

NETWORKING & SYSTEM ADMINISTRATION LAB**Experiment No.: 1****Aim**

Install the latest version of Ubuntu on an Oracle VM VirtualBox.

Procedure

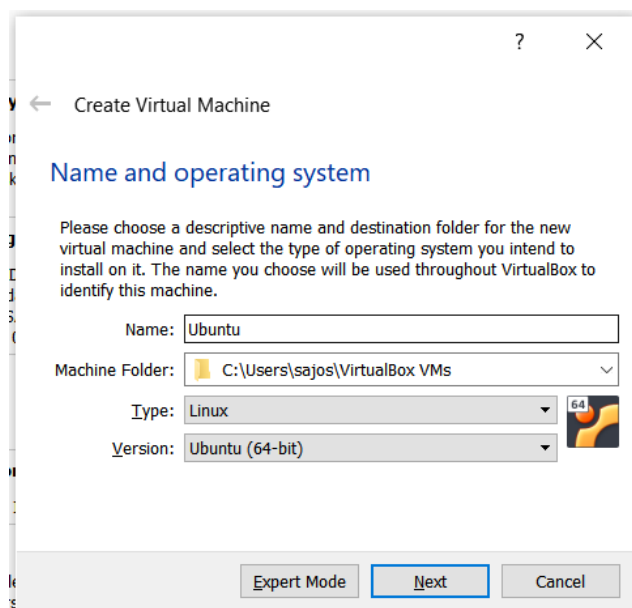
Step 1: Download VirtualBox for Windows and install it on the computer.



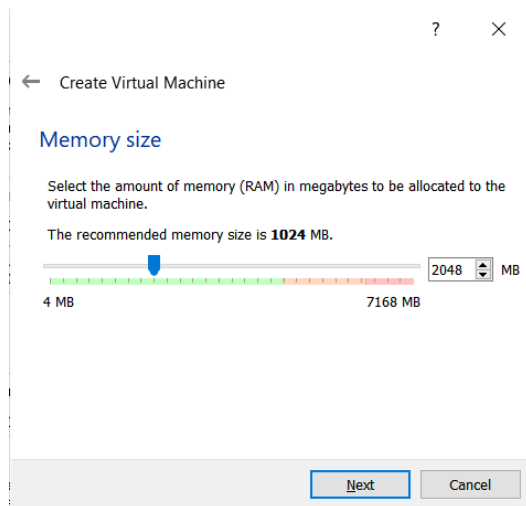
Step 2: Download the Ubuntu ISO file you want to install from the Ubuntu download page.

Step 3: Open VirtualBox and select New in the top taskbar.

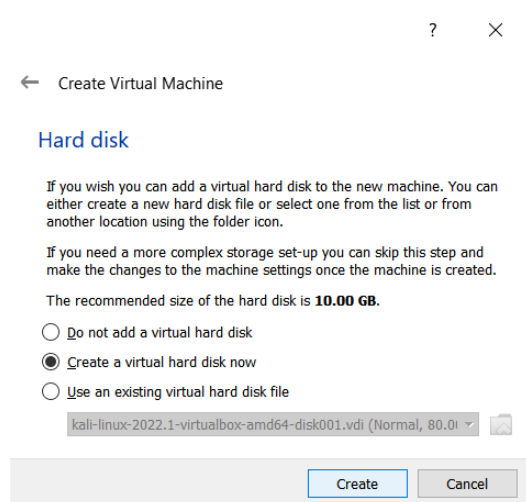
Step 4: Give VM a name, choose Linux and then choose Ubuntu as the Version and select Next.



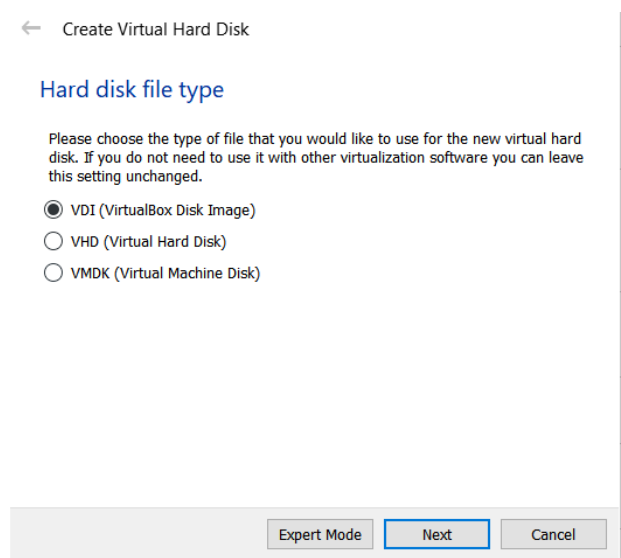
Step 5: We want to specify Memory size.



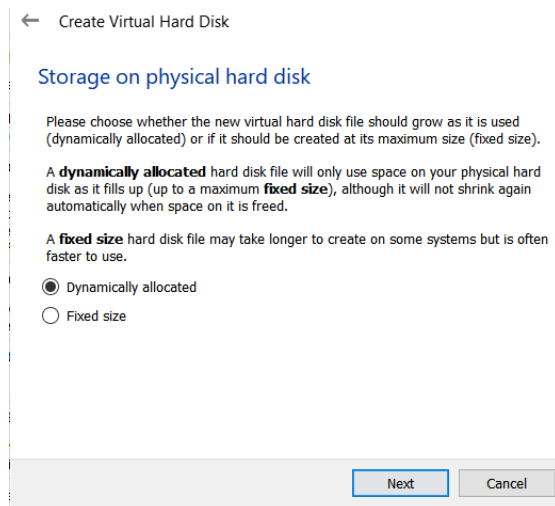
Step 6: Check the "Create a virtual hard disk now" option so we can later define our Ubuntu OS virtual hard disk size.



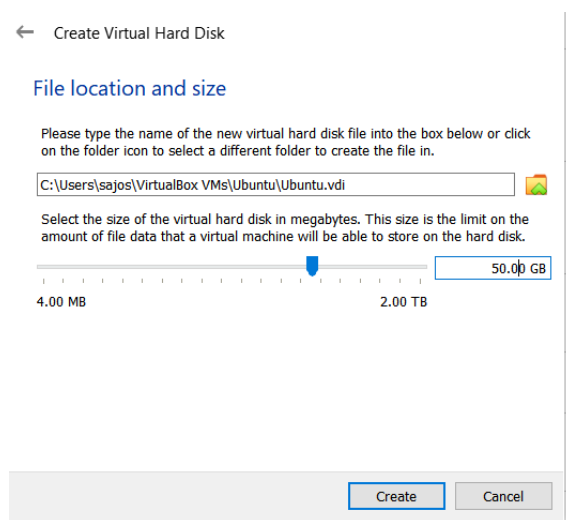
Step 7: Select "VHD (Virtual Hard Disk)".



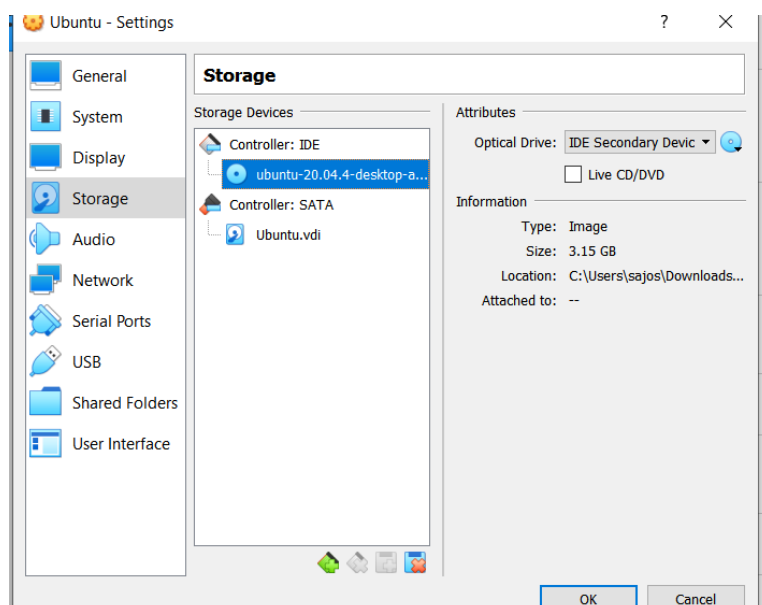
Step 8: Next, we'll dynamically allocate storage on our physical hard disk.



Step 9: We want to specify our Ubuntu OS's size. The recommended size is 10 GB, but you can increase the size if you wish.

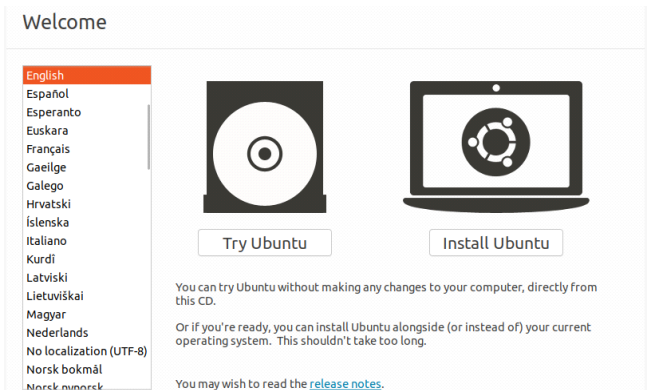


Step 10: Select virtual disk image.



Step 11: The name of your virtual machine will now appear on the left side of the VirtualBox manager. Select Start in the toolbar to launch your VM.

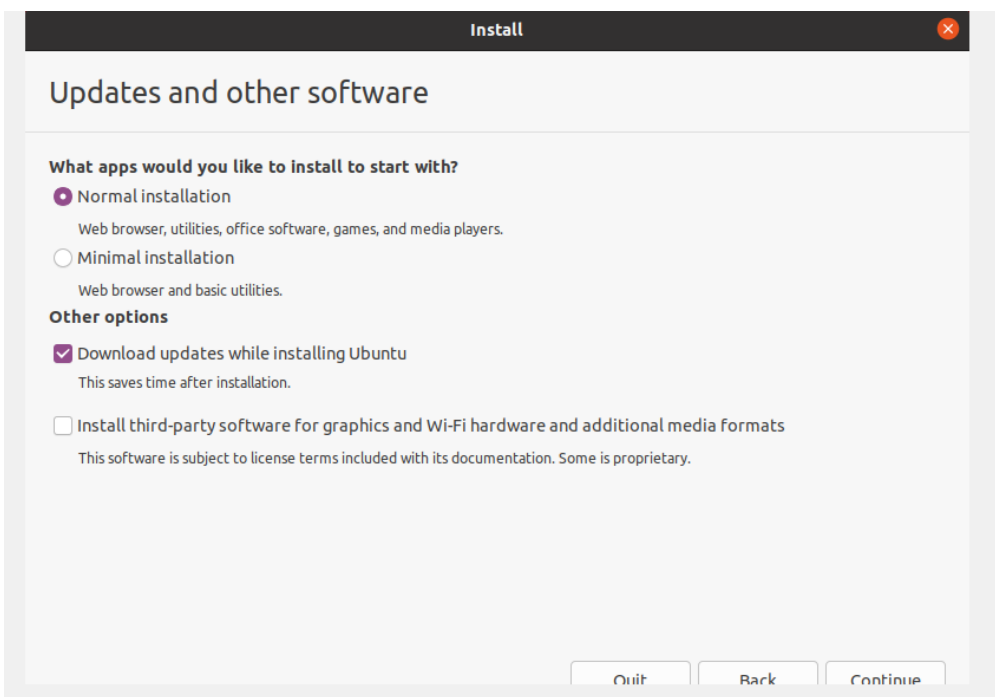
Step 12: Click Install Ubuntu.



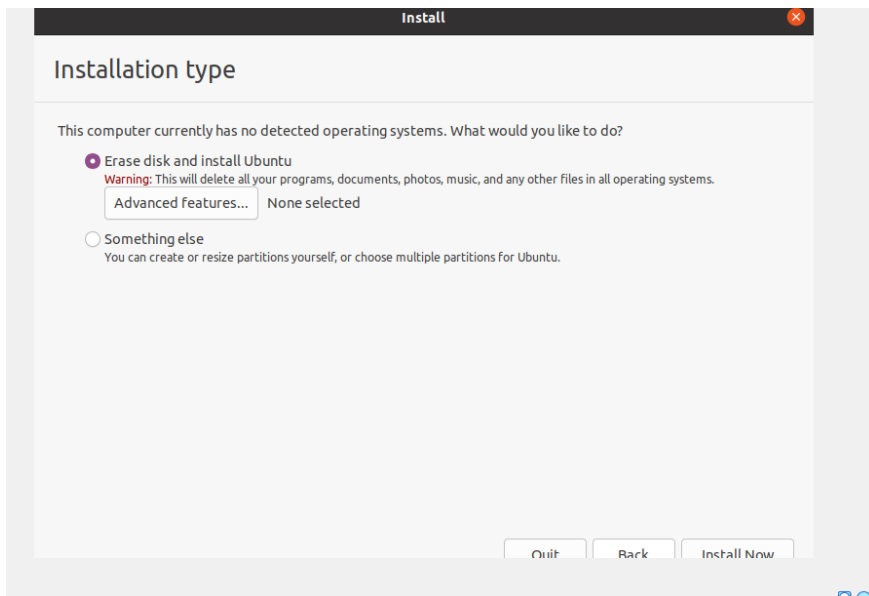
Step 13: Select your keyboard layout.



Step 14: In the "Updates and other software" section, check "Normal installation" and continue.

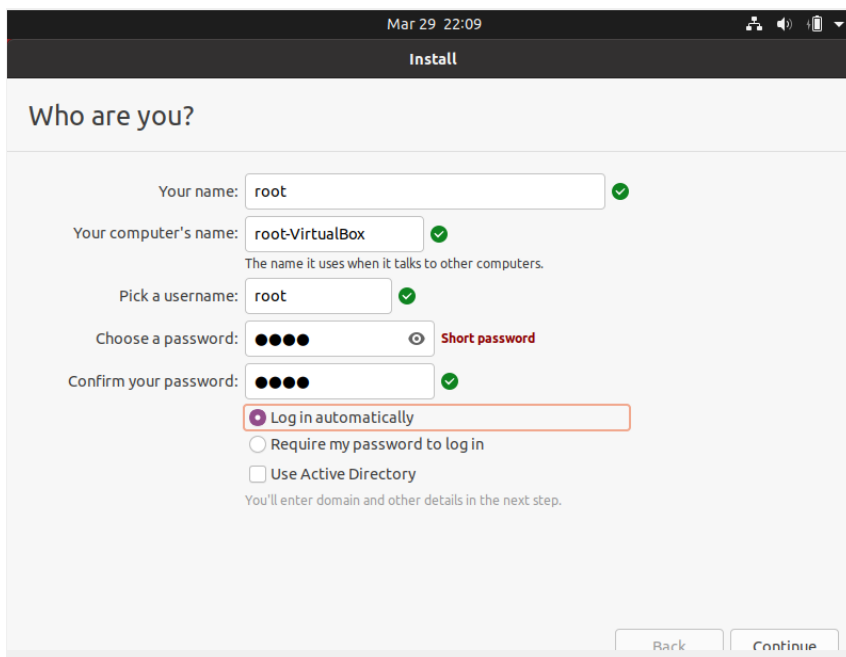


Step 15: Choose Erase disk and install Ubuntu and select Install Now, then select Continue to ignore the warning..



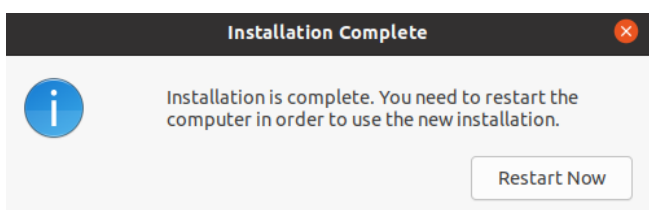
Step 16: Choose your time zone on the map, then select Continue.

Step 17: Set up your user account and select Continue.

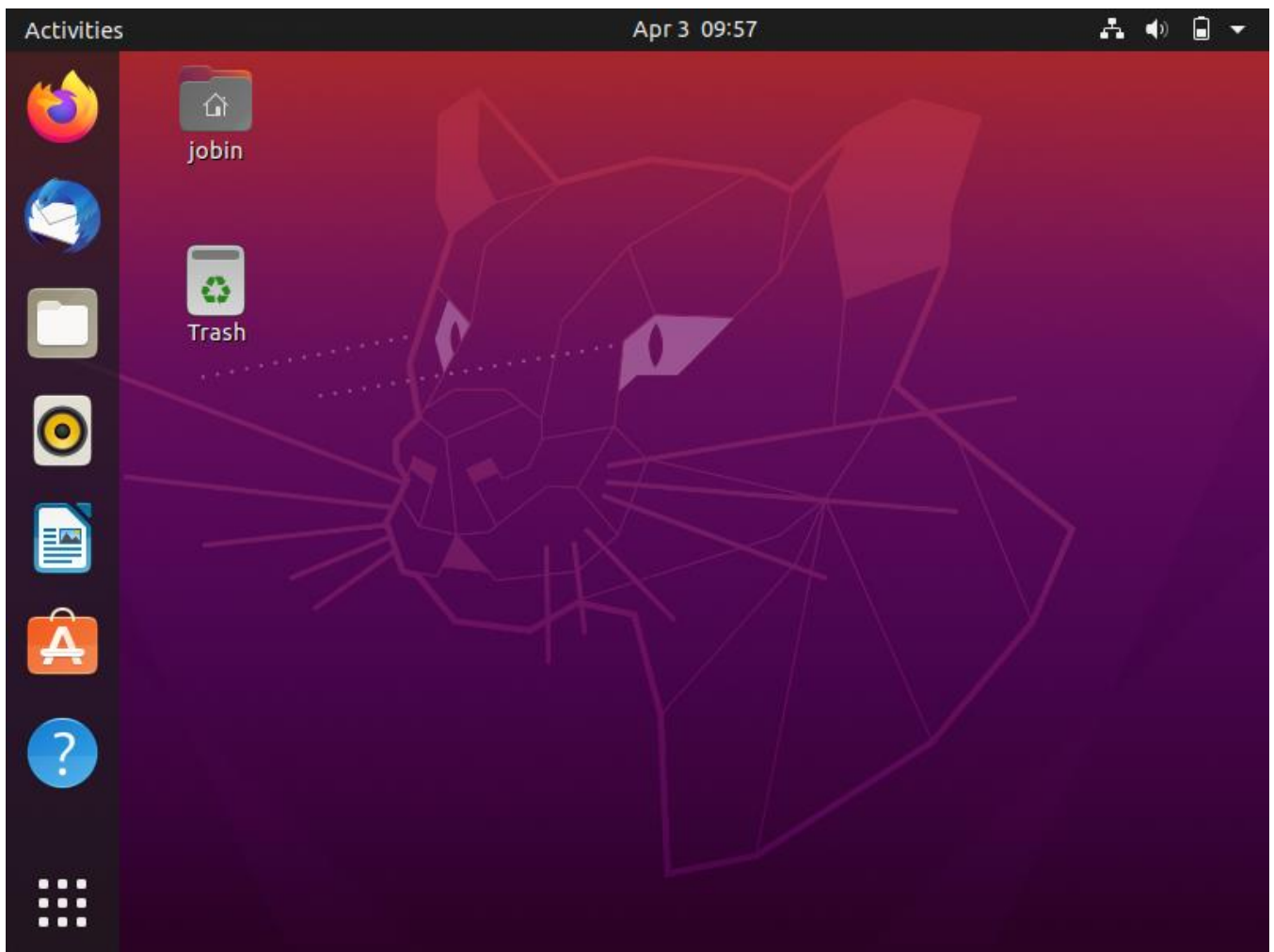


Step 18: Installation completed

Step 19: Restart your System



Output Screenshot



NETWORKING & SYSTEM ADMINISTRATION LAB**Experiment No.: 3****Aim**

Familiarization of the Linux commands.

Procedure**1. pwd**

This command is used to display the location of the current working directory.

Syntax :- \$ pwd

Output :-

A terminal window with a dark purple background. The prompt is 'student@S7:~\$' in green. The command 'pwd' is entered in white. The output '/home/student' is displayed in white below the command.**2. mkdir**

This command is used to create a new directory under any directory.

Syntax :- \$ mkdir <directory name>

Output :-

A terminal window with a dark purple background. The prompt is 'student@S7:~\$' in green. The command 'mkdir jobin' is entered in white.**3. ls**

This command is used to display a list of content of directory.

Syntax :- \$ ls

Output :-

```

student@S7:~$ ls
12calu16.py      f11              p.py
ajce             f1.txt           prime.sh
anandhu         f2.txt           project
Anju            factparaconst    project1
a.py            factparaconst.cpp project1.cpp
a.txt           factparaconst.o  project1.o
bfs.c          fibnocc.sh       project2
bst.c           file.txt         project2.cpp
bst.cpp         Firstfile.txt    project2.o
bst.o           hierarchical      project.cpp
b.txt           hierarchical.cpp  project.o
b.xt            hierarchical.o    Public
calender.py     hybrid           PycharmProjects
'circular queue' hybrid.cpp        readwritetofile
'circular queue.c' hybrid.o          readwritetofile.cpp
'circular queue.o' inheritace1       readwritetofile.o
'c11 cre'       inheritace1.cpp  rt.sh
'c11 cre.c'     inheritace1.o   Secondfile.txt
'c11 cre.o'     inheritace2.cpp shell
copyfile        <invalid path>  snap
copyfile.cpp    <invalid path>.layout' socketudp
copyfile.o      jk.sh           sportsinh

```

5. ls -l

This command is used to shows file or directory, size, modified date and time, file or folder name and owner of the file, and its permission.

Syntax :- \$ ls -l

Output:-

```

student@S7:~$ ls -l
total 1044
-rw-rw-r-- 1 student student 105 Nov 12 12:36 12calu16.py
drwxr-xr-x 3 student student 4096 Feb 7 2019 ajce
drwxr-xr-x 2 student student 4096 Feb 17 2020 anandhu
drwxr-xr-x 2 student student 4096 Mar 5 2019 Anju
-rw-rw-r-- 1 student student 880 Oct 19 2019 a.py
-rw-r--r-- 1 student student 8 Jan 16 2020 a.txt
-rw-rw-r-- 1 student student 1 Nov 12 2019 bfs.c
-rw-rw-r-- 1 student student 4034 Nov 19 2019 bst.c
-rw-rw-r-- 1 student student 1 Nov 14 2019 bst.cpp
-rw-rw-r-- 1 student student 5800 Nov 19 2019 bst.o
-rw-r--r-- 1 student student 8 Jan 16 2020 b.txt
-rw-r--r-- 1 student student 8 Jan 16 2020 b.xt
-rw-rw-r-- 1 student student 24533 Oct 19 2019 calender.py
-rwxrwxr-x 1 student student 12840 Oct 29 2019 'circular queue'
-rw-rw-r-- 1 student student 2514 Oct 29 2019 'circular queue.c'
-rw-rw-r-- 1 student student 7056 Oct 29 2019 'circular queue.o'
-rwxrwxr-x 1 student student 8672 Oct 29 2019 'c11 cre'
-rw-rw-r-- 1 student student 1418 Oct 29 2019 'c11 cre.c'

```

6. ls -a

This command is used to list all files including hidden files.

Syntax :- \$ls -a

Output :-


```
student@S7:~$ ls -a
.          f11          personinh.cpp
..         f1.txt       personinh.o
12calu16.py f2.txt       Pictures
.abi       .factorial.sh.swp .pki
ajce       .factorial.sh.swp p.py
anandhu    factparaconst prime.sh
Anju       factparaconst.cpp .profile
a.py       factparaconst.o  project
a.txt      fibnocci.sh      project1
.ballz_saves.txt file.txt         project1.cpp
.bash_history Firstfile.txt   project1.o
.bash_logout .gimp-2.8       project2
.bashrc     .gnupg          project2.cpp
bfs.c       hierarchical    project2.o
bst.c       hierarchical.cpp project.cpp
bst.cpp     hierarchical.o  project.o
bst.o       hybrid        Public
b.txt      hybrid.cpp     .PyCharmCE2018.3
b.xt       hybrid.o      .PyCharmCE2019.3
```

7. ls -al

This command is used to

Syntax :- \$ ls -al

Output :-

```
jobin@jobin-VirtualBox:~$ ls -al
total 84
drwxr-xr-x 17 jobin jobin 4096 Apr  2 20:43 .
drwxr-xr-x  3 root  root  4096 Mar 27 21:36 ..
-rw-r--r--  1 jobin jobin   24 Apr  2 20:43 .bash_history
-rw-r--r--  1 jobin jobin  220 Mar 27 21:36 .bash_logout
-rw-r--r--  1 jobin jobin 3771 Mar 27 21:36 .bashrc
drwx----- 15 jobin jobin 4096 Apr  3 09:58 .cache
drwx----- 12 jobin jobin 4096 Apr  3 09:58 .config
```

8. ls -t

This command is used to display files in the last modified order.

Syntax :- \$ ls -t

Output :-

```
jobin@jobin-VirtualBox:~$ ls -t
Pictures Desktop Downloads Public Videos
snap Documents Music Templates
```

9. cd

This command is used to change the current directory.

Syntax :- \$ cd <directory name>

Output :-

10. cd ..

This command is used to move to the parent directory of current directory, or the directory one level up from the current directory.

Syntax :- \$ cd ..

Output :-

```
jobin@jobin-VirtualBox:~$ cd jobin
bash: cd: jobin: No such file or directory
```

11. cd –

This command is used to switch back to previous directory we were working earlier.

Syntax :- \$ cd –

Output :-

```
jobin@jobin-VirtualBox:~$ cd ..
jobin@jobin-VirtualBox:/home$ cd -
/home/jobin
```

12. cat > filename

This command is used to create a file and add contents to that file.

Syntax :- \$ cat > filename.txt

Output :-

13. cat >> filename

This command is used to add contents to an existing file.

Syntax :- \$ cat >> filename.txt

Output :-

```
jobin@jobin-VirtualBox:~$ cat >> demo.txt
Hackers playground->kali linux
^Z
[3]+  Stopped                  cat >> demo.txt
```

14. cat filename1 > filename2

This command is used to copy the content from one file to another file.

Syntax :- \$ cat filename1 > filename2

Output :-

```
jobin@jobin-VirtualBox:~$ cat demo.txt > copy.txt
jobin@jobin-VirtualBox:~$ cat copy.txt
Hackers playground->kali linux
```

NETWORKING & SYSTEM ADMINISTRATION LAB

Experiment No.: 4

Aim

Familiarization of the Linux commands.

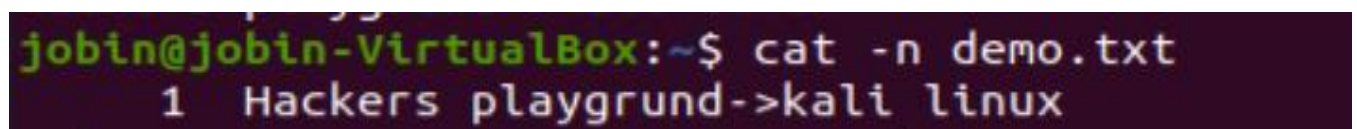
Procedure

1. cat -n

This command return contents with line numbers.

Syntax:- \$ cat -n filename

Output:-



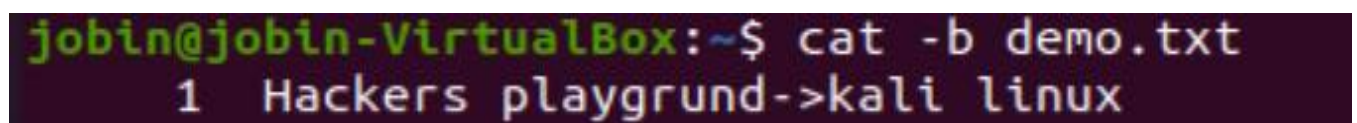
```
jobin@jobin-VirtualBox:~$ cat -n demo.txt
1 Hackers playground->kali linux
```

2. cat -b

This Returns contents with line numbers but excludes the empty lines

Syntax:- \$ cat -b filename

Output:-



```
jobin@jobin-VirtualBox:~$ cat -b demo.txt
1 Hackers playground->kali linux
```

3. touch

This command is used to create a empty file

Syntax:- \$ touch filename

Output:-

```
jobin@jobin-VirtualBox:~$ touch b1.txt
```

4. echo command >> filename

This command helps to add lines on the empty file

Syntax:- \$ echo command>> filename

Output:-

```
jobin@jobin-VirtualBox:~$ echo hello world >> b1.txt
jobin@jobin-VirtualBox:~$ cat b1.txt
hello world
```

5. head

This command returns first 10 lines in the file

Syntax:- \$ head filename

Output:-

```
jobin@jobin-VirtualBox:~$ cat >>b1.txt
hello
welcome
the
world
of
linux
^C
jobin@jobin-VirtualBox:~$ head b1.txt
hello world
hello
welcome
the
world
of
hello
welcome
the
world
jobin@jobin-VirtualBox:~$
```

6. head – (No. of lines)

This will return beginning lines specified in the command

Syntax:- \$ head -4 filename

Output:-

```
jobin@jobin-VirtualBox:~$ head -4 b1.txt
hello world
hello
welcome
the
jobin@jobin-VirtualBox:~$
```

7. tail

This returns the last 10 lines in the file

Syntax \$ tail filename

Output:-

```
jobin@jobin-VirtualBox:~$ tail b1.txt
welcome
the
world
of
hello
welcome
the
world
of
linux
```

8. tail – (No. of lines)

This will return last no of lines specified in the command

Syntax:- \$ tail -4 filename

Output:-

```
jobin@jobin-VirtualBox:~$ tail -4 b1.txt
the
world
of
linux
```

9. cut -f2

This commands in Linux allows you to select the second part of the content that split by ' - ' delimiter.

Syntax:- \$ cut -d- f2 filename

Output:-

```
jobin@jobin-VirtualBox:~$ cat > test.txt
malayalam-45
english-76
physics-56
chemistry-98
mathematics-87
^C
jobin@jobin-VirtualBox:~$ cat -d- -f2 test.txt
cat: invalid option -- 'd'
Try 'cat --help' for more information.
jobin@jobin-VirtualBox:~$ cut -d- -f2 test.txt
45
76
56
98
87
```

10. cut -f1

This commands in Linux allows you to select the First part of the content that split by ' - ' delimiter.

Syntax:- \$ cut -d- f1 filename

Output:

```
jobin@jobin-VirtualBox:~$ cut -d- -f1 test.txt
malayalam
english
physics
chemistry
mathematics
```

NETWORKING & SYSTEM ADMINISTRATION LAB

Experiment No.: 5

Aim

Familiarization of the Linux commands.

Procedure

1. cut -d ' ' f2

This commands in Linux allows you to select the second part of the content that split by ' ' delimiter.

Syntax:- \$ cut -d ' ' f2 filename.txt

Output:-

Name: JOBIN T J

Roll No: 7

Batch: R-MCA B

Date: 31-03-2022

```
jobin@jobin-VirtualBox:~$ cat >demo.txt
malayalam 49
english 67
physics 69^C
jobin@jobin-VirtualBox:~$ cut -d ' ' -f2 demo.txt
49
67
jobin@jobin-VirtualBox:~$
```

2. cut -b 2

This command in Linux allows to select only these bytes.

Syntax:- \$ cut -b 2 filename

Output:-

```
jobin@jobin-VirtualBox:~$ cut -b 2 demo.txt
a
n
jobin@jobin-VirtualBox:~$
```

3. cut --complement

This command helps to exclude given bytes.

Syntax:- \$ cut --complement -c 1 filename

Output:-

```
jobin@jobin-VirtualBox:~$ cut --complement -c 1 demo.txt
alayalam 49
nglish 67
jobin@jobin-VirtualBox:~$
```

4. paste

This command helps to paste contents to other file

Syntax:- \$ paste filename > filename2

Output:-

```
jobin@jobin-VirtualBox:~$ paste demo.txt > test1.txt
jobin@jobin-VirtualBox:~$ cat test1.txt
malayalam 49
english 67
```


5. paste a b > c

This command helps to paste from multiple files.

Syntax:- \$ paste file1 file2 > file3

Output:-

```
jobin@jobin-VirtualBox:~$ cat > demo1.txt
python
java
ruby
html
css
^C
jobin@jobin-VirtualBox:~$ cat > demo2.txt
kali linux
ubuntu
solarlist
centos
min
mint
^C
jobin@jobin-VirtualBox:~$ paste demo1.txt demo2.txt >demo3.txt
jobin@jobin-VirtualBox:~$ cat demo3.txt
python kali linux
java ubuntu
ruby solarlist
html centos
css min
mint
```

6. paste -d ‘ ‘

This command helps to paste contents with ‘ ‘ delimiter.

Syntax:- \$ paste -d ‘ ‘ file1 file 2 > file3

Output:-

```
jobin@jobin-VirtualBox:~$ paste -d ' ' demo1.txt demo2.txt >demo3.txt
jobin@jobin-VirtualBox:~$ cat demo3.txt
python kali linux
java ubuntu
ruby solarlist
html centos
css min
mint
```

7. paste -d ‘-‘

This command helps to contents from multiple files with ‘-‘ delimiter.

Syntax:- \$ paste -d ‘-‘ file1 file2 > file3

Output:-

```
jobin@jobin-VirtualBox:~$ paste -d '-' demo1.txt demo2.txt >demo3.txt
jobin@jobin-VirtualBox:~$ cat demo3.txt
python-kali linux
java-ubuntu
ruby-solarlist
html-centos
css-min
-mint
```


8. paste -s

This command helps to paste on file at a time instead of in parallel.

Syntax:- \$ paste -s file1 file2 > file3.

Output:-

```

jobin@jobin-VirtualBox:~$ paste -s demo1.txt demo2.txt >demo3.txt
jobin@jobin-VirtualBox:~$ cat demo3.txt
python  java      ruby   html    css
kali linux  ubuntu solarlist  centos  min     mint

```

9. more

More command is used to view the text files in the command prompt, displaying one screen at a time in case the file is large.

Syntax:- \$ more filename.

Output:-

```

jobin@jobin-VirtualBox:~$ more more.txt
From theory to reality

In his general theory of relativity from 1915, Albert Einstein was the first to
suggest that our universe contains such strange, dense, massive objects. Black
A big blue star's substance funnelling toward an orange accretion disk surroundi
ng a black hole.
Artist's concept of Cygnus X-1. Astronomers believe Cygnus X-1 is a typical ste
llar black hole in a binary star system. Cygnus X-1 was once a star before coll
--More-- (22%)

```

SPACE Key is act as a NEXT button.

```

sive black holes at their cores. The one at the center of our own Milky Way gal
axy, Sagittarius A*, has some 4 million times our sun's mass and is some 37 mil
lion miles in diameter.
--More-- (46%)

```

131 words English (India) Accessibility: Investigate

B Key act as a PREVIOUS button.

```

orm contains a vast array of tools and utilities. Fro
m information gathering to final reporting, Kali Linu
x enables security and IT professionals to assess the
--More-- (24%)

```

ENTER key is used to view line by line.

```

des are available, to help ease doubts or address an
y issues. All documentation is open, so you can easil
y contribute. The Kali Linux penetration testing platf
--More-- (45%)

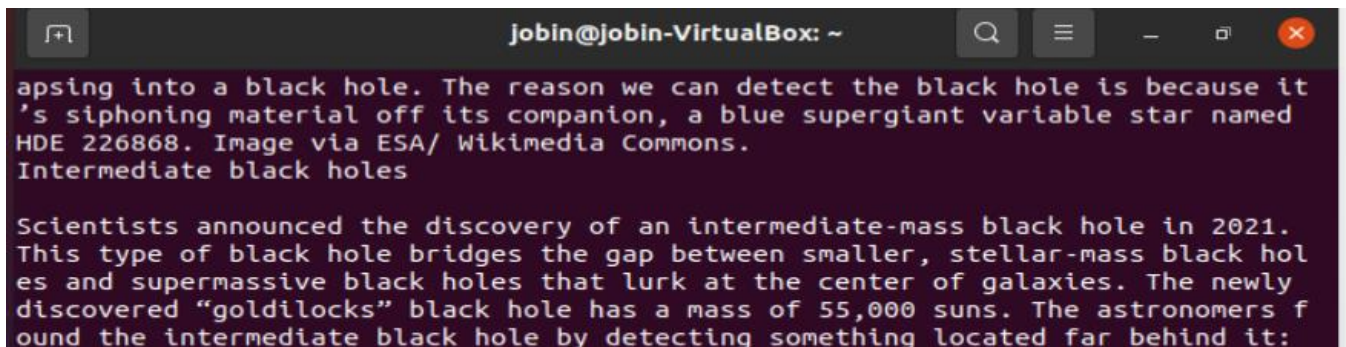
```

10. more -s

This command is used to squeeze multiple blank lines into one.

Syntax:- \$ more -s filename.

Output:-



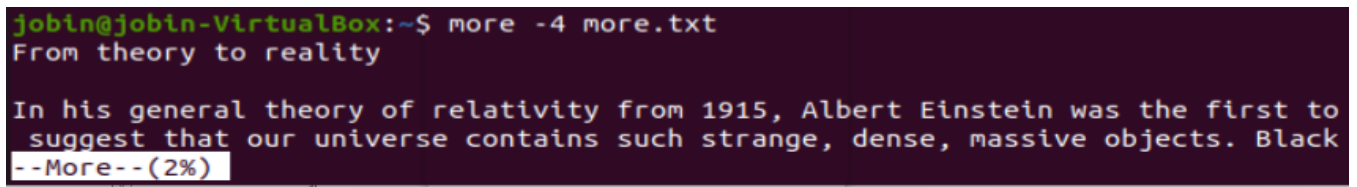
```
jobin@jobin-VirtualBox: ~  
apsing into a black hole. The reason we can detect the black hole is because it  
's siphoning material off its companion, a blue supergiant variable star named  
HDE 226868. Image via ESA/ Wikimedia Commons.  
Intermediate black holes  
  
Scientists announced the discovery of an intermediate-mass black hole in 2021.  
This type of black hole bridges the gap between smaller, stellar-mass black hol  
es and supermassive black holes that lurk at the center of galaxies. The newly  
discovered "goldilocks" black hole has a mass of 55,000 suns. The astronomers f  
ound the intermediate black hole by detecting something located far behind it:
```

11. more -(no.)

This command helps to view content based on specified number of lines.

Syntax:- \$ more -4 filename.

Output:-



```
jobin@jobin-VirtualBox:~$ more -4 more.txt  
From theory to reality  
  
In his general theory of relativity from 1915, Albert Einstein was the first to  
suggest that our universe contains such strange, dense, massive objects. Black  
--More-- (2%)
```