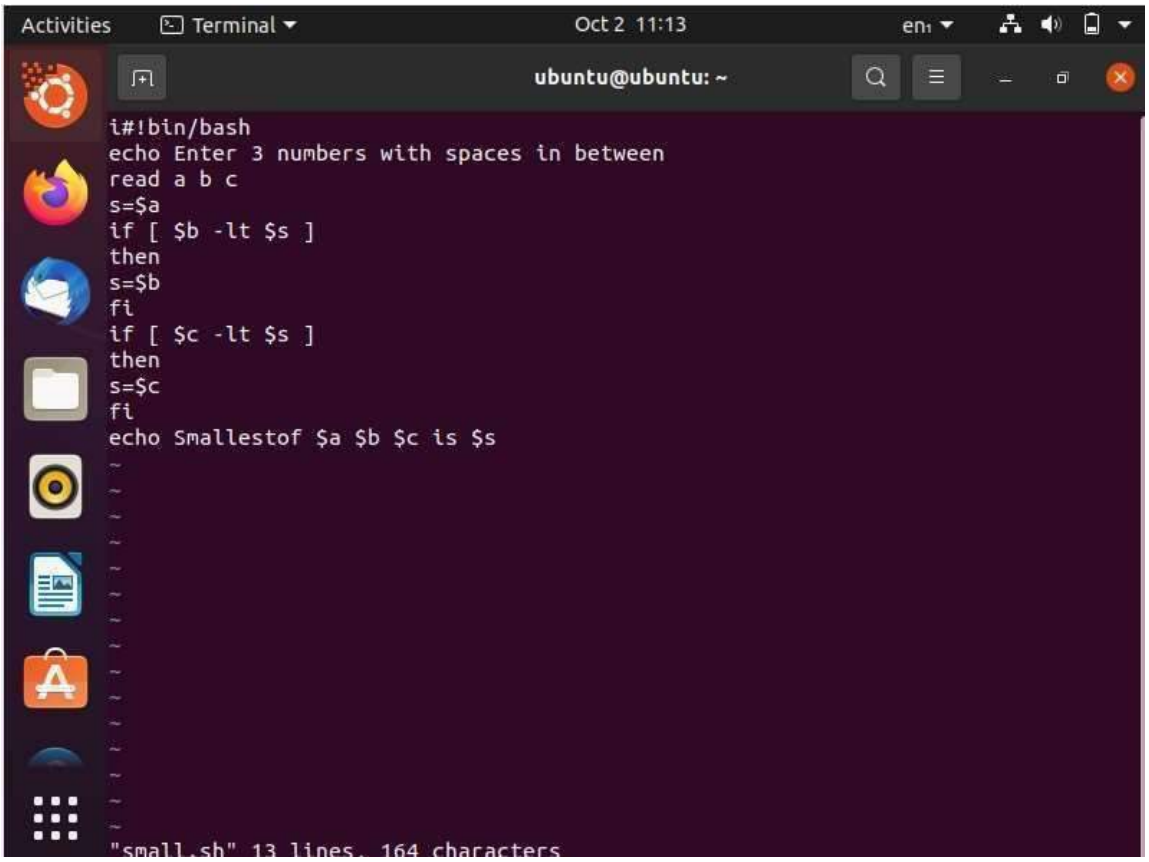
9. **Write a shell script to find the sum, average and the product of the four integers entered.**


Activities
Terminal
Oct 2 11:02
en
ubuntu@ubuntu: ~
ubuntu@ubuntu:~$ vi integers.sh
ubuntu@ubuntu:~$ cat integers.sh
i#!bin/bash
echo Enter four integers with space between
read a b c d
sum='expr $a + $b + $c + $d'
avg ='expr $sum / 4'
dec='expr $sum % 4'
dec='expr \($a * 1000 \) /4'
product='expr $a * $b * $c * $d'
echo Sum=$sum
echo Average=$avg.$dec
echo Product=$product
ubuntu@ubuntu:~$ ls -l integers.sh
-rw-rw-r-- 1 ubuntu ubuntu 268 Oct 2 10:59 integers.sh
ubuntu@ubuntu:~$ chmod +x integers.sh
ubuntu@ubuntu:~$ ls -l integers.sh
-rwxrwxr-x 1 ubuntu ubuntu 268 Oct 2 10:59 integers.sh
ubuntu@ubuntu:~$ ./integers.sh
./integers.sh: line 1: i#!bin/bash: No such file or directory
Enter four integers with space between
3
./integers.sh: line 5: avg: command not found
Sum=expr $a + $b + $c + $d
Average=.expr \($a * 1000 \) /4
Product=expr $a * $b * $c * $d
ubuntu@ubuntu:~$

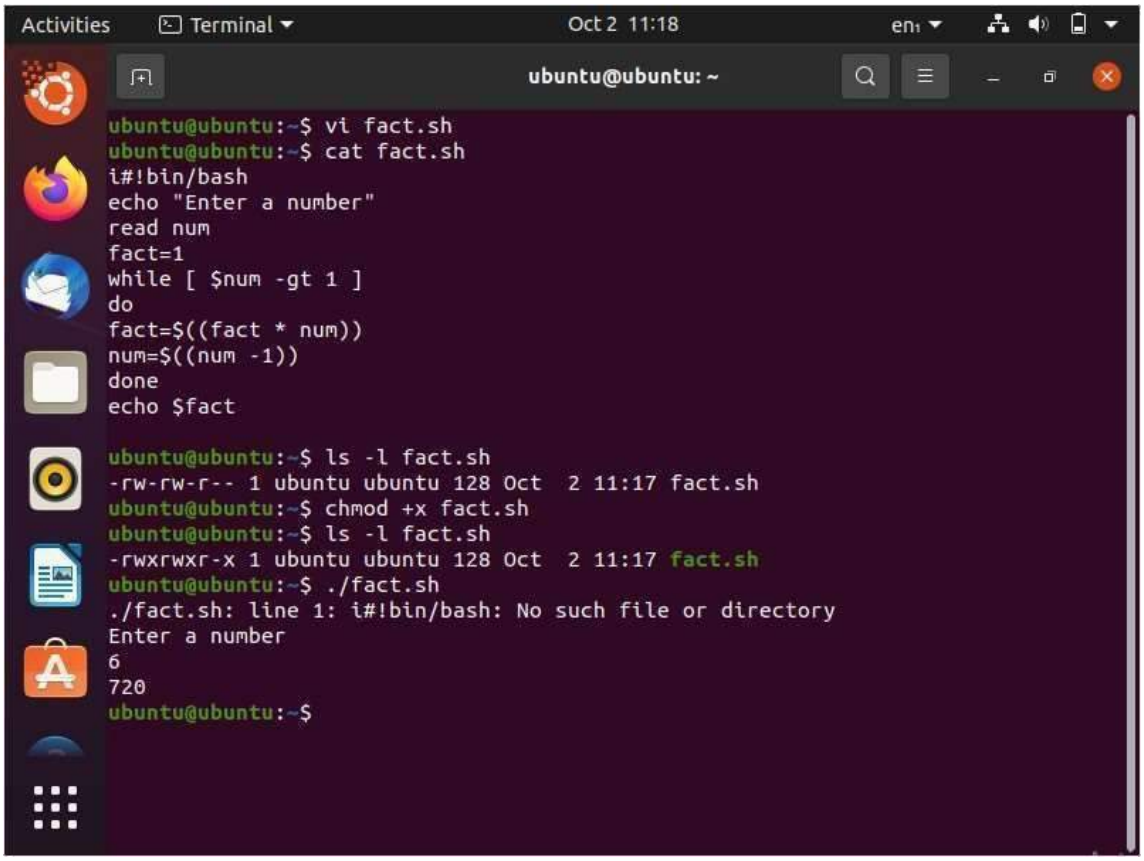


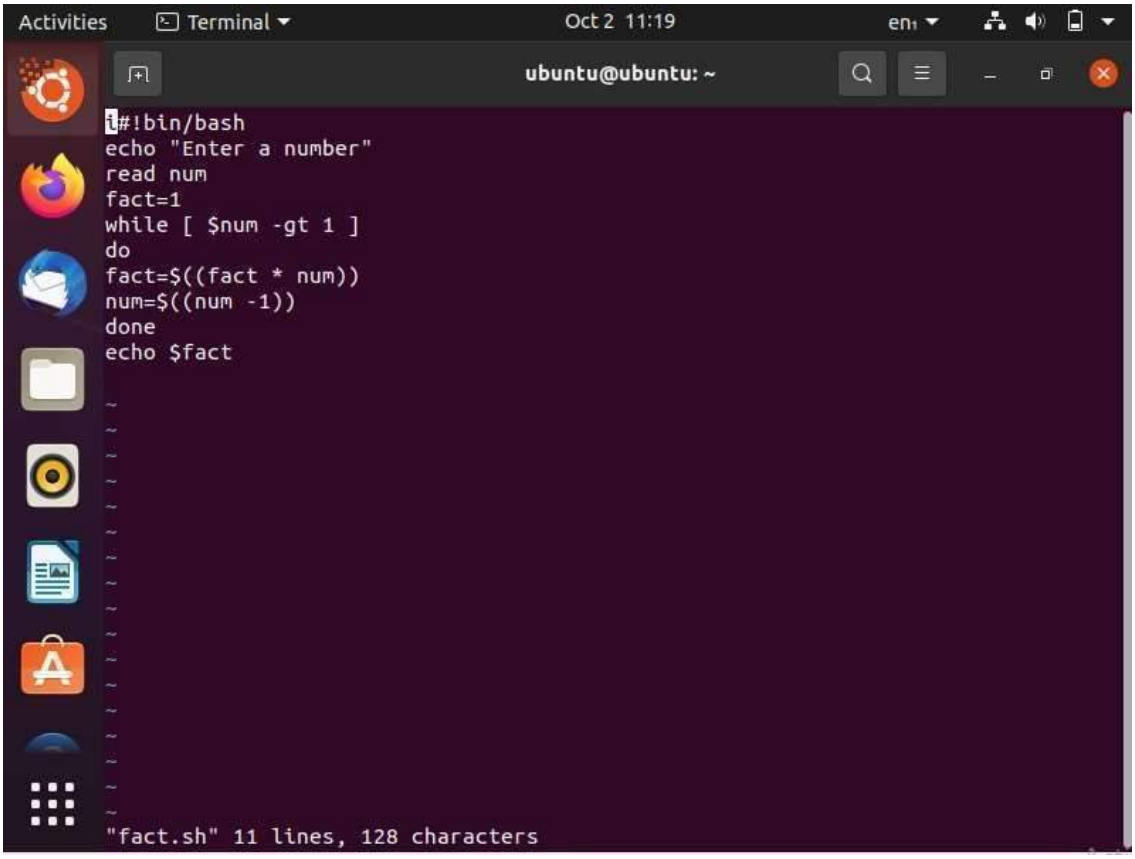
10. Write a shell program to find the smallest of three numbers.


Activities
Terminal
Oct 2 11:12
en
ubuntu@ubuntu: ~
ubuntu@ubuntu:~$ vi small.sh
ubuntu@ubuntu:~$ cat small.sh
i#!bin/bash
echo Enter 3 numbers with spaces in between
read a b c
s=$a
if [$b -lt $s]
then
s=$b
fi
if [$c -lt $s]
then
s=$c
fi
echo Smallestof $a $b $c is $s
ubuntu@ubuntu:~$ ls -l small.sh
-rw-rw-r-- 1 ubuntu ubuntu 164 Oct 2 11:10 small.sh
ubuntu@ubuntu:~$ chmod +x small.sh
ubuntu@ubuntu:~$ ls -l small.sh
-rwxrwxr-x 1 ubuntu ubuntu 164 Oct 2 11:10 small.sh
ubuntu@ubuntu:~$ ./small.sh
./small.sh: line 1: i#!bin/bash: No such file or directory
Enter 3 numbers with spaces in between
3
./small.sh: line 5: [: -lt: unary operator expected
./small.sh: line 9: [: -lt: unary operator expected
Smallestof 3 is 3
ubuntu@ubuntu:~$ ./small.sh
./small.sh: line 1: i#!bin/bash: No such file or directory

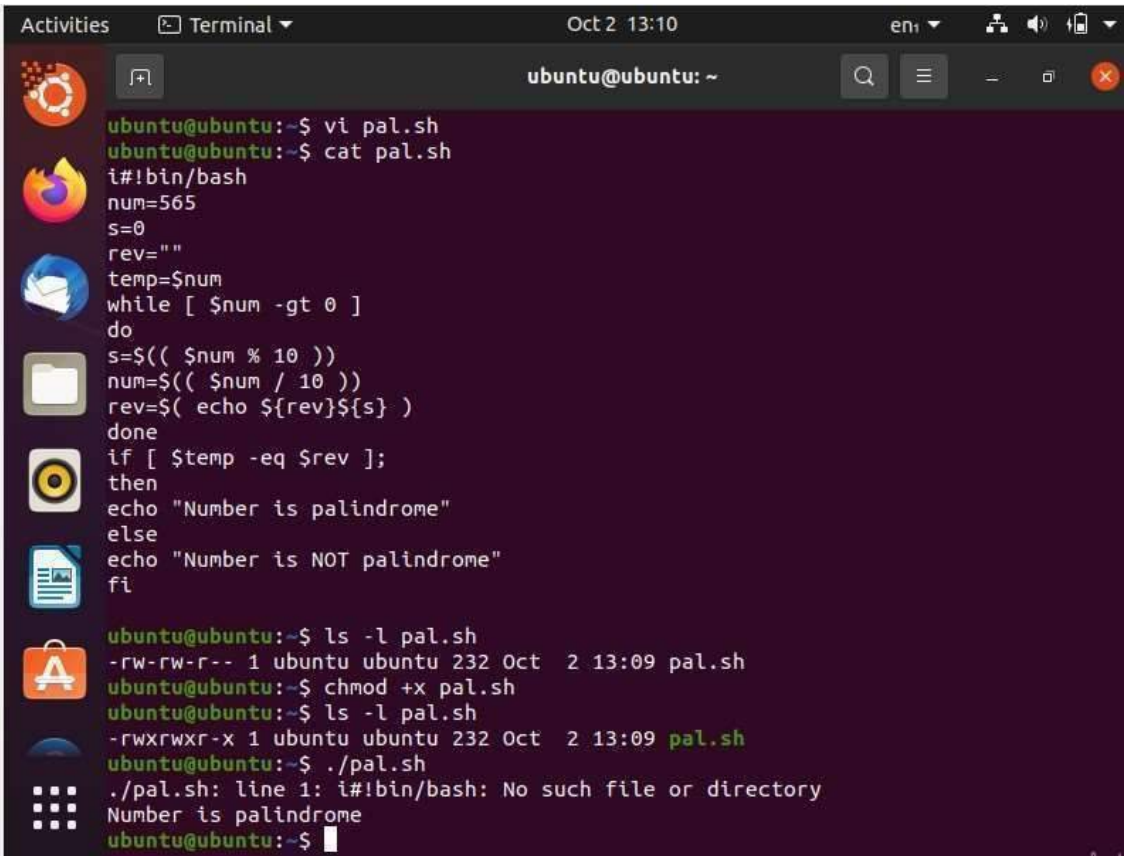


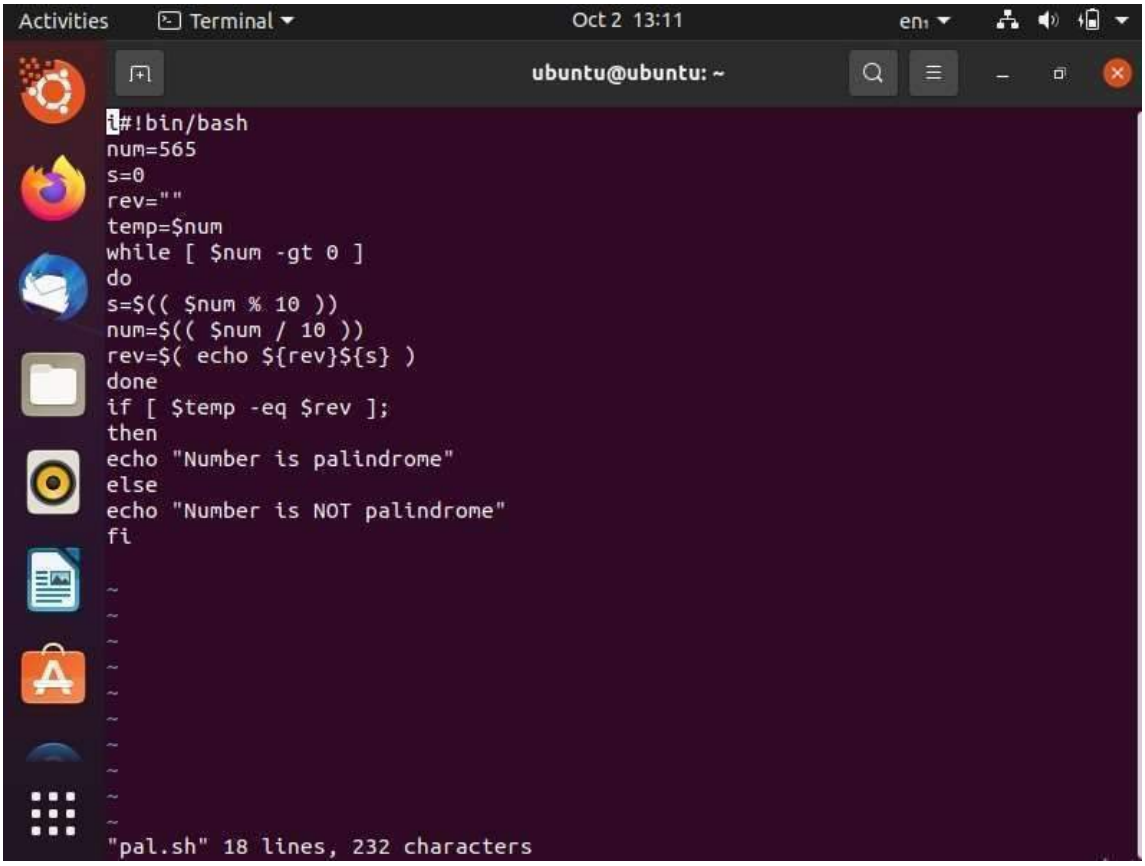
11. Write a shell program to find factorial of given number.


Activities
Terminal
Oct 2 11:18
en
ubuntu@ubuntu: ~
ubuntu@ubuntu:~$ vi fact.sh
ubuntu@ubuntu:~$ cat fact.sh
i#!bin/bash
echo "Enter a number"
read num
fact=1
while [$num -gt 1]
do
fact=$((fact * num))
num=$((num -1))
done
echo $fact
ubuntu@ubuntu:~$ ls -l fact.sh
-rw-rw-r-- 1 ubuntu ubuntu 128 Oct 2 11:17 fact.sh
ubuntu@ubuntu:~$ chmod +x fact.sh
ubuntu@ubuntu:~$ ls -l fact.sh
-rwxrwxr-x 1 ubuntu ubuntu 128 Oct 2 11:17 fact.sh
ubuntu@ubuntu:~$ ./fact.sh
./fact.sh: line 1: i#!bin/bash: No such file or directory
Enter a number
6
720
ubuntu@ubuntu:~$

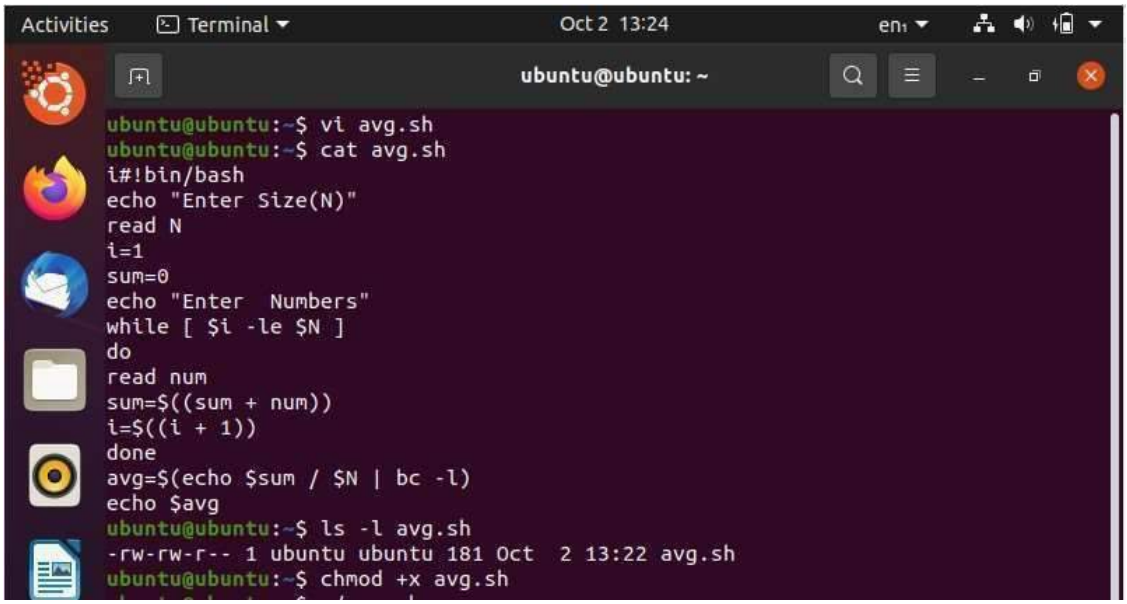

Activities
Terminal
Oct 2 11:19
en
ubuntu@ubuntu: ~
i#!bin/bash
echo "Enter a number"
read num
fact=1
while [$num -gt 1]
do
fact=$((fact * num))
num=$((num -1))
done
echo $fact
"fact.sh" 11 lines, 128 characters

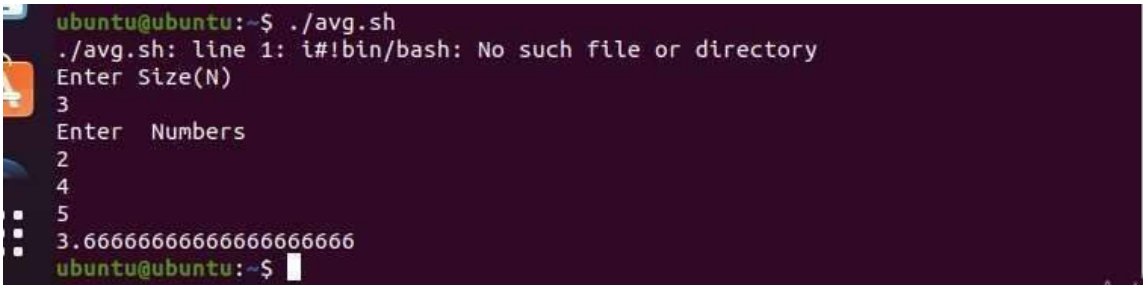
12. Write a shell program to check a number is palindrome or not.

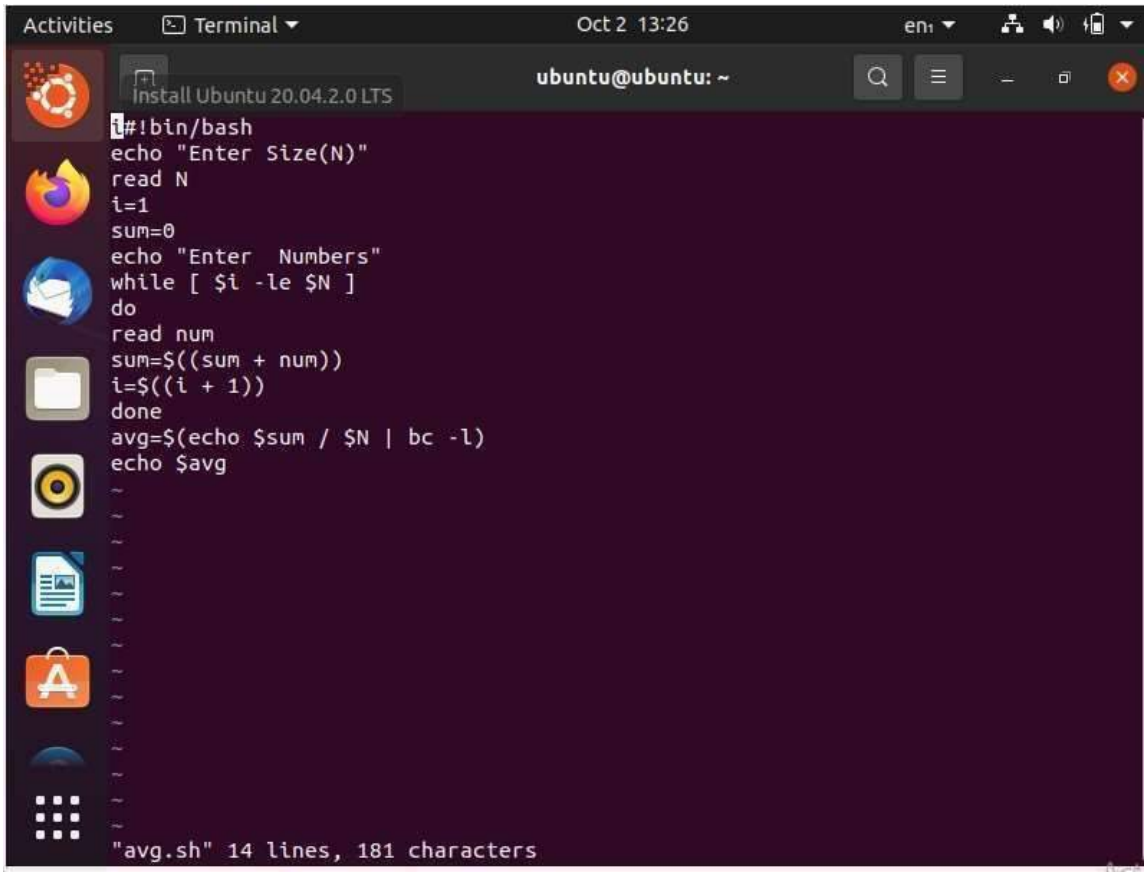




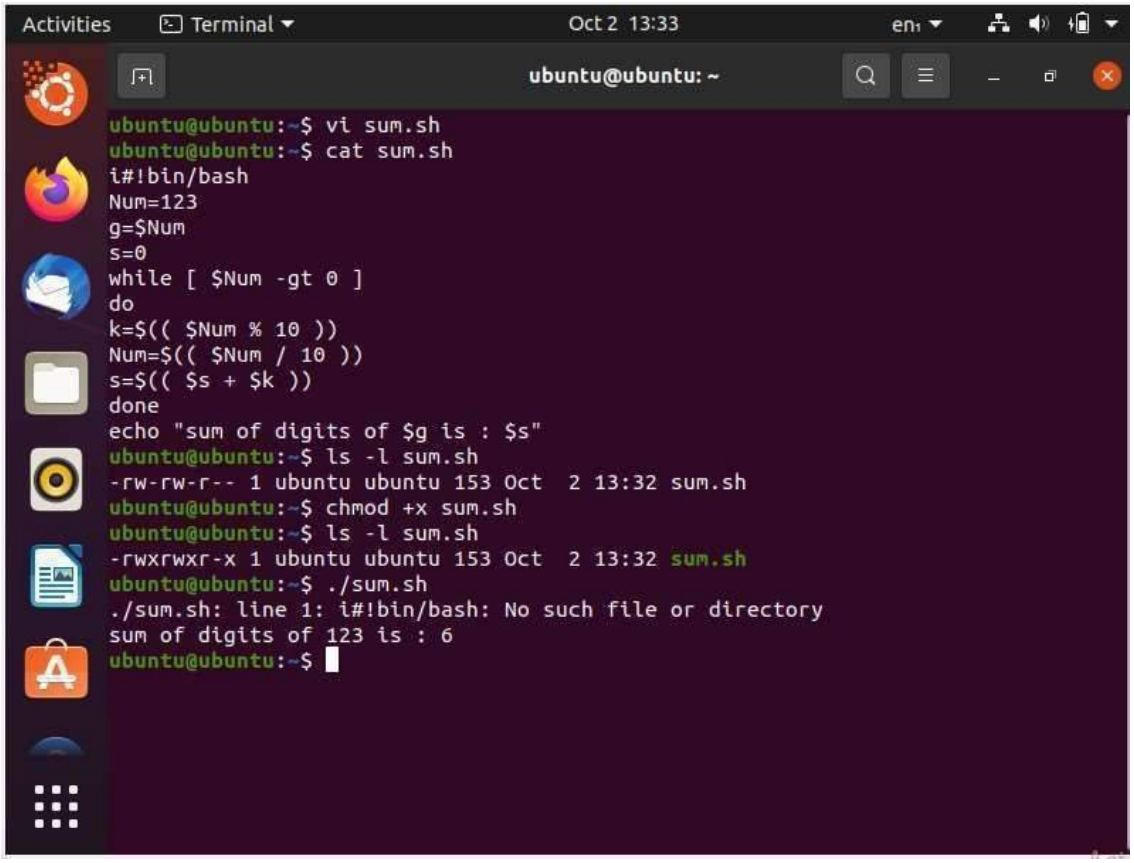
13. Write a shell script to find the average of the numbers entered in command line.

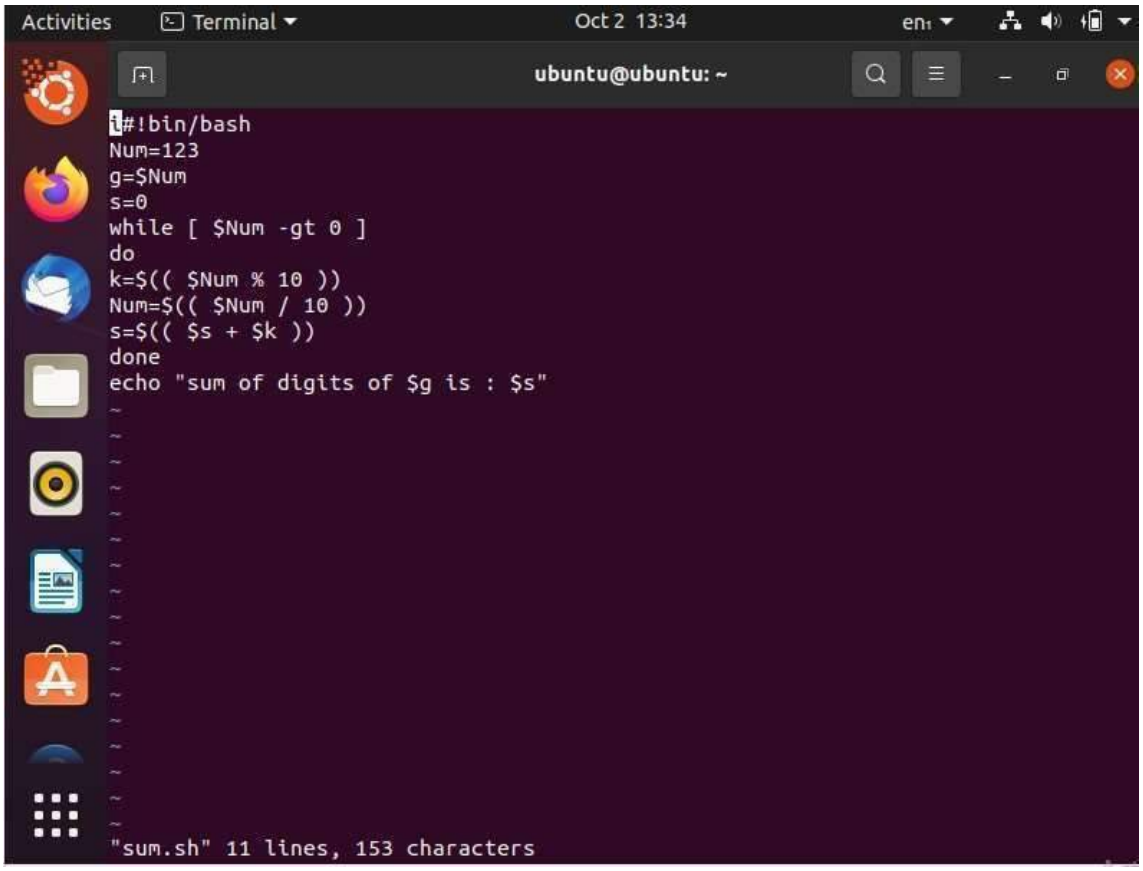




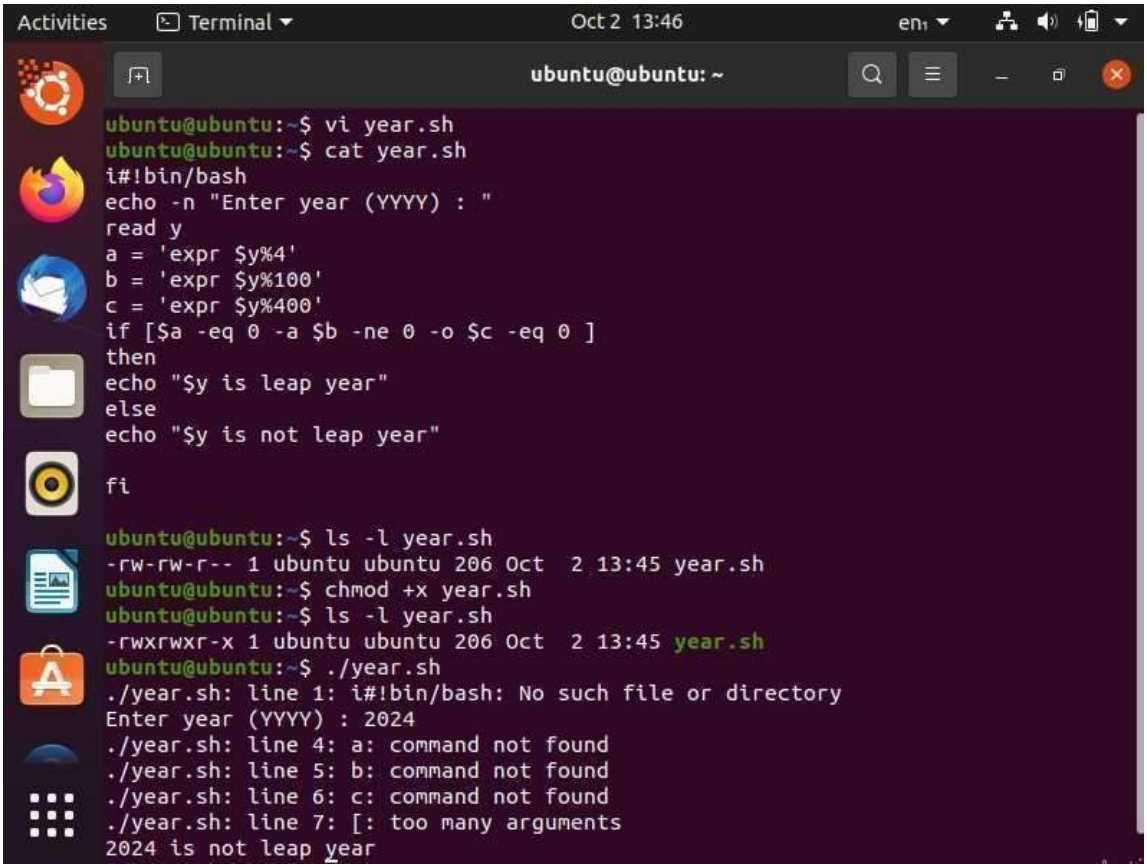


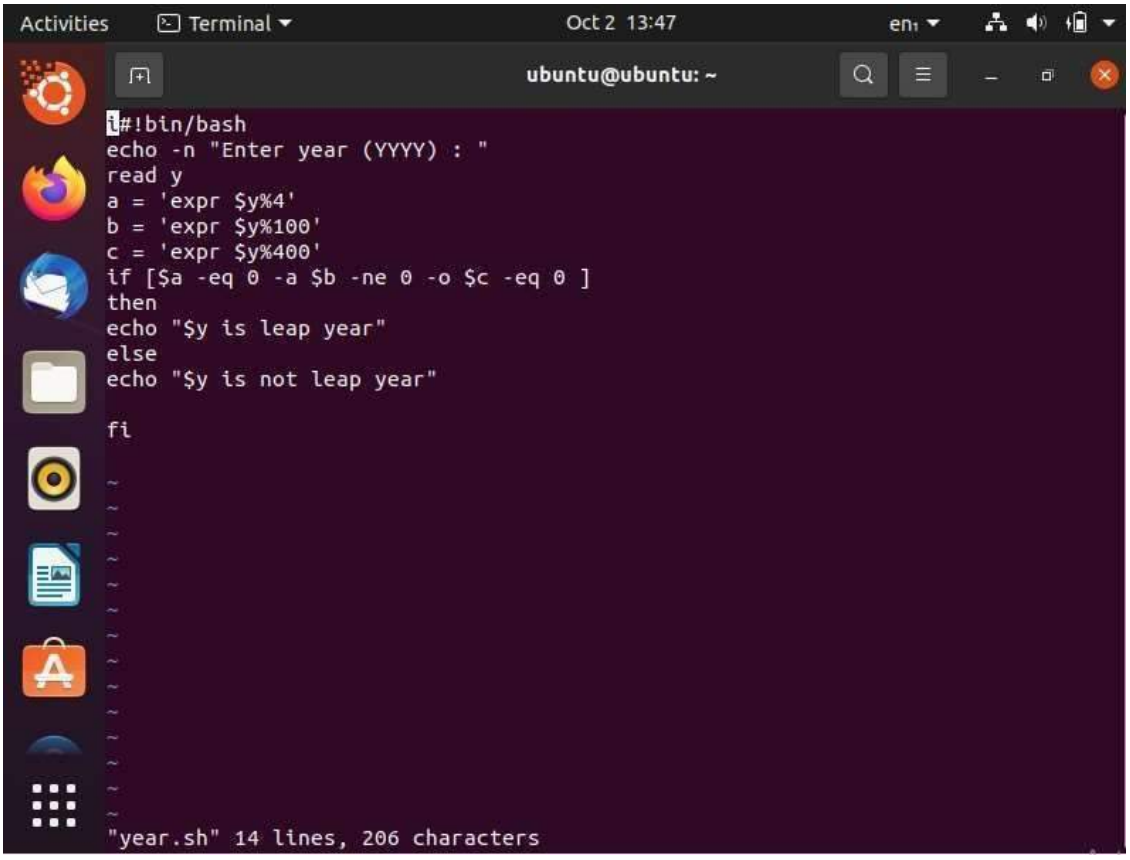
14. Write a shell program to find the sum of all the digits in a number.


Activities
Terminal
Oct 2 13:33
en
ubuntu@ubuntu: ~
ubuntu@ubuntu:~$ vi sum.sh
ubuntu@ubuntu:~$ cat sum.sh
i#!bin/bash
Num=123
g=$Num
s=0
while [$Num -gt 0]
do
k=$(($Num % 10))
Num=$(($Num / 10))
s=$(($s + $k))
done
echo "sum of digits of $g is : $s"
ubuntu@ubuntu:~$ ls -l sum.sh
-rw-rw-r-- 1 ubuntu ubuntu 153 Oct 2 13:32 sum.sh
ubuntu@ubuntu:~$ chmod +x sum.sh
ubuntu@ubuntu:~$ ls -l sum.sh
-rwxrwxr-x 1 ubuntu ubuntu 153 Oct 2 13:32 sum.sh
ubuntu@ubuntu:~$ ./sum.sh
./sum.sh: line 1: i#!bin/bash: No such file or directory
sum of digits of 123 is : 6
ubuntu@ubuntu:~$



15. Write a shell program to check whether given year is leap year or not.

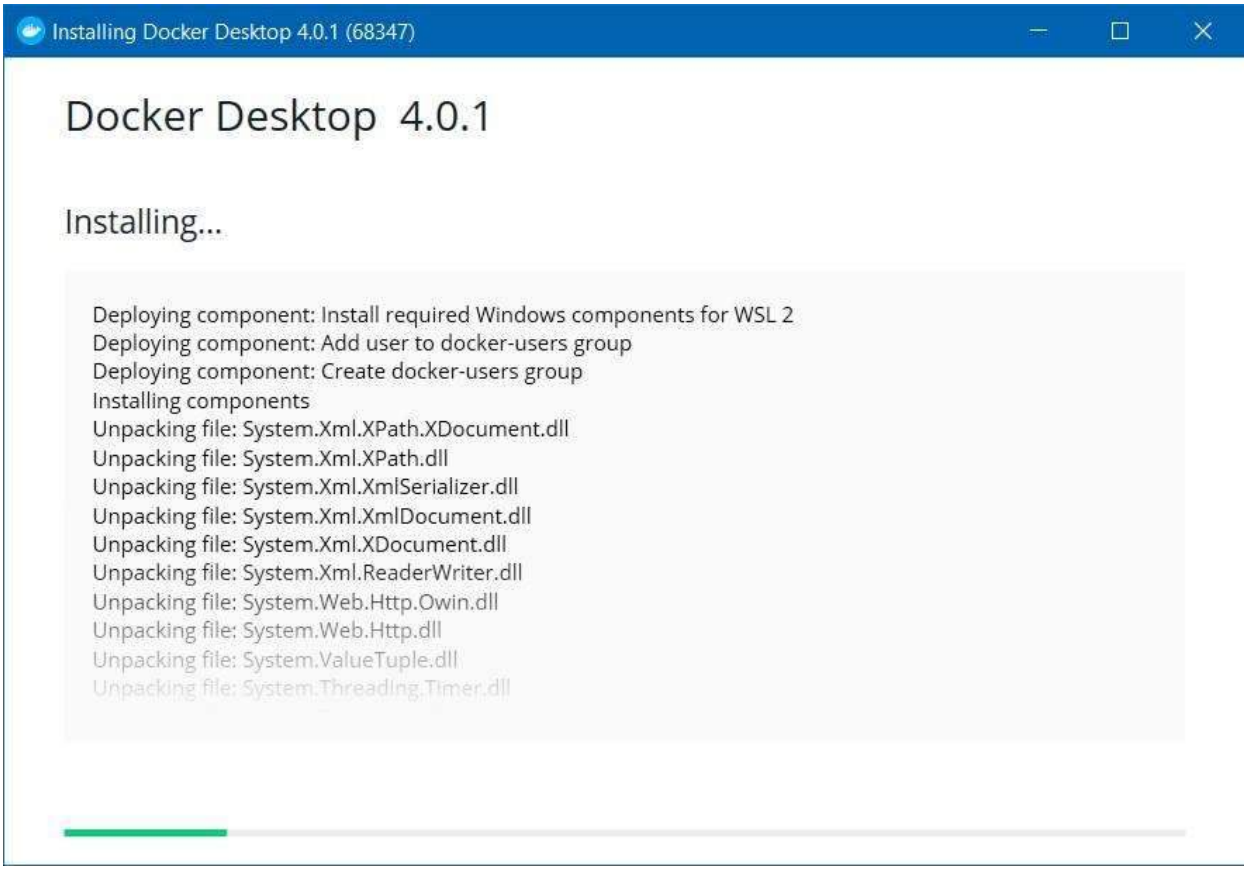

Activities
Terminal
Oct 2 13:46
en
ubuntu@ubuntu: ~
ubuntu@ubuntu:~$ vi year.sh
ubuntu@ubuntu:~$ cat year.sh
i#!bin/bash
echo -n "Enter year (YYYY) : "
read y
a = 'expr $y%4'
b = 'expr $y%100'
c = 'expr $y%400'
if [$a -eq 0 -a $b -ne 0 -o $c -eq 0]
then
echo "$y is leap year"
else
echo "$y is not leap year"
fi
ubuntu@ubuntu:~$ ls -l year.sh
-rw-rw-r-- 1 ubuntu ubuntu 206 Oct 2 13:45 year.sh
ubuntu@ubuntu:~$ chmod +x year.sh
ubuntu@ubuntu:~$ ls -l year.sh
-rwxrwxr-x 1 ubuntu ubuntu 206 Oct 2 13:45 year.sh
ubuntu@ubuntu:~$ ./year.sh
./year.sh: line 1: i#!bin/bash: No such file or directory
Enter year (YYYY) : 2024
./year.sh: line 4: a: command not found
./year.sh: line 5: b: command not found
./year.sh: line 6: c: command not found
./year.sh: line 7: [: too many arguments
2024 is not leap year


Activities
Terminal
Oct 2 13:47
en
ubuntu@ubuntu: ~
i#!bin/bash
echo -n "Enter year (YYYY) : "
read y
a = 'expr $y%4'
b = 'expr $y%100'
c = 'expr $y%400'
if [$a -eq 0 -a $b -ne 0 -o $c -eq 0]
then
echo "$y is leap year"
else
echo "$y is not leap year"
fi
"year.sh" 14 lines, 206 characters

Docker installation on Windows 10

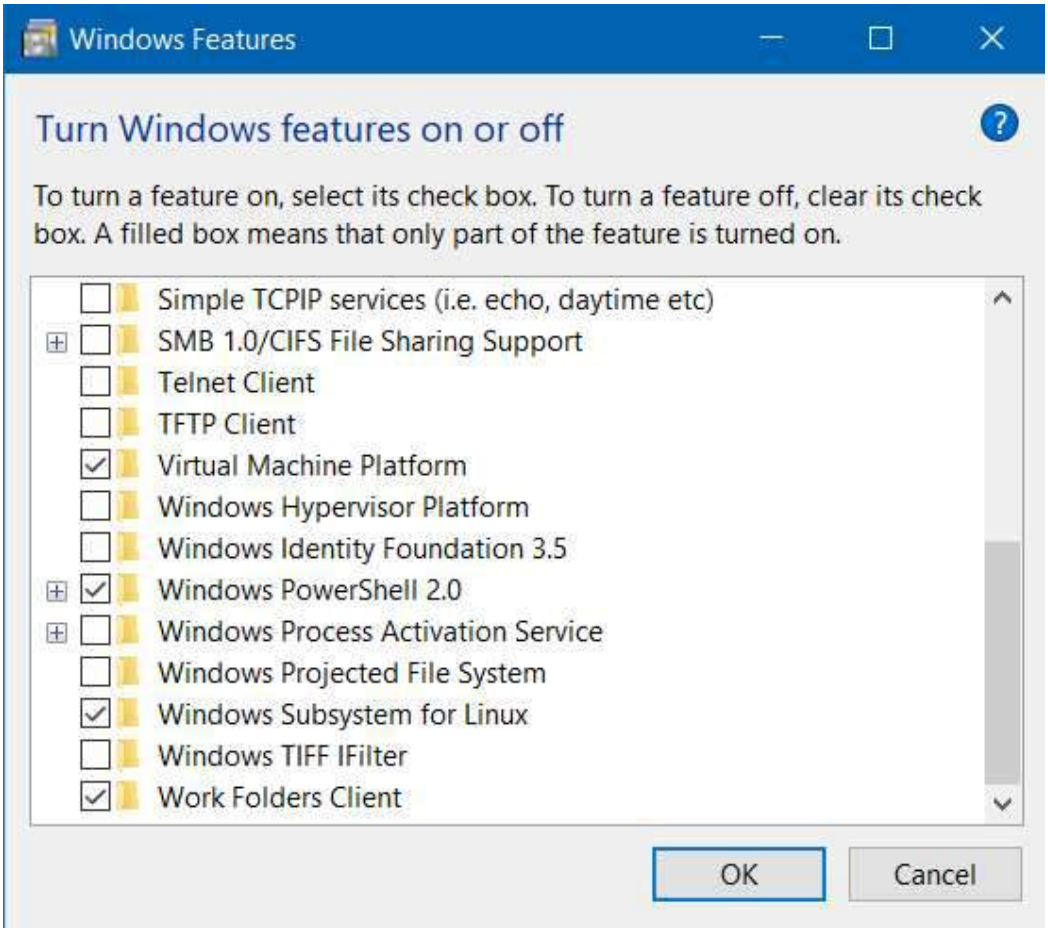
Step-I
Download Docker desktop Installer for Windows from
https://desktop.docker.com/win/main/amd64/Docker%20Desktop%20Installer.exe

Step-II
Open the .exe file and follow the steps after clicking install button.



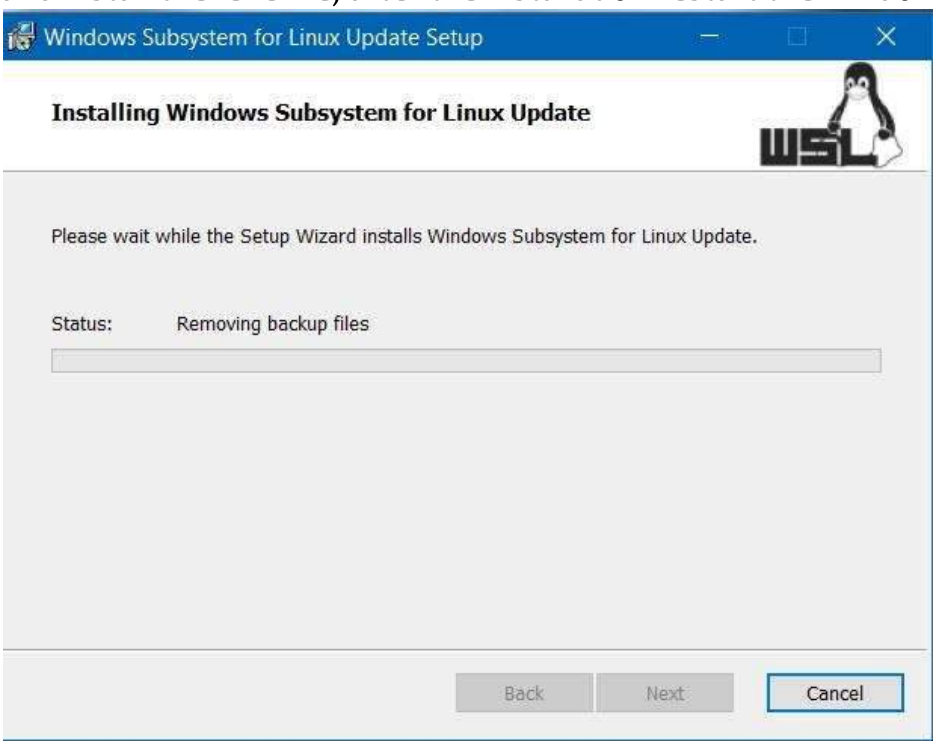
Step-III
Once installed go to programs and features and click turn on windows features on or off

Scroll to the bottom and select windows subsystem for Linux



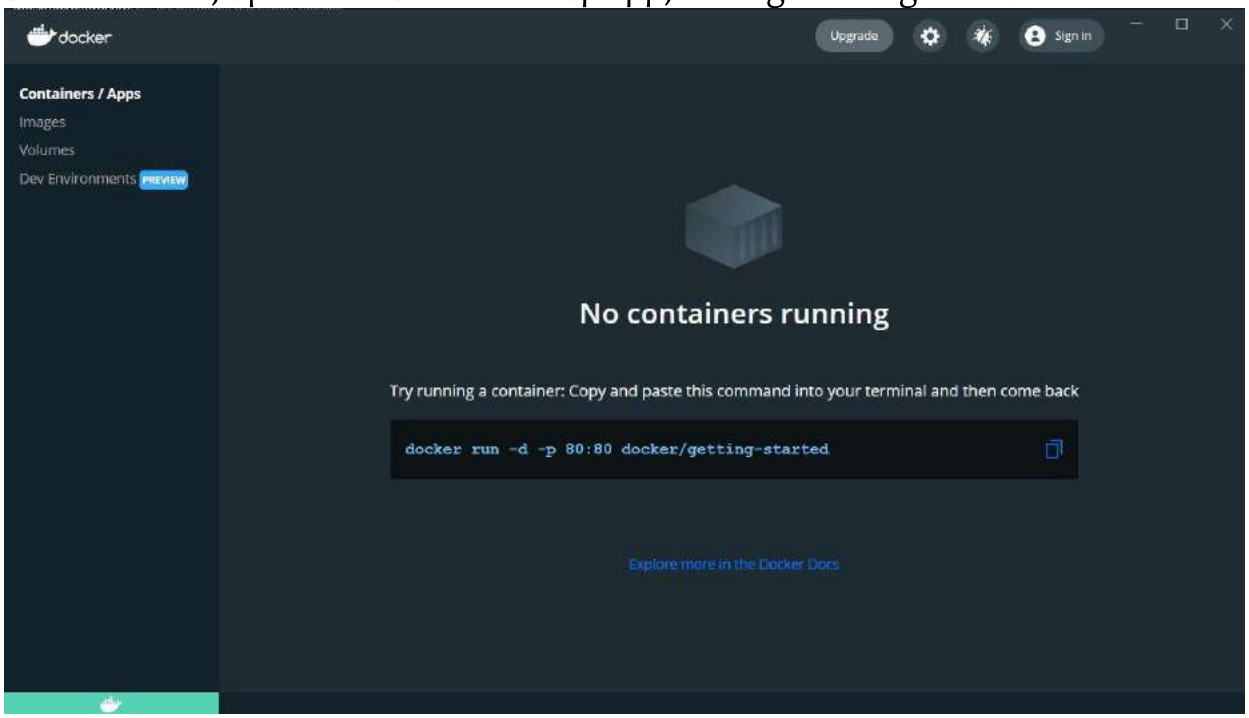
Step-IV

If any WSL 2 error occurs download windows subsystem for linux update package and install the .exe file, after the installation restart the windows device.



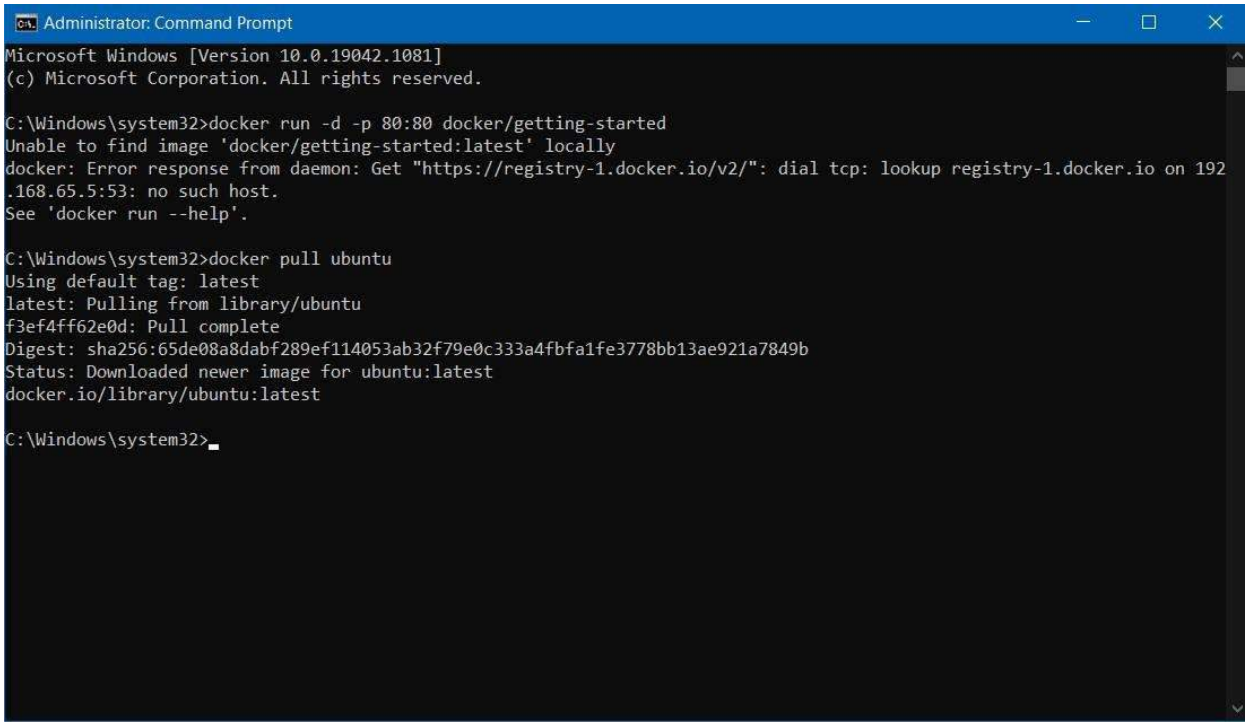
Step-V

Once installed, open the docker desktop app, and signin using the dockerID

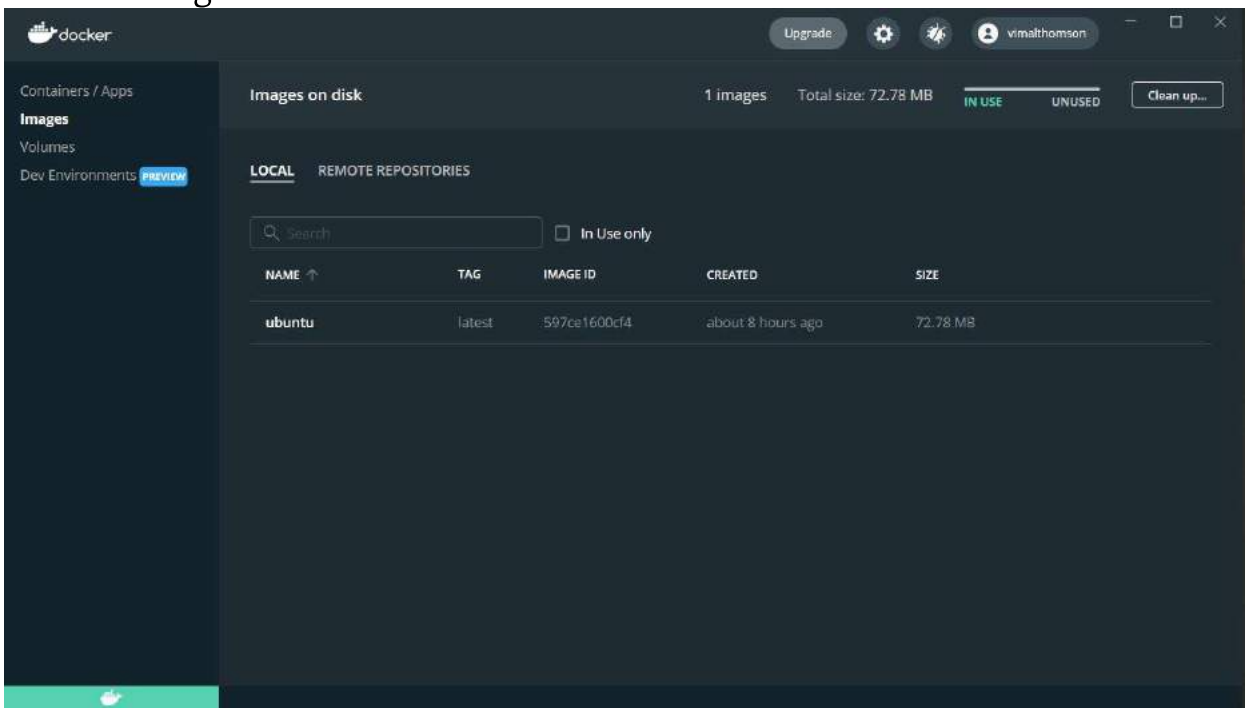


Step-VI

Now pull any image from docker hub using the docker pull command in the command prompt (eg: docker pull ubuntu)

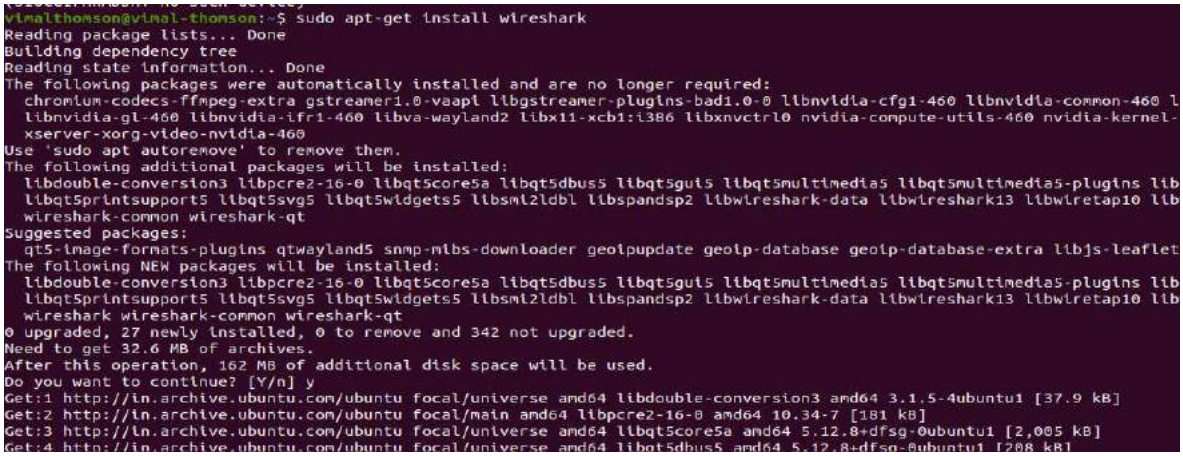


Now in the images tab an image of ubuntu will be displayed, we can run the ubuntu instance using the cli.

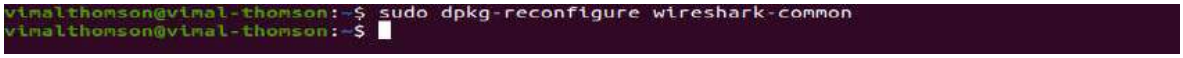


Wireshark installation

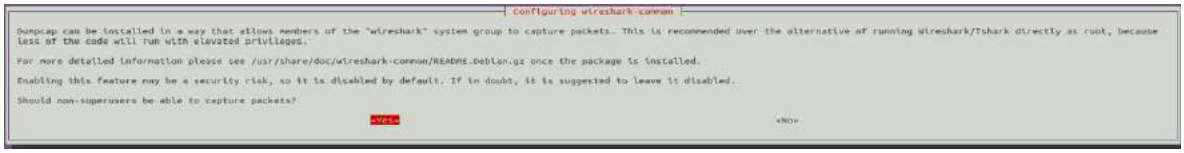
1. Command: sudo apt-get install wireshark



2. Command: sudo dkpg-reconfigure wireshark-common



3. Command: Select Yes and press enter



4. Open wireshark from the applist