

NETWORKING & SYSTEM ADMINISTRATION LAB

Experiment No.: 1

Name: ALLEN S PHILIP

Roll No: 20

Batch: A

Date: 18-03-2022

Aim

Identify major components of a computer system, Such as:

- ❖ Mother board
- ❖ Ram Modules
- ❖ Daughter Cards
- ❖ Bus slots
- ❖ SMPS
- ❖ Internal Storage Devices
- ❖ Interfacing Ports

Procedure

Mother board

The motherboard serves as a single platform to connect all of the parts of a computer together. It connects the CPU, memory, hard drives, optical drives, video card, sound card, and other ports and expansion cards directly or via cables. It can be considered as the backbone of a computer.

Ram Modules

Random-access memory (RAM) is a form of computer memory that can be read and changed in any order, typically used to store working data and machine code. A random-access memory device allows data items to be read or written in almost the same amount of time irrespective of the physical location of data inside the memory, in contrast with other direct-access data storage media (such as hard disks, CD-RWs, DVD-RWs and the older magnetic tapes and drum memory), where the time required to read and write data items varies significantly depending on their physical locations on the recording medium, due to mechanical limitations such as media rotation speeds and arm movement.

Daughter Cards

A daughtercard or daughterboard is a type of circuit board that gets added to an existing one. Its name is appropriate for its use, since it is connected to a “motherboard” or “main board.” The motherboard is the primary circuit board for a device. It is usually in the device as it is shipped from the factory. A daughtercard may be added later.

- ◆ **Graphics Cards:** A graphics card is an expansion card for your PC that is responsible for rendering images to the display. A graphics card provides high-quality visual display by processing and executing graphical data using advanced graphical techniques, features and functions.
- ◆ **Network Cards:** network interface card (NIC) is a hardware component without which a computer cannot be connected over a network. It is a circuit board installed in a computer that provides a dedicated network connection to the computer. It is also called network interface controller, network adapter or LAN adapter.
- ◆ **Audio Cards:** A sound card (also known as an audio card) is an internal expansion card that provides input and output of audio signals to and from a computer under control of computer programs. The term sound card is also applied to external audio interfaces used for professional audio applications.

Bus Slots

An expansion slot is a socket on the motherboard that is used to insert an expansion card (or circuit board), which provides additional features to a computer such as video, sound, advanced graphics, Ethernet or memory.

SMPS

A switched-mode power supply (SMPS) is an electronic circuit that converts power using switching devices that are turned on and off at high frequencies, and storage components such as inductors or capacitors to supply power when the switching device is in its non-conduction state.

Switching power supplies have high efficiency and are widely used in a variety of electronic equipment, including computers and other sensitive equipment requiring stable and efficient power supply.

A switched-mode power supply is also known as a switch-mode power supply or switching-mode power supply.

Internal Storage Devices

Most computers have some form of internal storage. The most common type of internal storage is the hard disk. At the most basic level, internal storage is needed to hold the operating system so that the computer is able to access the input and output devices. Hard disk, also called hard disk drive or hard drive, magnetic storage medium for a computer. Hard disks are flat circular plates made of aluminium or glass and coated with a magnetic material.

3 types of internal storage

- ◆ Optical
 - ◆ Magnetic
 - ◆ Semiconductor.
-
- ◆ RAM Computer memory or Random Access Memory (RAM) is your system's short-term data storage; it stores the information your computer is actively using so that it can be accessed quickly.
 - ◆ ROM which stands for read only memory, is a memory device or storage medium that stores information permanently. It is also the primary memory unit of a computer along with the Random Access Memory (RAM). It is called read only memory as we can only read the programs and data stored on it but cannot write on it.

Interfacing Ports

A port is a physical docking point using which an external device can be connected to the computer. It can also be programmatic docking point through which information flows from a program to the computer or over the Internet.

Serial Port

- Used for external modems and older computer mouse
- Two versions: 9 pin, 25 pin model

Parallel Port

- Used for scanners and printers
- Also called printer port
- 25 pin model

PS/2 Port

- Used for old computer keyboard and mouse
- Also called mouse port
- Most of the old computers provide two PS/2 port, each for the mouse and keyboard

Universal Serial Bus (or USB) Port

- It can connect all kinds of external USB devices such as external hard disk, printer, scanner, mouse, keyboard, etc.
- Most of the computers provide two USB ports as minimum.
- USB compliant devices can get power from a USB port.

VGA Port

- Connects monitor to a computer's video card.
- It has 15 holes.
- Similar to the serial port connector. However, serial port connector has pins, VGA port has holes.

Power Connector

- Three-pronged plug.
- Connects to the computer's power cable that plugs into a power bar or wall socket.

Firewire Port

- Transfers large amount of data at very fast speed.
- Connects camcorders and video equipment to the computer.

Modem Port

- Connects a PC's modem to the telephone network.

Ethernet Port

- Connects to a network and high speed Internet.
- Connects the network cable to a computer.
- This port resides on an Ethernet Card.

Game Port

- Connect a joystick to a PC
- Now replaced by USB

Digital Video Interface, DVI port

- Connects Flat panel LCD monitor to the computer's high-end video graphic cards.
- Very popular among video card manufacturers.

Sockets

- Sockets connect the microphone and speakers to the sound card of the computer.

NETWORKING & SYSTEM ADMINISTRATION LAB

Experiment No.: 2

Name: ALLEN S PHILIP

Roll No: 20

Batch: A

Date: 18-02-2022

Aim

Prepare a computer study of specifications of Desktops and Server class computers

Procedure

Desktop Computer Specifications

Minimum Requirements:

We support the following minimum computer configurations.

Note: The following lists minimum requirements that allow for network connectivity and other basic functions. If you are planning on purchasing a new computer, please use the recommended configurations above.

Processor (CPU): Intel Core i3 (sixth generation or newer) or equivalent

Operating System: Microsoft Windows 10 x64

(free via Azure Dev Tools for Teaching. Restrictions apply.)

Memory: 8 GB RAM

Storage: 500 GB internal storage drive

Monitor/Display: 15" LCD monitor

Other: 802.11ac 2.4/5 GHz wireless adapter

Recommended Configurations:

Recommend systems that meet or exceed the following specifications:

Processor (CPU):	Intel Core i5 (sixth generation or newer) or equivalent
Operating System:	Microsoft Windows 10 Professional x64 (free via Azure Dev Tools for Teaching. Restrictions apply.)
Memory:	16 GB RAM
Storage:	512 GB internal Solid State Drive (SSD) or 1 TB inter
Sustainability	EPEAT Silver rating (preferably EPEAT Gold)
Monitor/Display:	24" LCD monitor
Network Adaptor:	802.11ac 2.4/5 GHz wireless adapter
Other:	Webcam, lock, external drive for backups

Server Class Computer Specification

Minimum System Requirements:

The minimum requirement for a single-computer installation is a computer with the following features:

- A modern multi-core CPU.
- 4 GB dedicated RAM with an extra 1.5 GB RAM for any additional language servers.
- Additional 4 GB of RAM for running the Analytics server.
- 5 GB of free hard disk space in the installation directory.

The hardware requirements for each language server, the Analytics server, and the core server in a distributed installation are the same as for a single-computer installation. These requirements also apply for installations in virtualized environments.

Best Practice System Requirements:

The best practice is to run the language servers on the same machine as the core server. We recommend that you use a computer with the following features:

- A modern multi-core CPU with one CPU core available per service.

- 8 GB dedicated RAM with an extra 4 GB RAM for any additional language servers.
- Additional 8 GB of RAM for running the Analytics server.
- 20 GB of free hard disk space in the installation directory.

Software Requirements

The Core Platform or its components (core server, language servers) require a computer with a supported operating system. The Core Platform requires a compatible web browser and the Java Development Kit (JDK). You can either use Oracle Java SE 8 JDK x64 or IBM Java 8 SDK 64-bit.

NETWORKING & SYSTEM ADMINISTRATION LAB

Experiment No.: 3

Name: ALLEN S PHILIP

Roll No:20

Batch: A

Date:21-03-2022

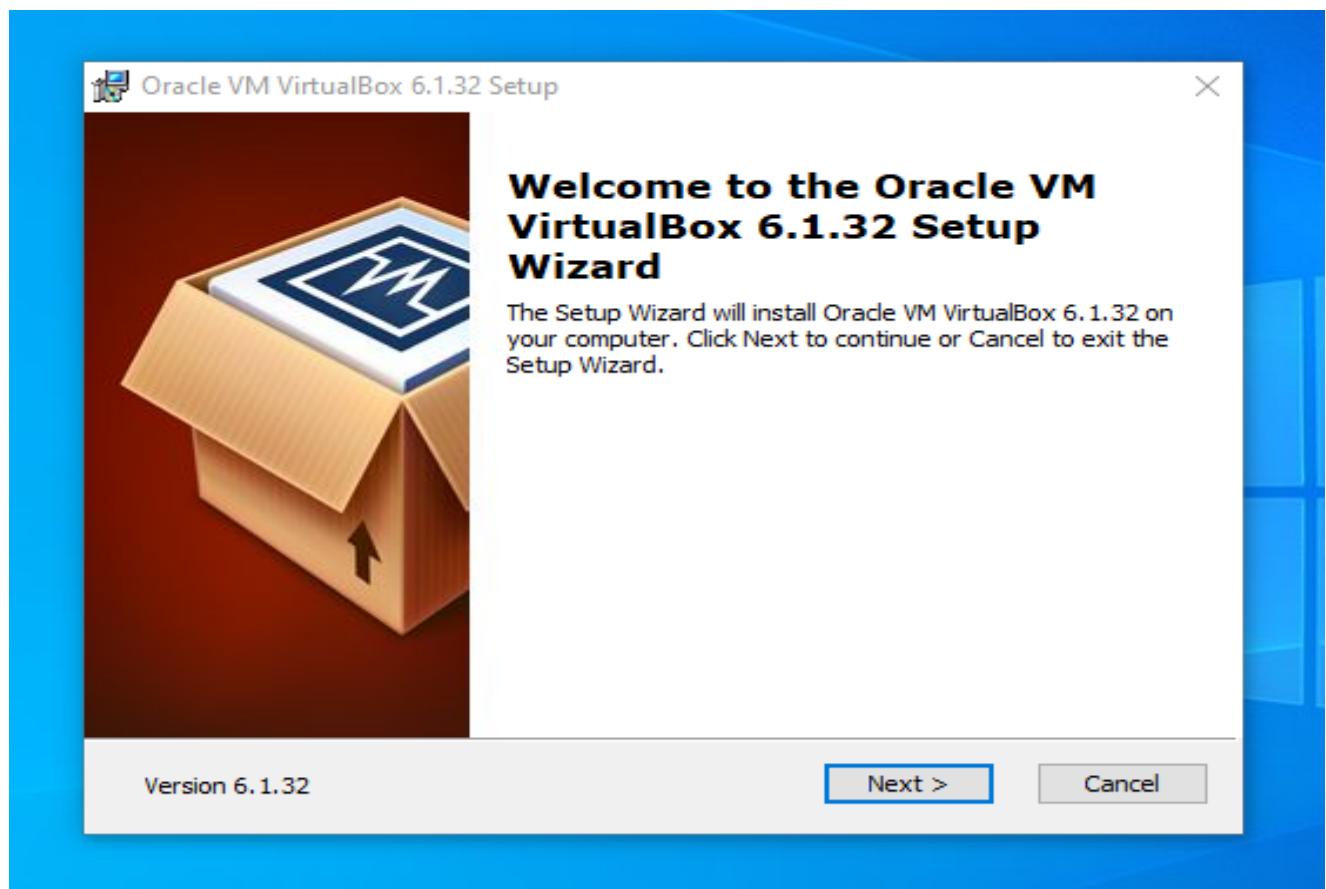
Aim

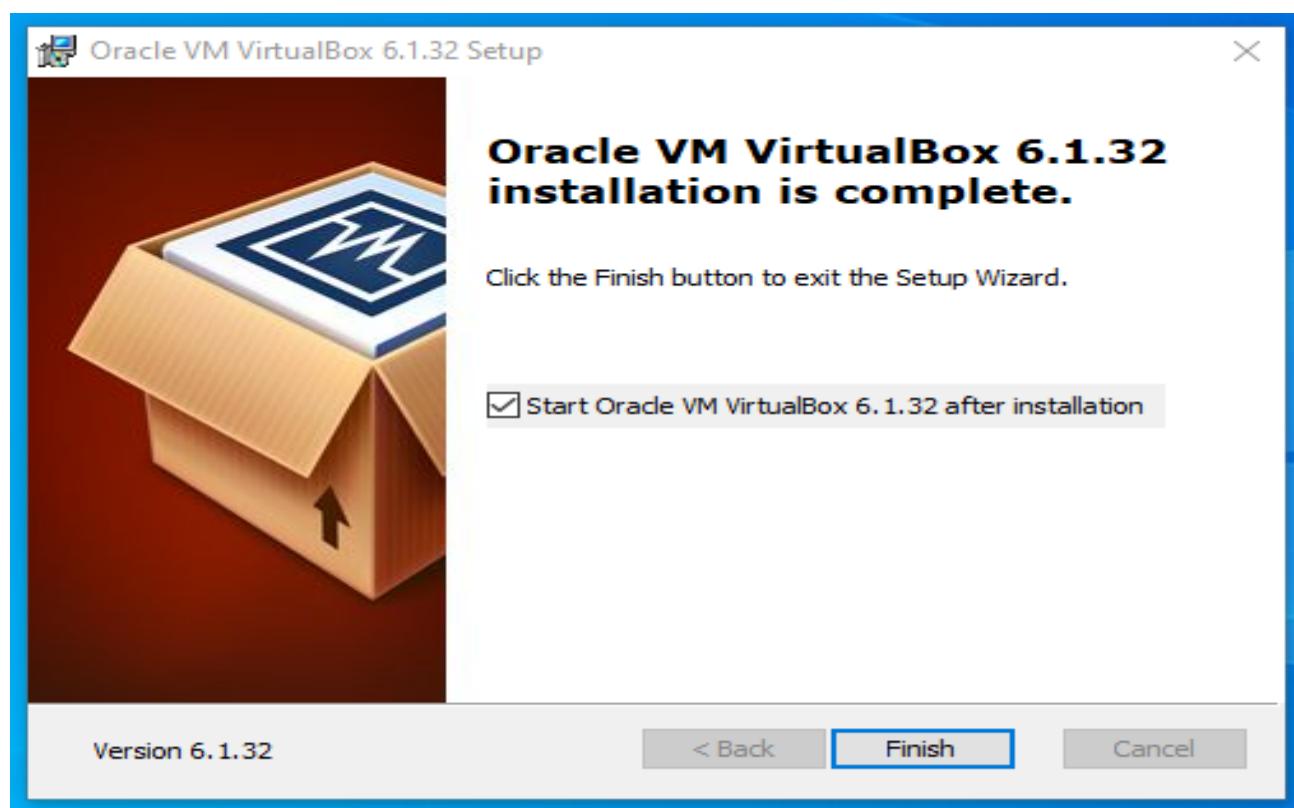
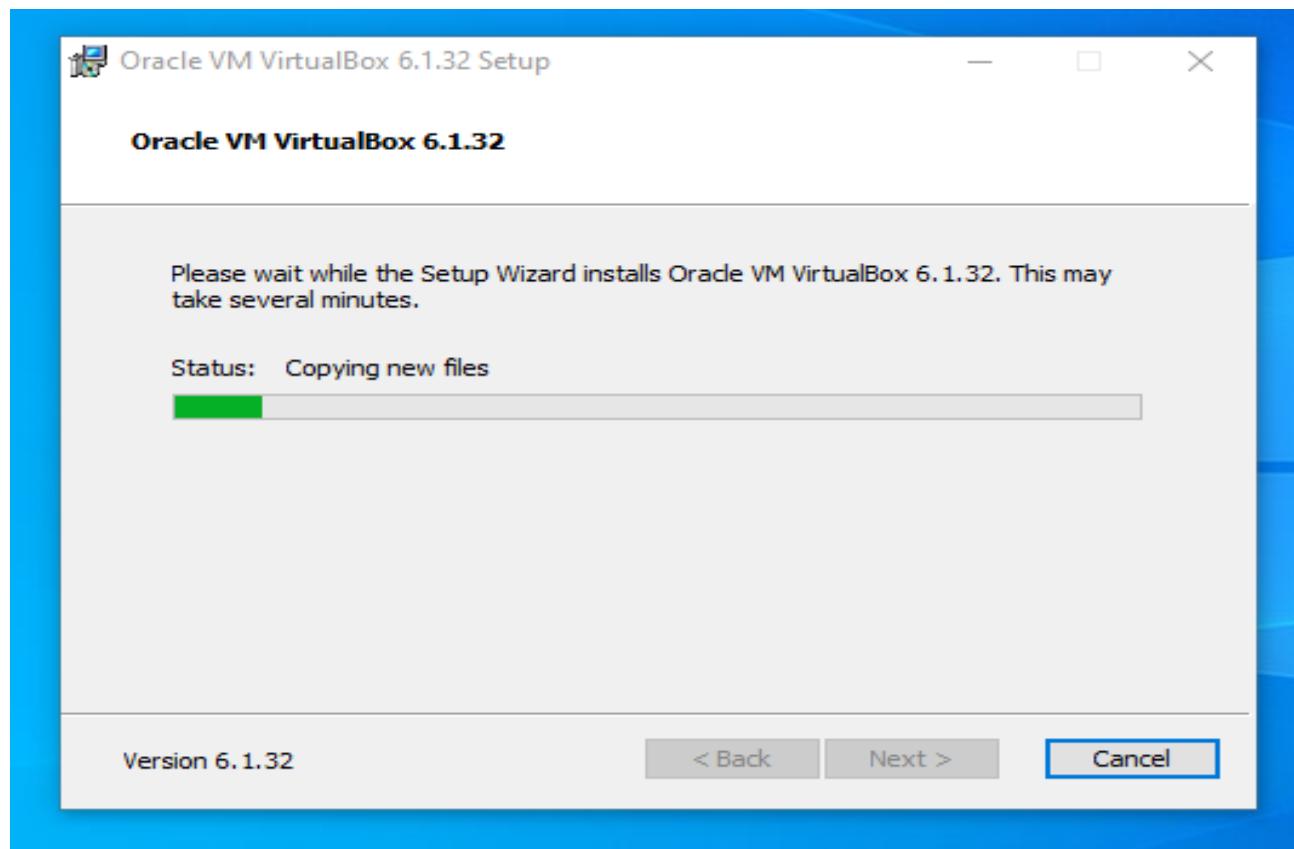
You are given a computer with very low hardware resources it is to be used as a kiosk identify and install a suitable linux distribution you can simulate it in a virtual environment?

Procedure

Step 1

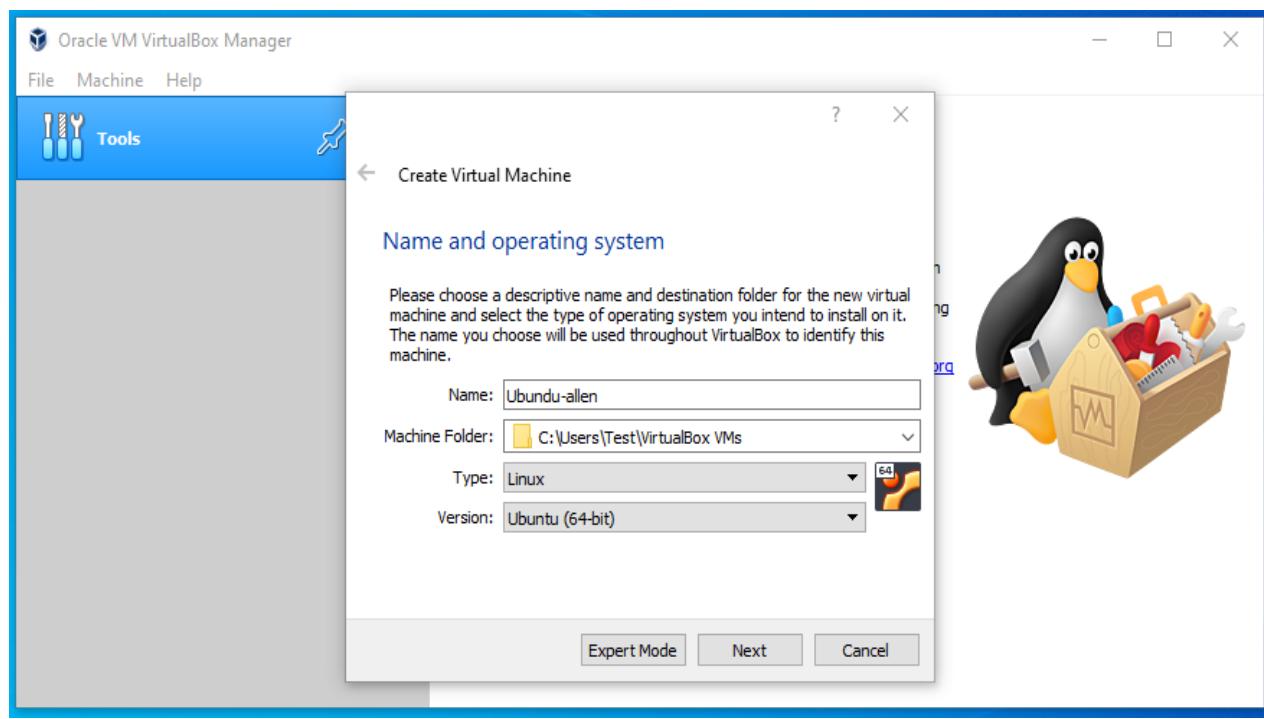
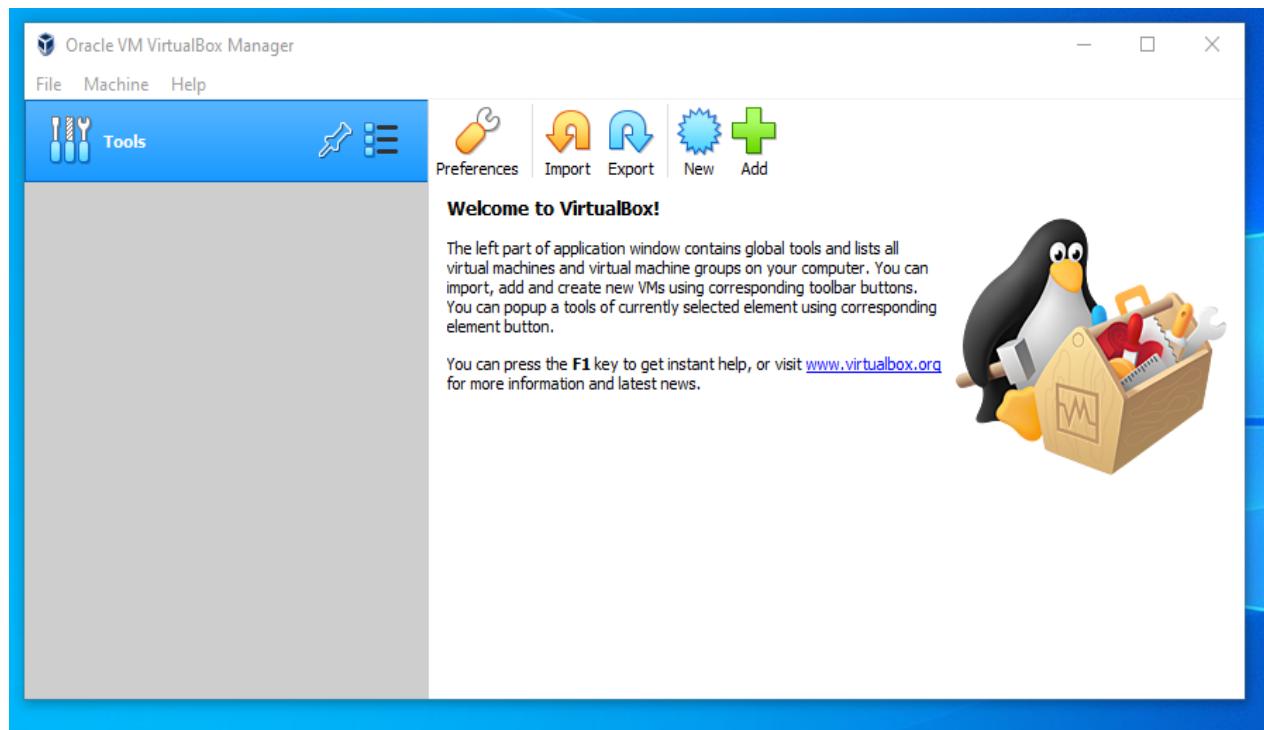
Install virtual box.





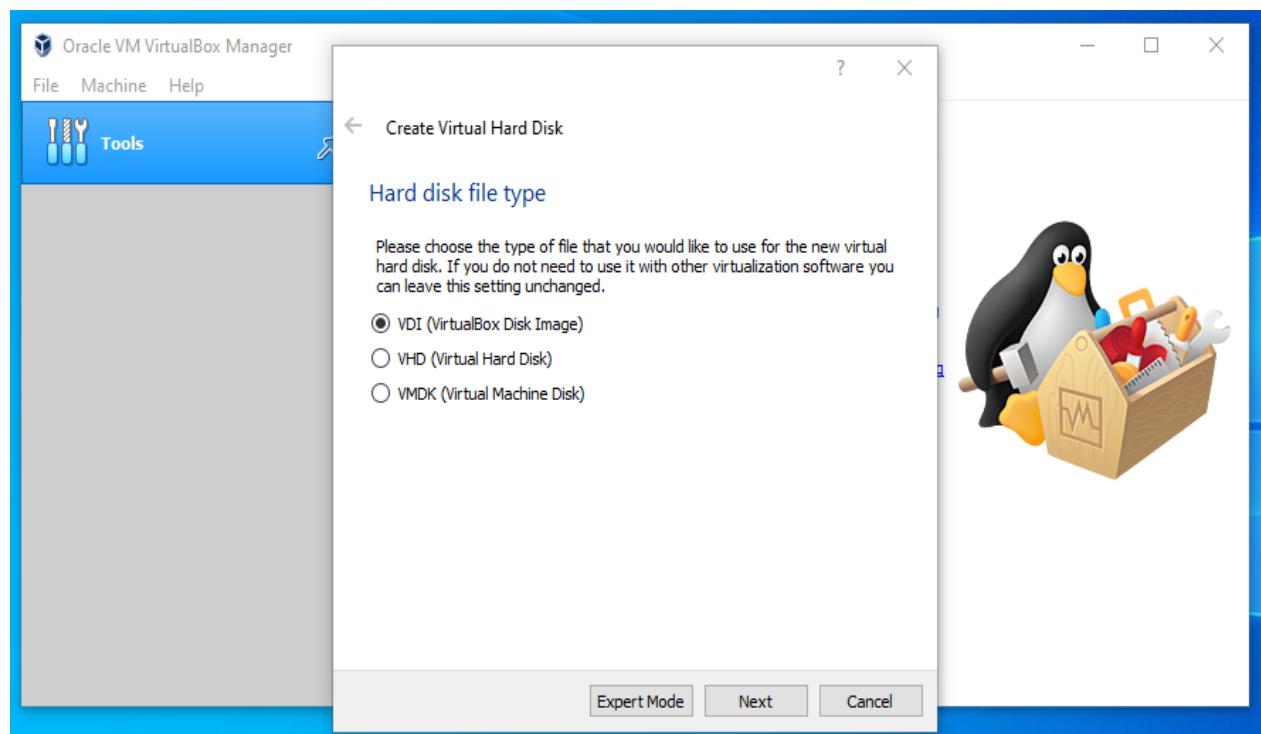
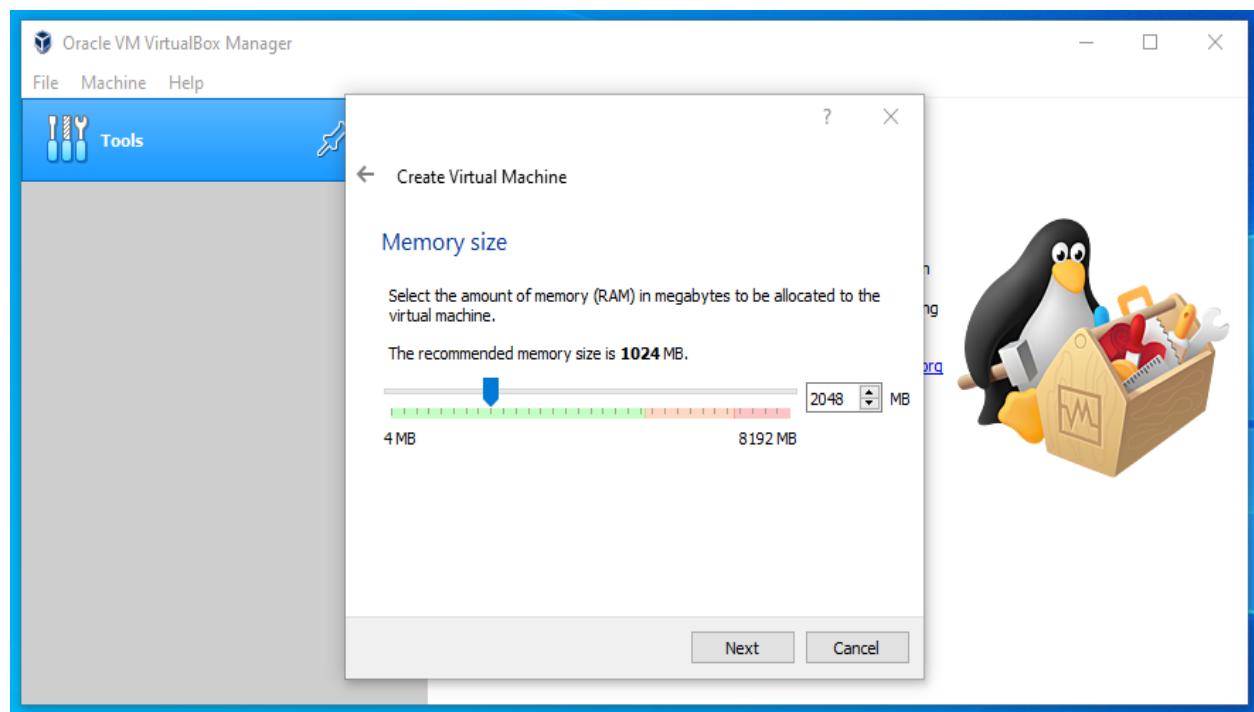
Step 2

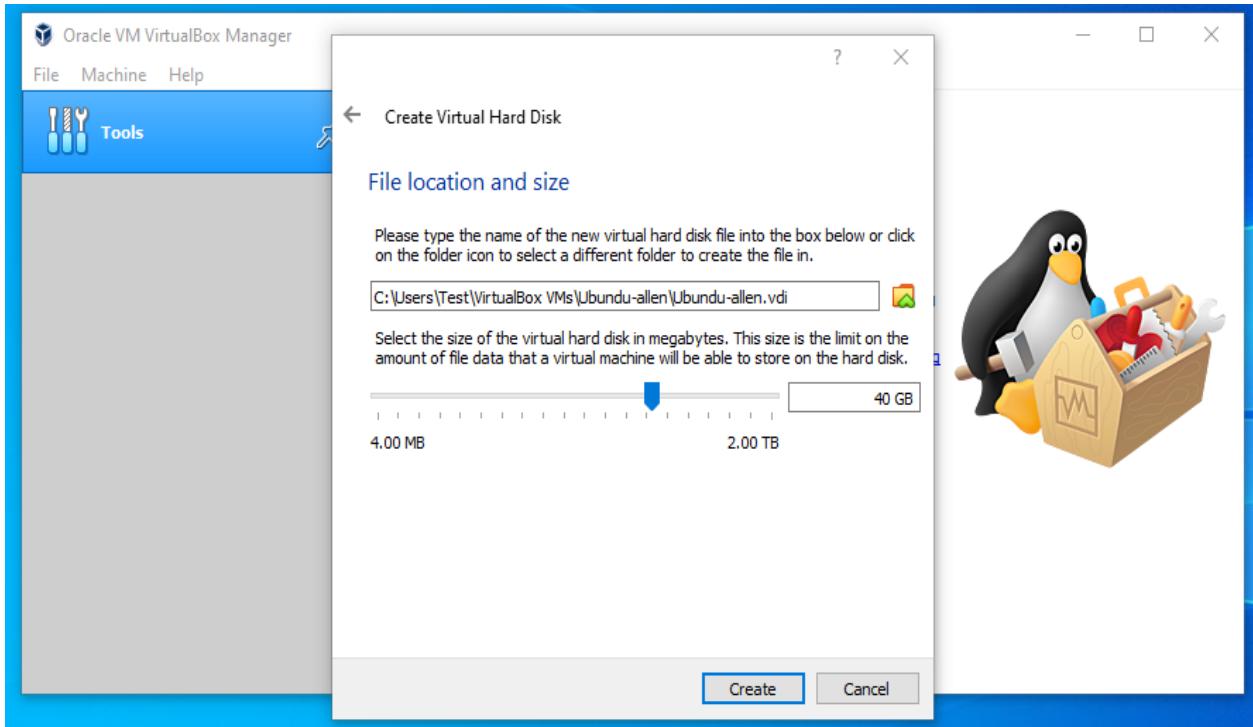
Click new to add new operating system and give it a name.



Step 3

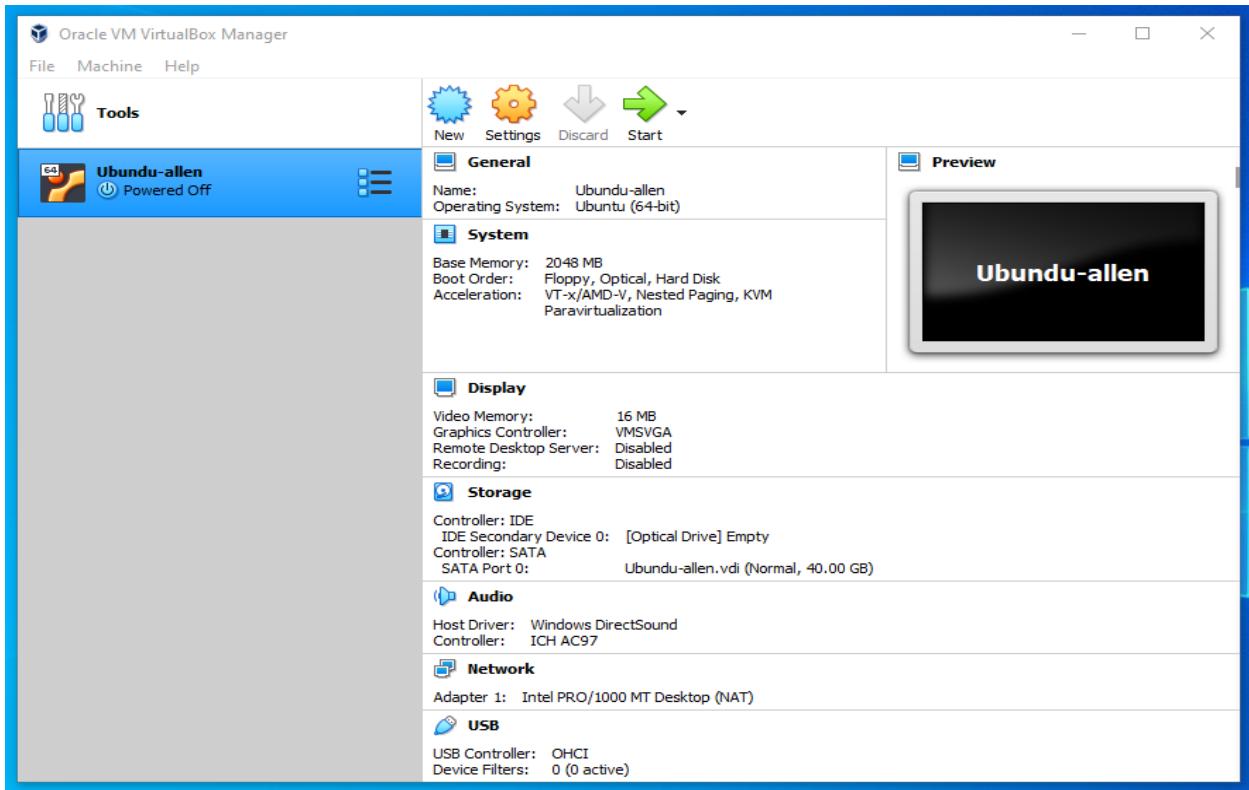
Set size of ram required and create a virtual hard disk.

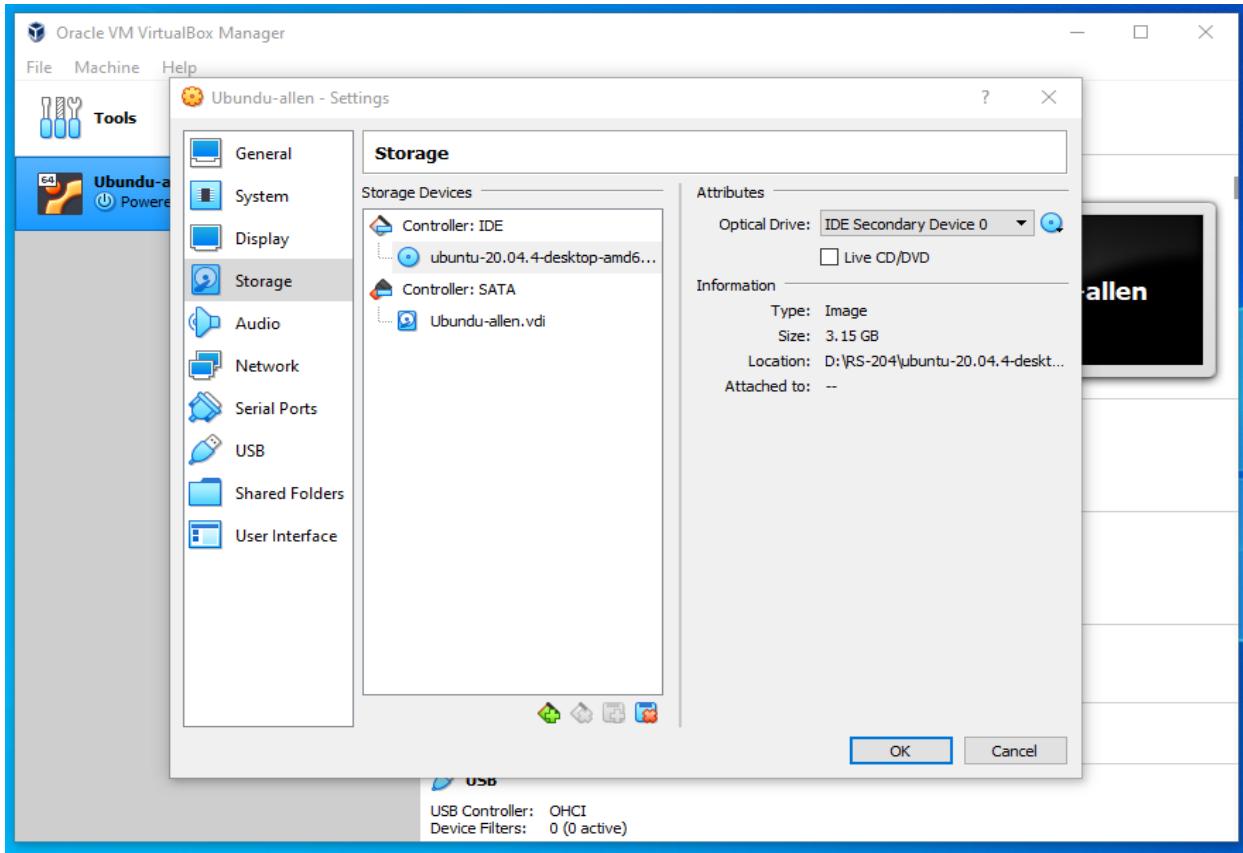




Step 4

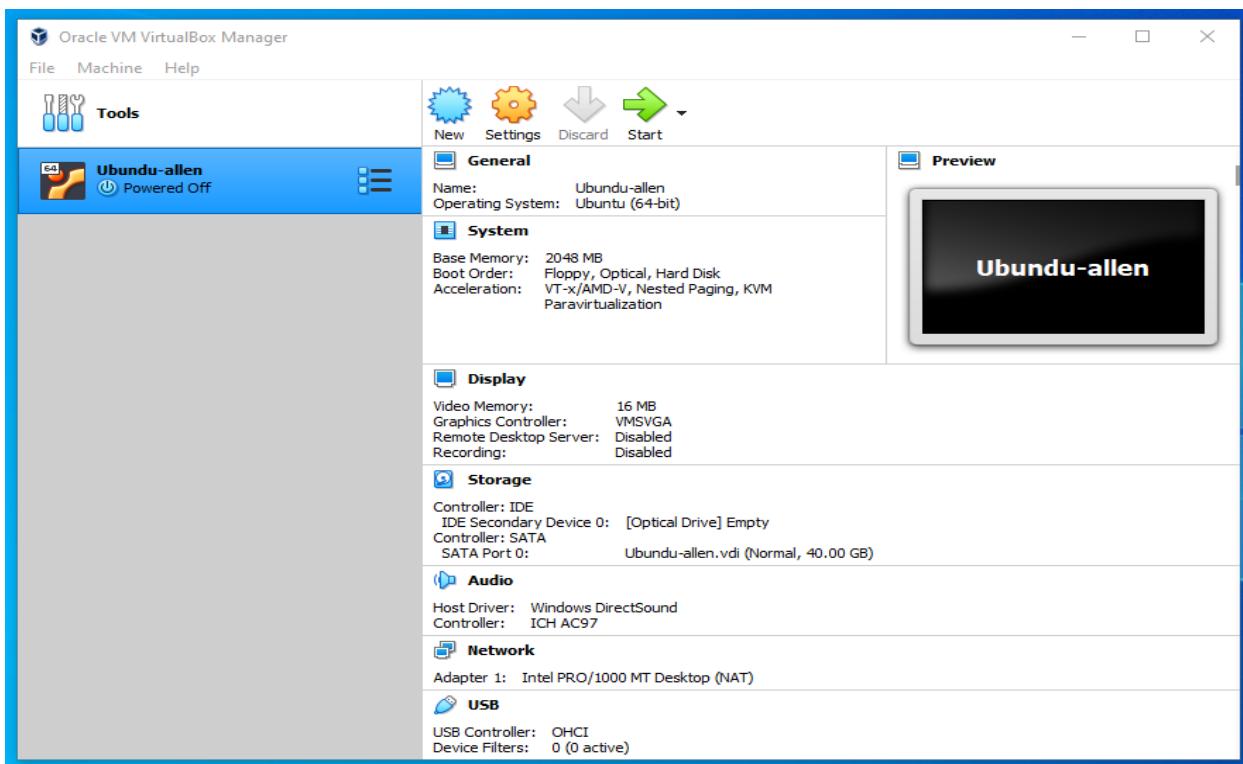
Add location of the iso file.

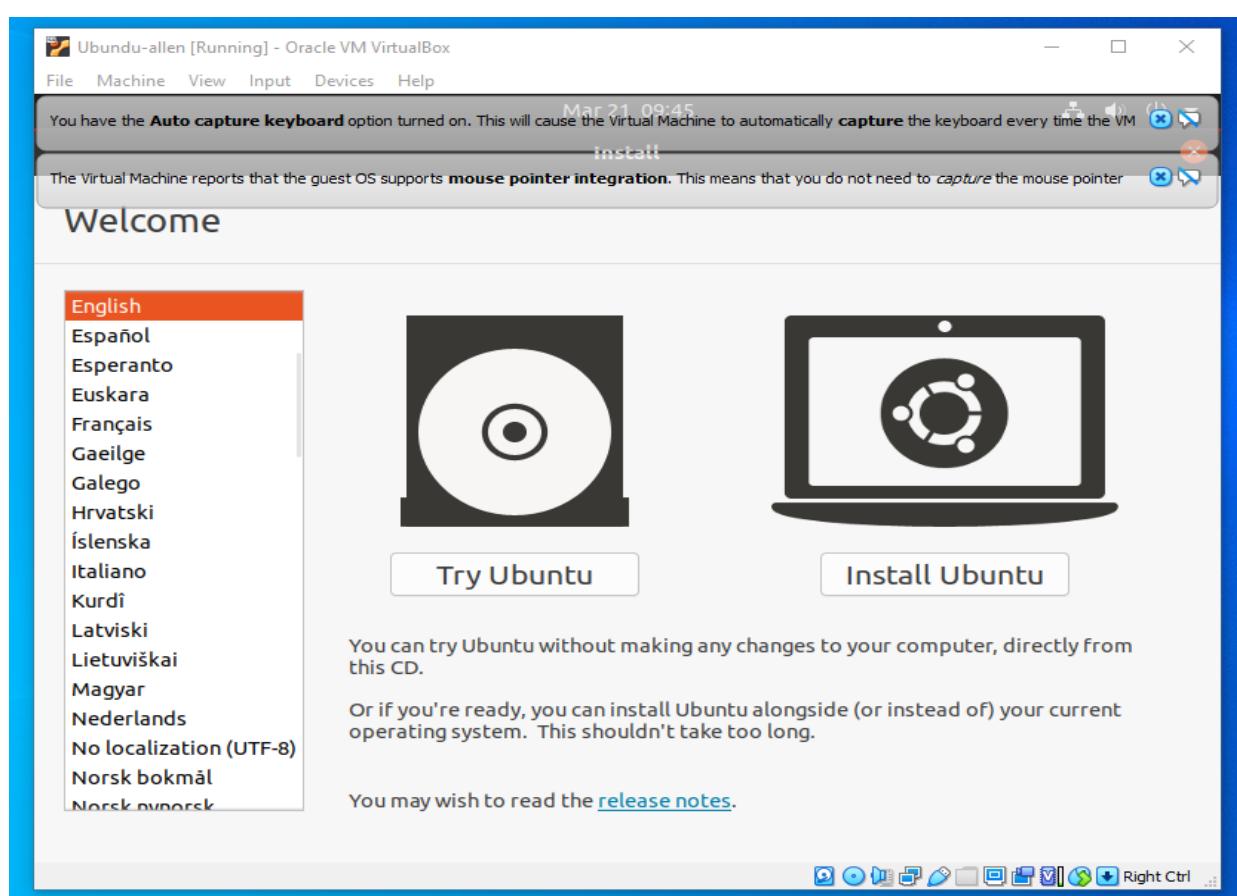
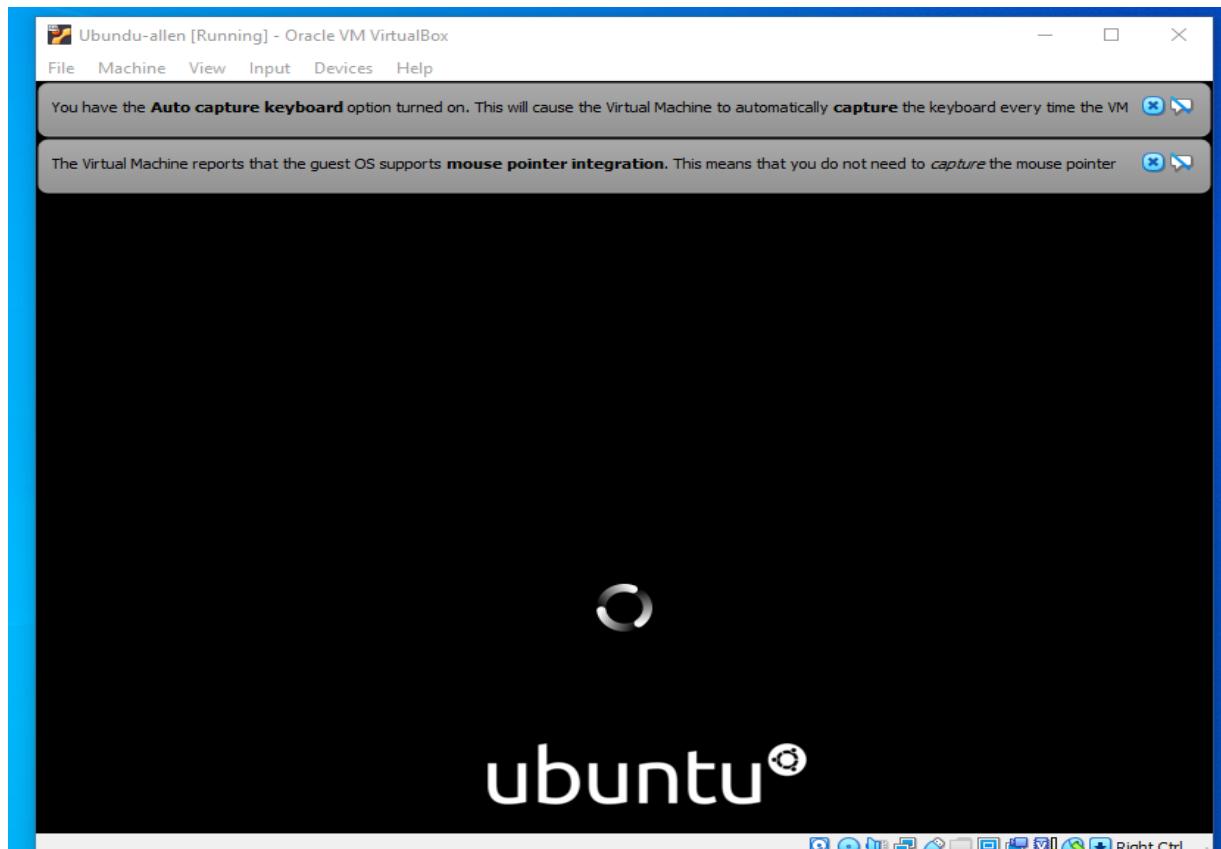


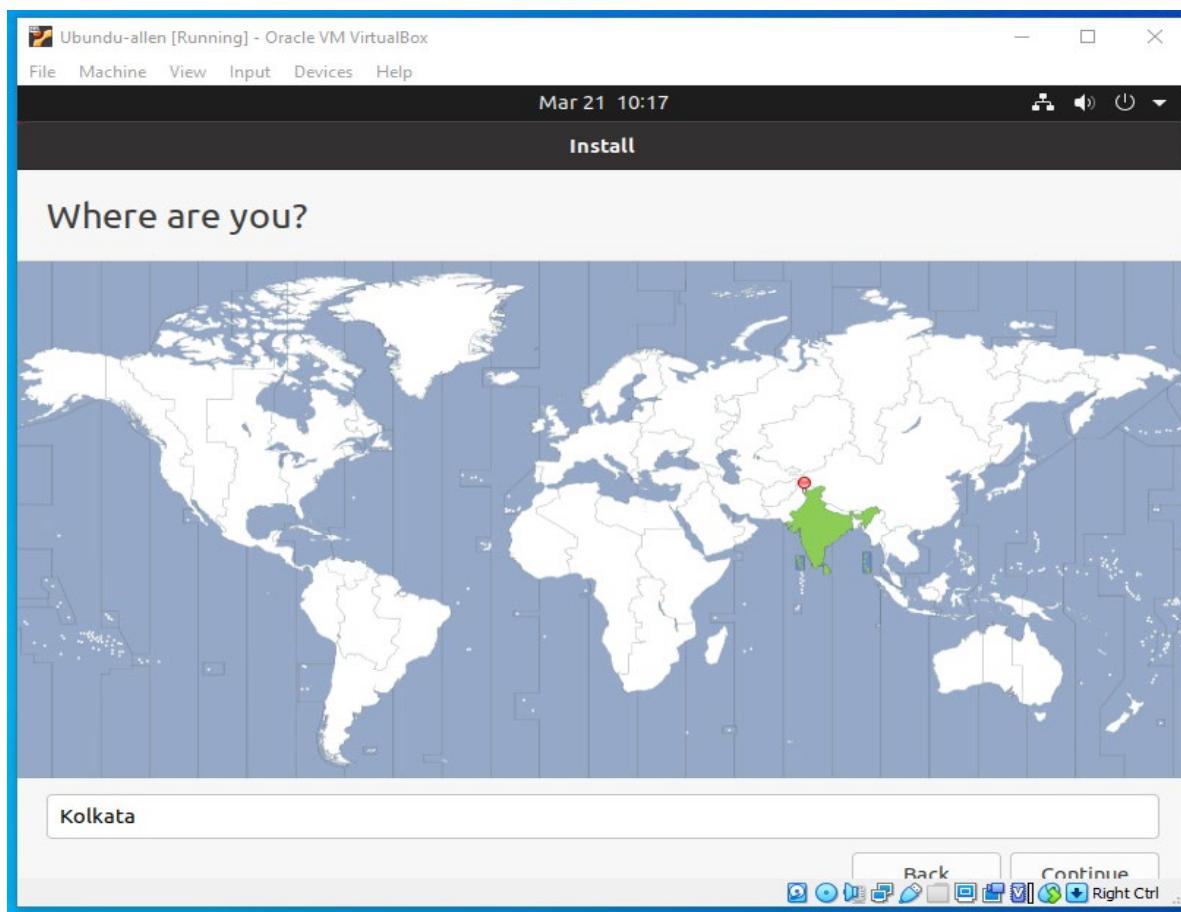
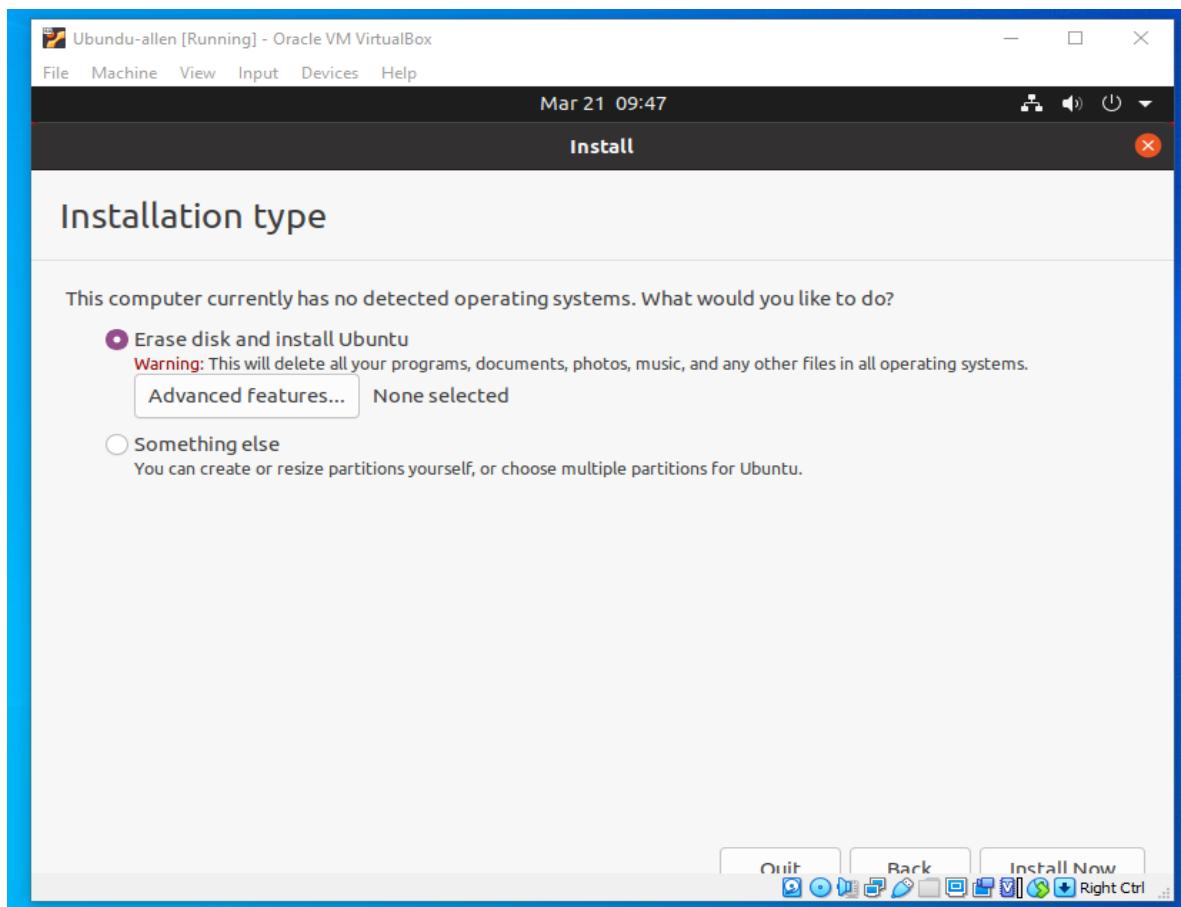


Step 5

Click the start arrow to run the os.

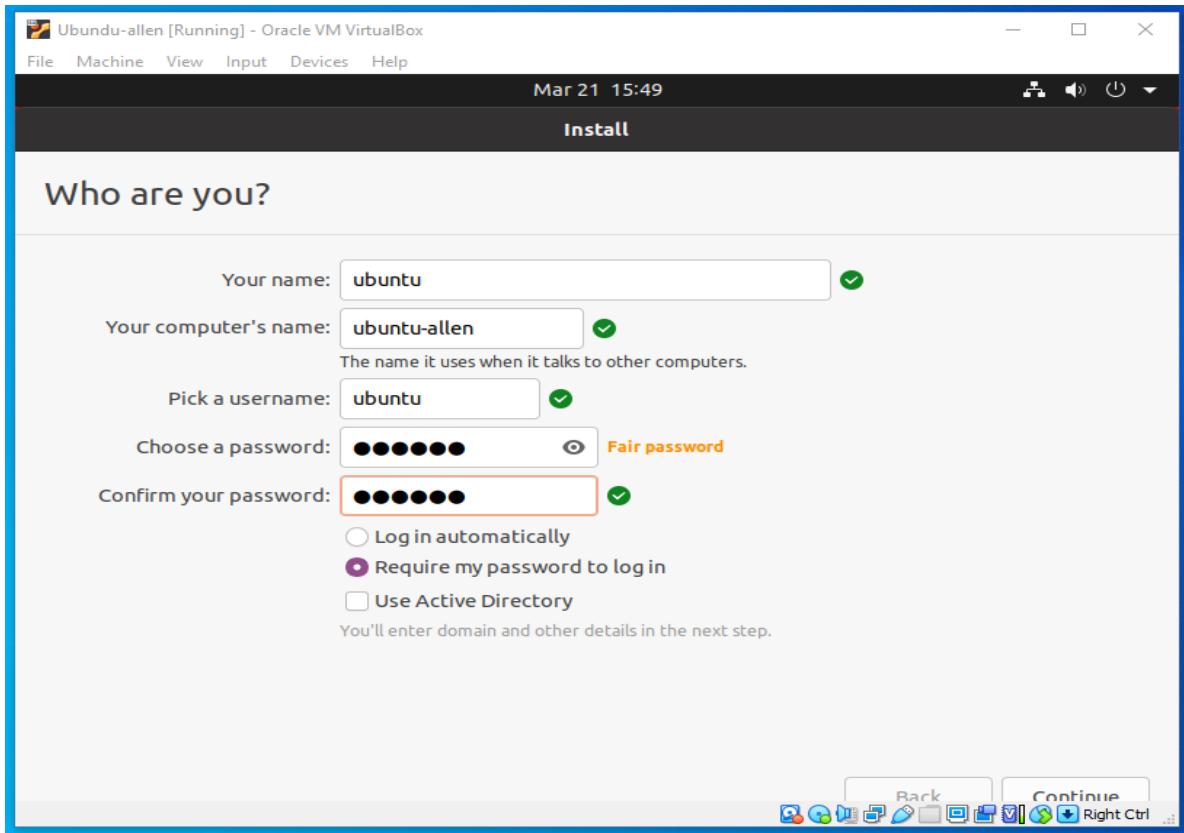






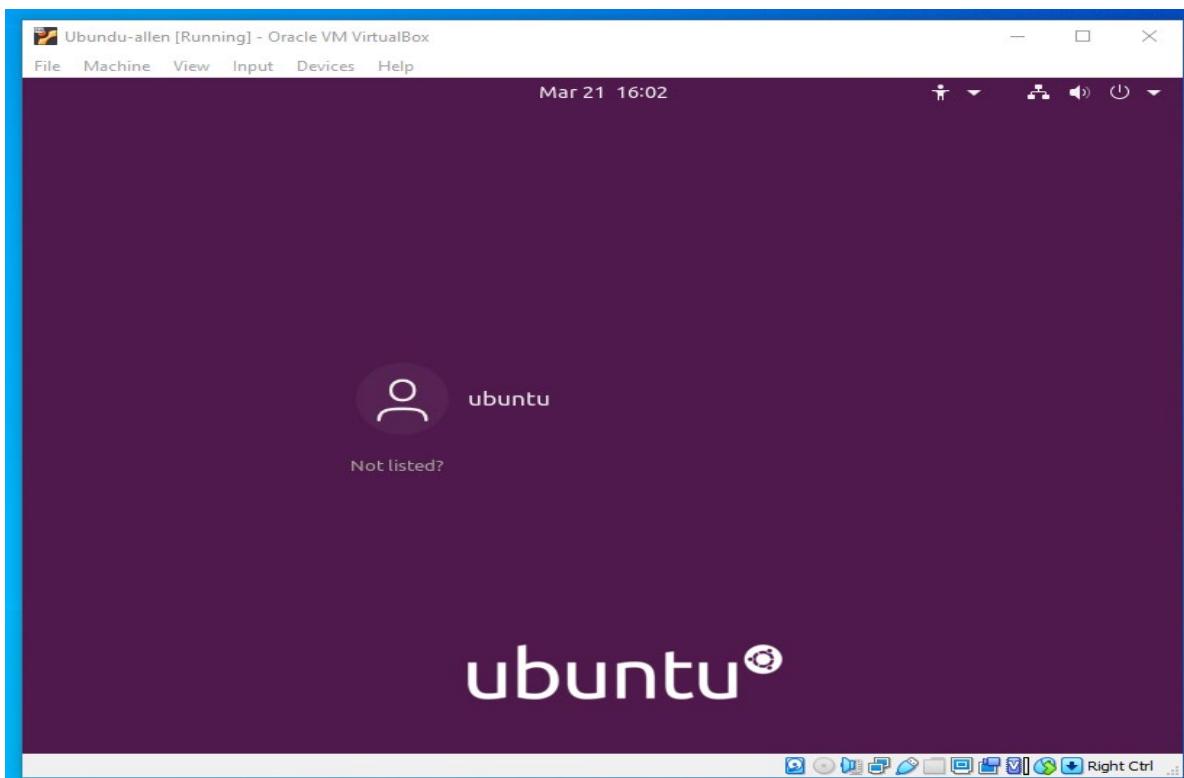
Step 6

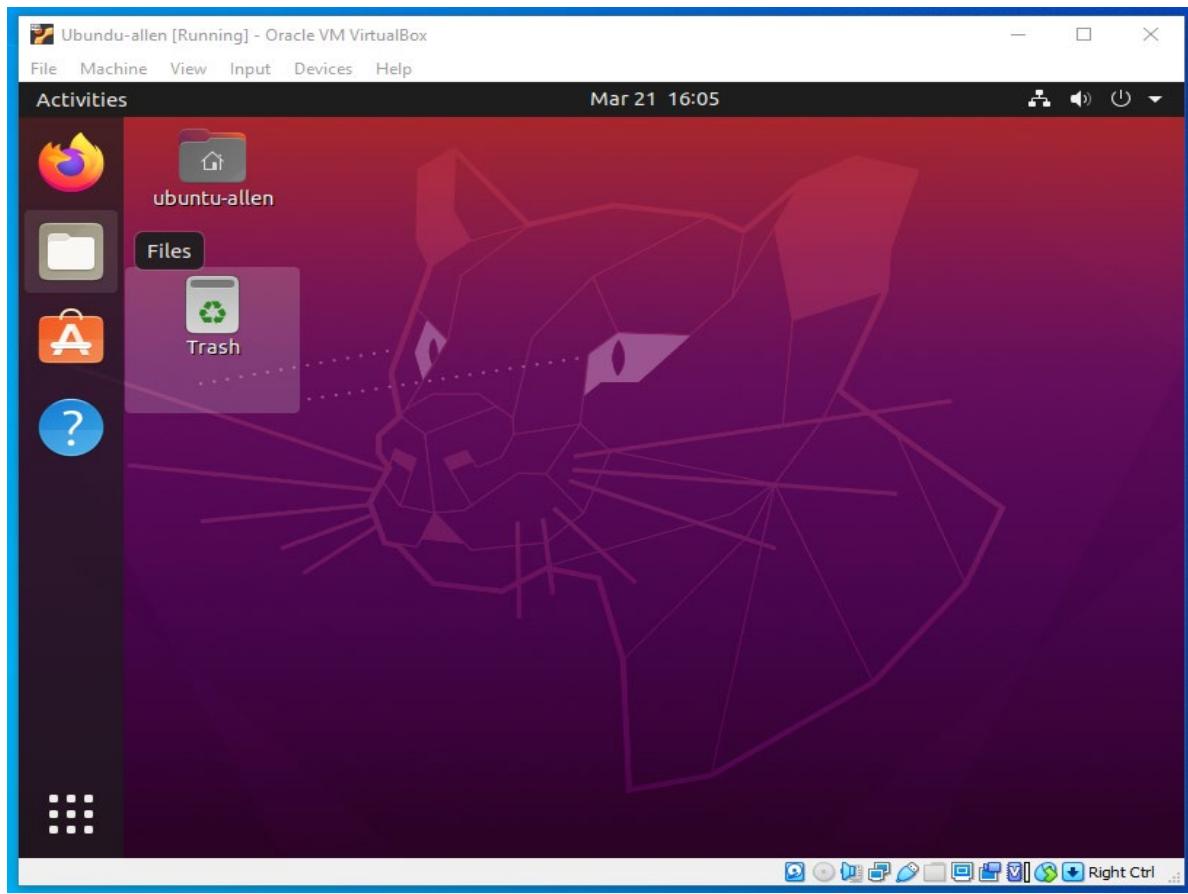
Set your username and password



Step 7

Login to the user using your password.





NETWORKING & SYSTEM ADMINISTRATION LAB

Experiment No.: 4

Name: ALLEN S PHILIP

Roll No: 20

Batch: A

Date: 25/03/2022

Aim

Learn basic Linux commands.

Procedure

1. pwd (Print Working Directory)

To find out the path of the current working directory (folder) you're in.

2. history

To review the commands you have entered before. command number to run a command from history.

3. man

This will show the manual instruction of the command.

Eg: man pwd

4. cd

To navigate through the Linux files and directories.

- cd .. (with two dots) to move one directory up
- cd to go straight to the home folder
- cd- (with a hyphen) to move to your previous directory

5. ls

The ls command is used to view the contents of a directory. By default, this command will display the contents of your current working directory.

- ls -R will list all the files in the sub-directories as well
- ls -l – long listing
- ls -a will show the hidden files
- ls -al will list the files and directories with detailed information like the permissions, size, owner, etc.
- ls -t lists files sorted in the order of “last modified”

- ls -r option will reverse the natural sorting order. Usually used in combination with other switches such as ls -tr. This will reverse the time-wise listing.

6. mkdir

Use mkdir command to make a new directory. Use the p (parents) option to create a directory in between two existing directories.

7. rmdir

If you need to delete a directory, use the rmdir command. However, rmdir only allows you to delete empty directories.

8. touch

The touch command allows you to create a blank new file through the Linux command line.

9. rm

The rm command is used to delete directories and the contents within them. If you only want to delete the directory — as an alternative to rmdir — use rm -r.

Output Screenshot

```

student@U20:~/Documents/ALLEN$ pwd
/home/student/Documents/ALLEN
student@U20:~/Documents/ALLEN$ history
 1  clear
 2  java -version
 3  sudo apt install openjdk-8-jre-headless
 4  java -version
 5  nano alien.java
 6  ls
 7  cd Desktop/
 8  javac alien.java
 9  sudo apt install openjdk-11-jdk-headless
10  javac alien.java
11  java HelloWorld
12  TOUCH 1.TXT
13  touch 1.txt
14  touch 2.txt
15  CWD
16  pwd
17  history
18  16
19  17
20  clear
21  pwd
22  history
23  pwd
24  man ls
25  ls -l
26  ls -l
27  pwd
28  history
student@U20:~/Documents/ALLEN$ ls -l
total 0
-rw-rw-r-- 1 student student 0 Mar 29 2022 1.txt
-rw-rw-r-- 1 student student 0 Mar 29 2022 2.txt
student@U20:~/Documents/ALLEN$ ls -t
2.txt 1.txt
student@U20:~/Documents/ALLEN$ ls -r
2.txt 1.txt
student@U20:~/Documents/ALLEN$ mkdir newFolder
student@U20:~/Documents/ALLEN$ mkdir abc/asd/abc
student@U20:~/Documents/ALLEN$ touch abc.txt
student@U20:~/Documents/ALLEN$ touch newFolder/abc.txt
student@U20:~/Documents/ALLEN$ cd newFolder/

```

```

student@U20: ~/Documents/ALLEN
Mar 29 23:37
LS(1) User Commands LS(1)

NAME
ls - list directory contents

SYNOPSIS
ls [OPTION]... [FILE]...

DESCRIPTION
List information about the FILEs (the current directory by default).
Sort entries alphabetically if none of -cftuvSUX nor --sort ls specified.

Mandatory arguments to long options are mandatory for short options too.

-a, --all
do not ignore entries starting with .

-A, --almost-all
do not list implied . and ..

--author
with -l, print the author of each file

-b, --escape
print C-style escapes for nongraphic characters

--block-size=SIZE
with -l, scale sizes by SIZE when printing them; e.g.,
`--block-size=M'; see SIZE format below

-B, --ignore-backups
do not list implied entries ending with ~

-c
with -lt: sort by, and show, ctime (time of last modification of file status information); with -t: show ctime and sort by name; otherwise: sort by ctime, newest first

-C
list entries by columns

--color[=WHEN]
colorize the output; WHEN can be 'always' (default if omitted),
'auto', or 'never'; more info below

-d, --directory
list directories themselves, not their contents

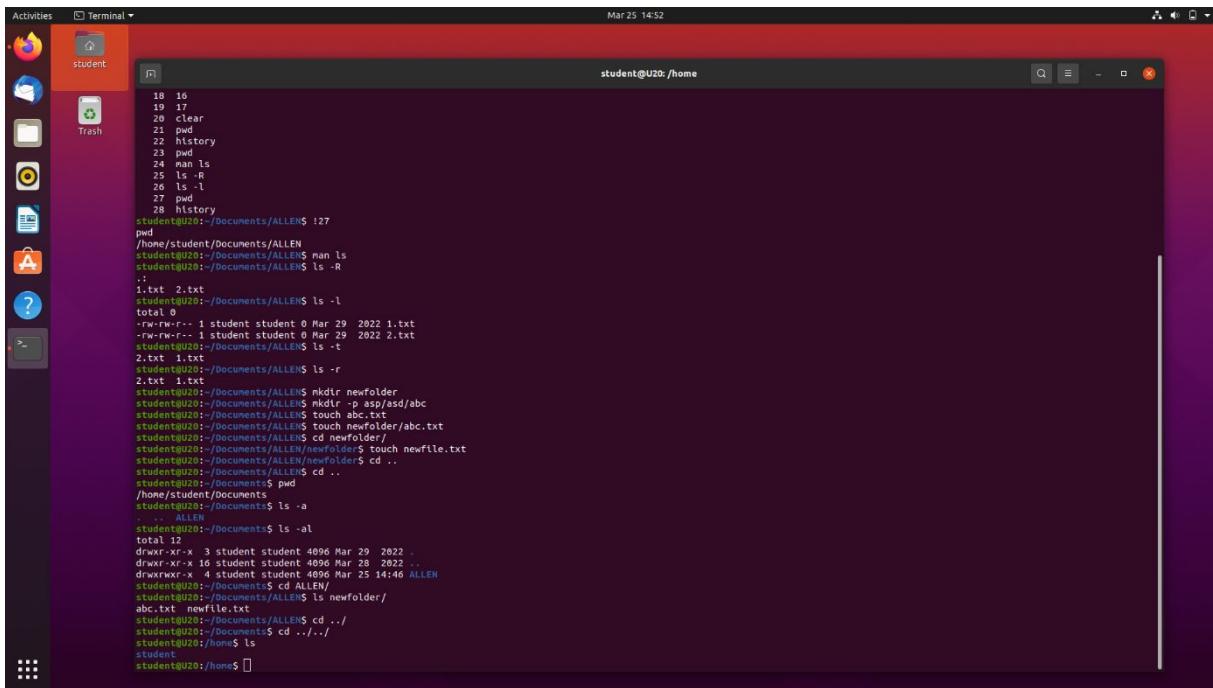
-D, --dired
generate output designed for Emacs' dired mode

-f
do not sort, enable -aU, disable -ls --color

-F, --classify

```

Manual page ls(1) lne 1 (press h for help or q to quit)



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window titled "Terminal". The terminal window is open to a session on a local host named "student@U20: /home". The session shows a series of commands being run in a terminal window, starting with clearing the screen and listing files in a directory. The user creates a new folder named "newfolder" and a file named "abc.txt". They then change directory into "newfolder" and create a new file named "newfile.txt". Finally, they change back to the home directory and list all files again.

```
18 16
19 17
20 clear
21 18
22 history
23 pwd
24 man ls
25 ls -R
26 ls -l
27 pwd
28 history
student@U20:~/Documents/ALLEN$ !27
pwd
/home/student/Documents/ALLEN
student@U20:~/Documents/ALLEN$ man ls
student@U20:~/Documents/ALLEN$ ls -R
.:
1.txt 2.txt
student@U20:~/Documents/ALLEN$ ls -l
total 0
-rw-r--r-- 1 student student 0 Mar 29 2022 1.txt
-rw-r--r-- 1 student student 0 Mar 29 2022 2.txt
student@U20:~/Documents/ALLEN$ ls -t
2.txt 1.txt
student@U20:~/Documents/ALLEN$ ls -r
2.txt
student@U20:~/Documents/ALLEN$ mkdir newfolder
student@U20:~/Documents/ALLEN$ mkdr -p asd/asd/abc
student@U20:~/Documents/ALLEN$ touch abc.txt
student@U20:~/Documents/ALLEN$ touch newfolder/abc.txt
student@U20:~/Documents/ALLEN$ cd ..
student@U20:~/Documents/ALLEN$ touch newfile.txt
student@U20:~/Documents/ALLEN$ cd ..
student@U20:~/Documents$ cd ..
student@U20:~/Documents$ pwd
/home/student/Documents
student@U20:~/Documents$ ls -a
.
.. ALLEN
student@U20:~/Documents$ ls -al
total 12
drwxr-xr-x  3 student student 4096 Mar 29 2022 .
drwxr-xr-x 16 student student 4096 Mar 28 2022 ..
drwxrwxr-x  4 student student 4096 Mar 23 14:46 ALLEN
student@U20:~/Documents$ cd ALLEN/
student@U20:~/Documents/ALLEN$ ls newfolder/
abc.txt  newfile.txt
student@U20:~/Documents/ALLEN$ cd ../..
student@U20:~/Documents$ cd ../../..
student@U20:~/home$ ls
student
student@U20:~/home$
```

NETWORKING & SYSTEM ADMINISTRATION LAB

Experiment No.:5

Name: ALLEN S PHILIP

Roll No: 20

Batch: RMCA- A

Date :25-03-2022

Aim: Basic Linux commands and permission settings.

Procedure:

1. cp

cp stands for copy. This command is used to copy files or group of files or directory. It creates an exact image of a file

[options]- -r, -f, -rf.

cp -r

cp -f

cp -rf

2. Mv

mv stands for move. This command is used to move files or group of files or directory.

mv -r

mv -f

mv -rf

3. vi

Vi also called **vim**. The vi editor is a command-line, interactive editor that you can use to create and modify text files.

Syntax

vi filename

It will open the editor in read only mode

Press **i** to insert

If you done the insert operation . then you can leave the page

Press **esc** to escape and type the below command.

This command is used write the edited or inserted file and quit from it , and back to terminal.

then you can use “:**wq!**” To save and exit from that vim.

4. **more**

‘more’ command is used to display the whole content in your selected file

Syntax

more <filename>

5. **cat**

cat command is also to display content in a file.

6. **head**

This head command is used to display the first 10 lines on your selected file.

And you can also view the head part of the file with specified number of lines based on user choice.

Syntax

head -n <no of lines> <filename>

7. **tail**

This command is used to print or display the last few lines in your document.

You can also use

Tail -n 3 ubuntu.txt

To print last 3 lines in the ubuntu.txt file.

8. chmod

This command is used to set permission to a file for user/admin ,group and others.

Here **user/admin** represent as **u**

Group represent as **g**

And **others** represent as **o**

You can see the permission details of a file using **ls -l**

syntax for giving permission

chmod u/g/o rwx

Another method

chmod 777<filename>

Here 777 is represented as

First 7 represents the user permission

i.e, user has permission to read, write and execute

Read = 4

Write = 2

Execute = 1

Total of these are 7

And the second 7 represents as group and 3rd 7 represents the others

Here user , group and others have all permission

Example

chmod 333 demotxt.txt

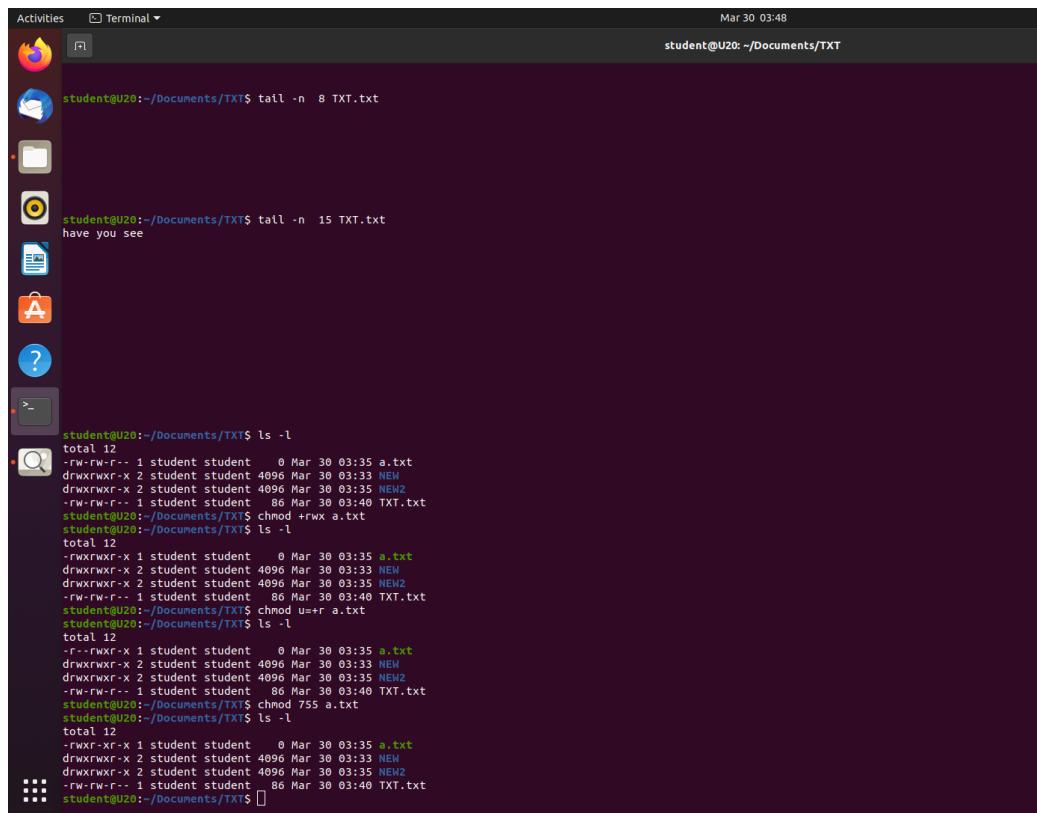
Output

```
Activities Terminal Mar 30 03:41
student@U20:~/Documents$ touch TXT.txt
student@U20:~/Documents$ mkdir TXT
student@U20:~/Documents$ ls
TXT  TXT.txt
student@U20:~/Documents$ cp TXT.txt TXT
student@U20:~/Documents$ ls
TXT  TXT.txt
student@U20:~/Documents$ cd TXT/
student@U20:~/Documents/TXT$ ls
TXT.txt
student@U20:~/Documents/TXT$ cd ..
student@U20:~/Documents$ mkdir NEW
student@U20:~/Documents$ cd NEW
student@U20:~/Documents/NEW$ file1.txt
file1.txt: command not found
student@U20:~/Documents/NEW$ touch file1.txt
student@U20:~/Documents/NEW$ touch file2.txt
student@U20:~/Documents/NEW$ ls
file1.txt  file2.txt
student@U20:~/Documents/NEW$ cd ..
student@U20:~/Documents$ ls
NEW  TXT.txt
student@U20:~/Documents$ cd TXT
student@U20:~/Documents/TXT$ ls
NEW  TXT.txt
student@U20:~/Documents/TXT$ cd NE
student@U20:~/Documents/TXT$ cd NEW
student@U20:~/Documents/TXT/NEW$ ls
file1.txt  file2.txt
student@U20:~/Documents/TXT/NEW$ cd ..
student@U20:~/Documents/TXT$ ls
NEW  TXT.txt
student@U20:~/Documents/TXT$ cp -f NEW NEW2
cp: -r not specified; omitting directory 'NEW'
student@U20:~/Documents/TXT$ cp -f TXT.txt a.txt
student@U20:~/Documents/TXT$ ls
a.txt  NEW  NEW2  TXT.txt
student@U20:~/Documents/TXT$ cd NEW2
student@U20:~/Documents/TXT/NEW2$ ls
file1.txt  file2.txt
student@U20:~/Documents/TXT/NEW2$ cd ..
student@U20:~/Documents/TXT$ ls
a.txt  NEW2  TXT.txt
student@U20:~/Documents/TXT$ vi TXT.txt
student@U20:~/Documents/TXT$ 
```

```
Activities Terminal Mar 30 03:40
student@U20:~/Documents/TXT$ hello
hello
Its
me
allen
you
are
b
s
B
F
H
B
D
here
b
k
l
have you see
?
student@U20:~/Documents/TXT$ 
```

```
Activities Terminal Mar 30 03:42
student@U20:~/Documents/TXT$ more TXT.txt
hello
hi
its
me
allen
you
are
b
s
b
B
F
H
B
D
here
b
k
l
have you see
?
~-
student@U20:~/Documents/TXT$ cat TXT.txt
hello
hi
Its
me
allen
you
are
b
s
b
B
F
H
B
D
here
b
k
l
have you see
```

```
Activities Terminal Mar 30 03:44
student@U20:~/Documents/TXT$ head TXT.txt
hello
hi
Its
me
allen
you
are
b
s
b
student@U20:~/Documents/TXT$ head -n 4 TXT.txt
hello
hi
Its
me
student@U20:~/Documents/TXT$ tail TXT.txt
?
~-
student@U20:~/Documents/TXT$ tail -n 8 TXT.txt
student@U20:~/Documents/TXT$ tail -n 15 TXT.txt
have you see
student@U20:~/Documents/TXT$
```



A screenshot of a Linux desktop environment. On the left is a dock with icons for various applications. The main area shows a terminal window titled "Terminal". The terminal output is as follows:

```
student@U20:~/Documents/TXT$ tail -n 8 TXT.txt
have you see

student@U20:~/Documents/TXT$ tail -n 15 TXT.txt
have you see

student@U20:~/Documents/TXT$ ls -l
total 12
-rw-rw-r-- 1 student student 0 Mar 30 03:35 a.txt
drwxrwxr-x 2 student student 4096 Mar 30 03:33 NEW
drwxrwxr-x 2 student student 4096 Mar 30 03:35 NEW2
-rw-rw-r-- 1 student student 86 Mar 30 03:40 TXT.txt
student@U20:~/Documents/TXT$ chmod +rwx a.txt
student@U20:~/Documents/TXT$ ls -l
total 12
-rwxrwxr-x 1 student student 0 Mar 30 03:35 a.txt
drwxrwxr-x 2 student student 4096 Mar 30 03:33 NEW
drwxrwxr-x 2 student student 4096 Mar 30 03:35 NEW2
-rw-rw-r-- 1 student student 86 Mar 30 03:40 TXT.txt
student@U20:~/Documents/TXT$ chmod u+r a.txt
student@U20:~/Documents/TXT$ ls -l
total 12
-r--rwxr-x 1 student student 0 Mar 30 03:35 a.txt
drwxrwxr-x 2 student student 4096 Mar 30 03:33 NEW
drwxrwxr-x 2 student student 4096 Mar 30 03:35 NEW2
-rw-rw-r-- 1 student student 86 Mar 30 03:40 TXT.txt
student@U20:~/Documents/TXT$ chmod 755 a.txt
student@U20:~/Documents/TXT$ ls -l
total 12
-rwxr-xr-x 1 student student 0 Mar 30 03:35 a.txt
drwxrwxr-x 2 student student 4096 Mar 30 03:33 NEW
drwxrwxr-x 2 student student 4096 Mar 30 03:35 NEW2
-rw-rw-r-- 1 student student 86 Mar 30 03:40 TXT.txt
student@U20:~/Documents/TXT$
```

NETWORKING & SYSTEM ADMINISTRATION LAB

Experiment No.: 6

Aim

Learn Basic Linux commands

Procedure

Name: ALLEN S PHILIP

Roll No: 20

Batch: RMCA- A

Date: 01-04-2022

1. read

Read command is used to read a value from user to store to a variable.

Syntax:~\$ read <variable_name>

2. echo

Used to print or display value of a variable

Syntax:~\$ echo [option] “ ” or echo [option] \$<variable_name>

Options- -n, -E, -e,

3. du

Used to display the disk usage of a file or directory.

Syntax:~\$ du [option] <file_name>/<folder_name>

Options- -a, -c,

4. find

Used to search files

Syntax:~\$ find <file_name>

5. sudo

It stands for Super User. It provides commands administrator power

Syntax:~\$ sudo <command> [option]

6. useradd

Used to add a new user.

Syntax:~\$ sudo useradd <user_name>

7. usermod

Used to modify the user id.

Syntax:~\$ sudo usermod [option] <new_id> <user_name>

8. userdel

Used to delete a user

Syntax:~\$ del [option]

9. passwd

Used to set a password to newly created user or modify the password of an existing user

Syntax:~\$ sudo passwd <user_name>

10. id

Used to print the current user details.

Syntax:~\$ id

11. su

Used to access root. Su user_name to switch user

Syntax:~\$ su <user_name>

12. tar

Used to create archive, unpack and display content in an archive

Syntax:~\$ tar [option] <archive_name>

<name_of_files_to_be_added_or_*_to_add_all>

Options- -cvf, -xvf, -tvf

13. grep

Used to search a certain pattern in a file.

Syntax:~\$ grep [option] <pattern> <file_name>

Options- -v, -i

14. Expr

Used to evaluate an expression.

Syntax:~\$ expr <operand_1> <operator> <operand_2>

Operator- +, -, *, /

Output

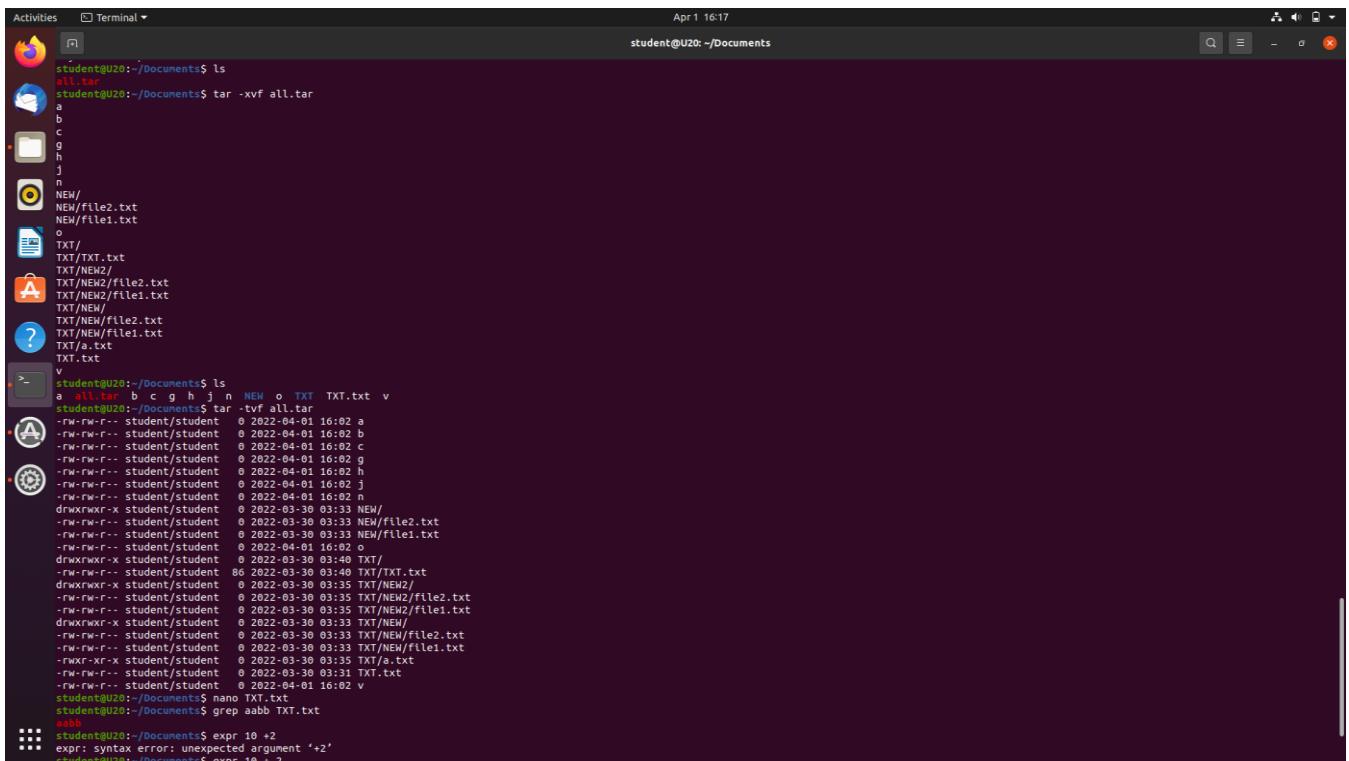
```
Activities Terminal student@U20: ~/Documents
student@U20:~/Documents$ read a
12
student@U20:~/Documents$ echo $a
12
student@U20:~/Documents$ du
4
4 ./TXT/NEW2
4 ./TXT/NEW
16 ./TXT/
4 ./NEW
24 .
student@U20:~/Documents$ Find TXT.txt
TXT.txt
student@U20:~/Documents$ sudo useradd allensphilip
[sudo] password for student:
student@U20:~/Documents$ sudo passwd allensphilip
New password:
Retype new password:
Sorry, passwords do not match.
passwd: Authentication token manipulation error
passwd: password unchanged
student@U20:~/Documents$ sudo passwd allensphilip
New password:
Retype new password:
passwd: password updated successfully
student@U20:~/Documents$ cat /etc/passwd
root:x:0:root:/root:/bin/bash
daemon:x:1:daemon:/usr/sbin/nologin
bin:x:2:bin:/bin:/usr/sbin/nologin
sys:x:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:news:/var/spool/news:/usr/sbin/nologin
ucp:x:10:10:ucp:/var/spool/ucp:/usr/sbin/nologin
proxy:x:11:proxy:/var/spool/proxy:/usr/sbin/nologin
www-data:x:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
system-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
system-timesyncd:x:102:104:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:103:106:/nonexistent:/usr/sbin/nologin
syslog:x:104:110:/home/syslog:/usr/sbin/nologin
apt:x:105:65534:/nonexistent:/usr/sbin/nologin
tss:x:106:111:TPM software stack,,,:/var/lib/tpm:/bin/false
uuidd:x:107:114:/run/uuidd:/usr/sbin/nologin
tcpdump:x:108:115:/nonexistent:/usr/sbin/nologin
avahi-autopid:x:109:116:Avahi autopid daemon,,,:/var/lib/avahi-autopid:/usr/sbin/nologin
usbmux:x:110:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
rtkit:x:111:117:RealtimeKit,,,:/proc:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
```

```
Activities Terminal student@U20: ~/Documents
student@U20:~/Documents$ New password:
Retype new password:
passwd: password updated successfully
student@U20:~/Documents$ cat /etc/passwd
root:x:0:root:/root:/bin/bash
daemon:x:1:daemon:/usr/sbin/nologin
bin:x:2:bin:/bin:/usr/sbin/nologin
sys:x:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:news:/var/spool/news:/usr/sbin/nologin
ucp:x:10:10:ucp:/var/spool/ucp:/usr/sbin/nologin
proxy:x:11:proxy:/var/spool/proxy:/usr/sbin/nologin
www-data:x:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
system-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
system-timesyncd:x:102:104:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:103:106:/nonexistent:/usr/sbin/nologin
syslog:x:104:110:/home/syslog:/usr/sbin/nologin
apt:x:105:65534:/nonexistent:/usr/sbin/nologin
tss:x:106:111:TPM software stack,,,:/var/lib/tpm:/bin/false
uuidd:x:107:114:/run/uuidd:/usr/sbin/nologin
tcpdump:x:108:115:/nonexistent:/usr/sbin/nologin
avahi-autopid:x:109:116:Avahi autopid daemon,,,:/var/lib/avahi-autopid:/usr/sbin/nologin
usbmux:x:110:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
rtkit:x:111:117:RealtimeKit,,,:/proc:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
cups:x:113:121:cups-bus-helper:/home/cups-cups-pk-helper:/usr/sbin/nologin
speech-dispatcher:x:114:20:speech-dispatcher,,,:/var/lib/speech-dispatcher:/bin/false
avahi:x:115:121:Avahi daemon,,,:/var/lib/avahi-daemon:/usr/sbin/nologin
kerneloops:x:116:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
saned:x:117:123:/var/lib/saned:/usr/sbin/nologin
nm-openvpn:x:118:124:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
hplip:x:119:7:HPLIP system user,,,:/run/hplip:/bin/false
whoopsie:x:120:125:/nonexistent:/bin/false
colord:x:121:126:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:122:127:/var/lib/geoclue:/usr/sbin/nologin
polkit-x11:x:123:128:polkit-x11,,,:/var/lib/polkit-x11:/usr/sbin/nologin
gnome-initial-setup:x:124:65534:/run/gnome-initial-setup:/bin/false
gdm:x:125:130:Gnome Display Manager:/var/lib/gdm:/bin/false
sssd:x:126:131:SSSD System user,,,:/var/lib/sssd:/usr/sbin/nologin
student:x:1000:1000:student,,,:/home/student:/bin/bash
systemd-coredump:x:999:999:systemd Core Dumper::/usr/sbin/nologin
allen:x:1001:1001:/home/allen:/bin/sh
kk:x:1002:1002:kk,,,:/home/kk:/bin/bash
kktlx:x:1003:1003:/home/kktl:/bin/sh
allensphilip:x:1004:1004:/home/allensphilip:/bin/sh
```

```
Activities Terminal student@U20: ~/Documents
student@U20:~/.Document$ sudo usermod -u 2005 allensphilip
student@U20:~/.Document$ cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/sync
games:x:56:games:/usr/games:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
lpd:x:77:lp:/var/spool/lpd:/usr/sbin/nologin
nall:x:8:8:nall:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucpx:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:11:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
listix:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
A lirc:x:39:14:lircd:/var/run/lirc/lircd:/sbin/nologin
gnome:x:41:41:gnome Bag-Reporting System Admin:/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-networkd:x:100:102:system Network Management,.:;/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:system Resolver,,;/run/systemd:/usr/sbin/nologin
systemd-timesyncd:x:102:104:system Time Synchronization,,;/run/systemd:/usr/sbin/nologin
messagebus:x:103:106:/nonexistent:/usr/sbin/nologin
syslog:x:104:110:/home/syslog:/usr/sbin/nologin
apt:x:105:65534:/nonexistent:/usr/sbin/nologin
tss:x:106:106:/var/lib/tss:/var/lib/tppm:/bin/false
uuidd:x:107:115:/run/uuidd:/usr/sbin/nologin
tcodump:x:108:115:/nonexistent:/usr/sbin/nologin
avahi-autopd:x:109:116:Avahi Autop Daemon,,:/var/lib/avahi-autopd:/usr/sbin/nologin
usbmuxd:x:110:46:usbmux daemon,,:/var/lib/usbmux:/usr/sbin/nologin
rtkit:x:111:117:RealtimeKit,,:/proc:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,:/var/lib/misc:/usr/sbin/nologin
cups-pk-helper:x:113:120:User for cups-pk-helper service,,;/home/cups-pk-helper:/usr/sbin/nologin
speech-dispatcher:x:114:29:Speech Dispatcher,,;/run/speech-dispatcher:/bin/false
avahi:x:115:121:Avahi MDNS daemon,,:/var/run/avahi-daemon:/usr/sbin/nologin
kernoops:x:117:123:/var/lib/kernoops:/usr/sbin/nologin
sane:x:118:123:/var/lib/sane:/usr/sbin/nologin
mon-openvpn:x:119:124:NetworkManager OpenVPN,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
hplip:x:119:7:HPLIP system user,,:/run/hplip:/bin/false
whoopsie:x:120:125:/nonexistent:/bin/false
colorld:x:121:126:color colour management daemon,,:/var/lib/colorld:/usr/sbin/nologin
geoclue:x:122:127:/var/lib/geoclue:/usr/sbin/nologin
pulse:x:123:128:PulseAudio daemon,,:/var/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:124:65534:/run/gnome-initial-setup:/bin/false
gdm:x:125:125:GNOME Display Manager:/var/lib/gdm3:/bin/false
sssd:x:126:126:sssd system user,,:/var/lib/sssd:/usr/sbin/nologin
student:x:1000:1000:student,,:/home/student:/bin/bash
systemd-coredump:x:999:999:system Core Dumper:/usr/sbin/nologin
allenx:x:1001:1001:/home/allen:/bin/sh
kkx:x:1002:1002:kk,,:/home/kk:/bin/bash
kklx:x:1003:1003:/home/kkl:/bin/sh
allensphilip:x:2005:1004:/home/allensphilip:/bin/sh
student@U20:~/.Document$ su allensphilip
Password:
```

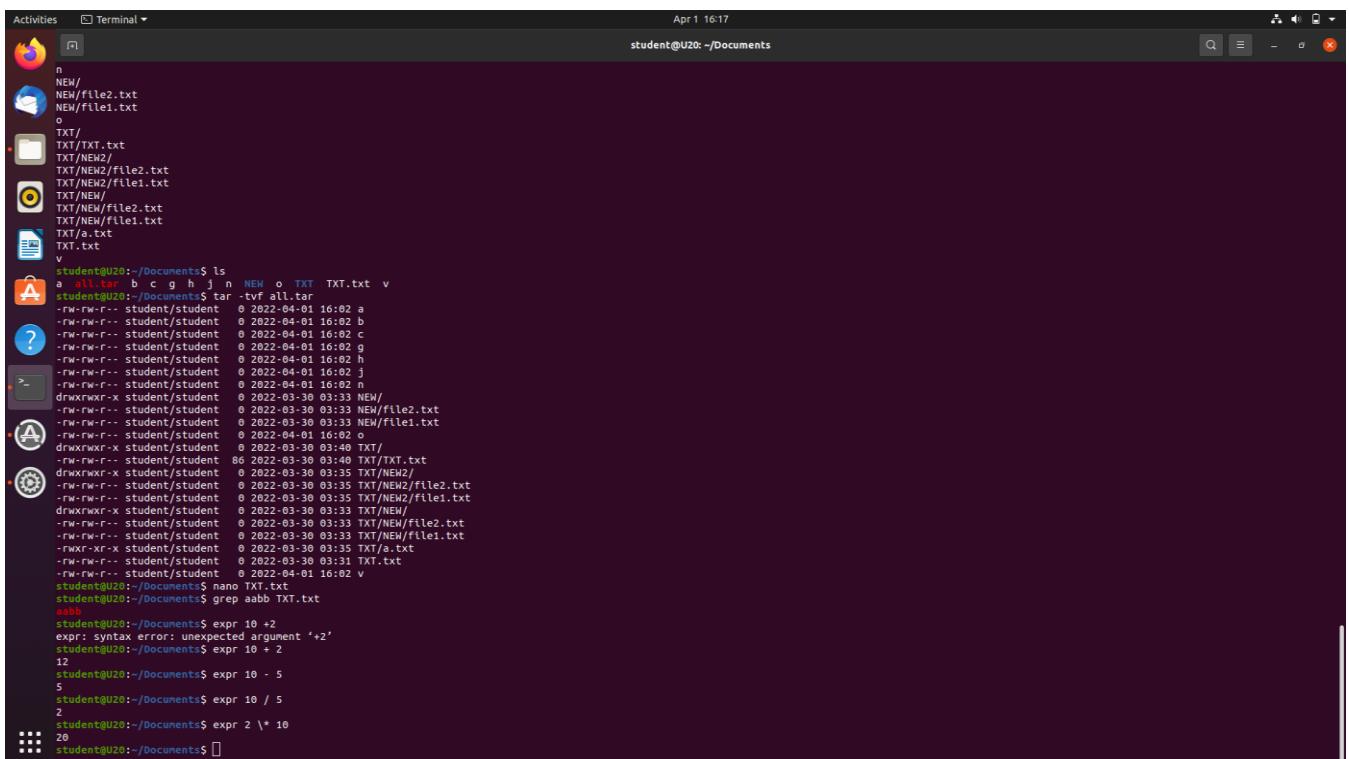
```
Activities Terminal Apr 1 16:10 student@U20: ~/Documents

kerneloops:x:110:0>>>Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
saned:x:117:123:/var/lib/saned:/usr/sbin/nologin
nm-openvpn:x:118:124:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
hplip:x:119:7:HPLIP system user,,,:/run/hplip:/bin/false
whoopster:x:120:125::/nonexistent:/bin/false
color:x:121:126::/nonexistent:/var/lib/colord:/usr/sbin/nologin
geoclue:x:122:127:/var/lib/geoclue:/usr/sbin/nologin
pulse:x:123:128:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:124:5534::/run/gnome-initial-setup:/bin/false
gdm:x:125:130:GNOME Display Manager:/var/lib/gdm3:/bin/false
sssd:x:126:131:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
student:x:1000:1000:student,,,:/home/student:/bin/bash
systemd-coredump:x:999:999:systemd Core Dumper:/usr/sbin/nologin
allen:x:1001:1001:/home/allen:/bin/sh
kk:x:1002:1002:kk,,,:/home/kk:/bin/bash
kk1:x:1003:1003:/home/kk1:/bin/sh
allensphilip:x:2005:1004:/home/allensphilip:/bin/sh
student@U20:~/Documents$ su allensphilip
student@U20:~$ Password:
student@U20:~$ S exit
student@U20:~/Documents$ sudo su allensphilip
student@U20:~$ S ld
uid=2005(allensphilip) gid=1004(allensphilip) groups=1004(allensphilip)
student@U20:~$ S su student
student@U20:~$ Password:
student@U20:~/Documents$ touch a b c g h j n o
student@U20:~/Documents$ ls
a b c g h j n NEW o TXT TXT.txt v
student@U20:~/Documents$ tar -cvf all.tar *
a
b
c
g
h
j
n
NEW/
NEW/file2.txt
NEW/file1.txt
o
TXT/
TXT/TXT.txt
TXT/NEW2/
TXT/NEW2/file2.txt
TXT/NEW2/file1.txt
TXT/NEW/
TXT/NEW/file2.txt
TXT/NEW/file1.txt
TXT/a.txt
TXT.txt
v
student@U20:~/Documents$ ls
a all.txt b c g h j n NEW o TXT TXT.txt v
student@U20:~/Documents$ rm a b c g h j n o
student@U20:~/Documents$ ls
all.tar NEW TXT TXT.txt v
```



```

Activities Terminal Apr 1 16:17
student@U20:~/Documents$ ls
all.tar
student@U20:~/Documents$ tar -xvf all.tar
a
b
c
g
h
j
NEW/
NEW/file2.txt
NEW/file1.txt
o
TXT/
TXT/TXT.txt
TXT/NEW2/
TXT/NEW2/file2.txt
TXT/NEW2/file1.txt
TXT/NEW/
TXT/NEW/file2.txt
TXT/NEW/file1.txt
TXT/a.txt
TXT.txt
v
student@U20:~/Documents$ ls
a all.tar b c g h j n NEW o TXT TXT.txt v
student@U20:~/Documents$ tar -tvf all.tar
-rw-rw-r-- student/student 0 2022-04-01 16:02 a
-rw-rw-r-- student/student 0 2022-04-01 16:02 b
-rw-rw-r-- student/student 0 2022-04-01 16:02 c
-rw-rw-r-- student/student 0 2022-04-01 16:02 g
-rw-rw-r-- student/student 0 2022-04-01 16:02 h
-rw-rw-r-- student/student 0 2022-04-01 16:02 j
-rw-rw-r-- student/student 0 2022-04-01 16:02 n
drwxrwxr-x student/student 0 2022-03-30 03:33 NEW/
-rw-rw-r-- student/student 0 2022-03-30 03:33 NEW/file2.txt
-rw-rw-r-- student/student 0 2022-03-30 03:33 NEW/file1.txt
-rw-rw-r-- student/student 0 2022-03-30 03:33 TXT/
drwxrwxr-x student/student 0 2022-03-30 03:40 TXT/
-rw-rw-r-- student/student 86 2022-03-30 03:40 TXT/TXT.txt
drwxrwxr-x student/student 0 2022-03-30 03:35 TXT/NEW2/
-rw-rw-r-- student/student 0 2022-03-30 03:35 TXT/NEW2/file2.txt
-rw-rw-r-- student/student 0 2022-03-30 03:35 TXT/NEW2/file1.txt
drwxrwxr-x student/student 0 2022-03-30 03:33 TXT/NEW/
-rw-rw-r-- student/student 0 2022-03-30 03:33 TXT/NEW/file2.txt
-rw-rw-r-- student/student 0 2022-03-30 03:33 TXT/NEW/file1.txt
-rw-rw-r-- student/student 0 2022-03-30 03:33 TXT/a.txt
-rw-rw-r-- student/student 0 2022-03-30 03:31 TXT.txt
-rw-rw-r-- student/student 0 2022-04-01 16:02 v
student@U20:~/Documents$ nano TXT.txt
student@U20:~/Documents$ grep aabb TXT.txt
aabb
student@U20:~/Documents$ expr 10 +
expr: syntax error: unexpected argument '+'
student@U20:~/Documents$ expr 10 + 2
12
student@U20:~/Documents$ expr 10 - 5
5
student@U20:~/Documents$ expr 2 \* 10
20
student@U20:~/Documents$ 
```



```

Activities Terminal Apr 1 16:17
student@U20:~/Documents$ ls
all.tar
student@U20:~/Documents$ tar -xvf all.tar
a
b
c
g
h
j
NEW/
NEW/file2.txt
NEW/file1.txt
o
TXT/
TXT/TXT.txt
TXT/NEW2/
TXT/NEW2/file2.txt
TXT/NEW2/file1.txt
TXT/NEW/
TXT/NEW/file2.txt
TXT/NEW/file1.txt
TXT/a.txt
TXT.txt
v
student@U20:~/Documents$ ls
a all.tar b c g h j n NEW o TXT TXT.txt v
student@U20:~/Documents$ tar -tvf all.tar
-rw-rw-r-- student/student 0 2022-04-01 16:02 a
-rw-rw-r-- student/student 0 2022-04-01 16:02 b
-rw-rw-r-- student/student 0 2022-04-01 16:02 c
-rw-rw-r-- student/student 0 2022-04-01 16:02 g
-rw-rw-r-- student/student 0 2022-04-01 16:02 h
-rw-rw-r-- student/student 0 2022-04-01 16:02 j
-rw-rw-r-- student/student 0 2022-04-01 16:02 n
drwxrwxr-x student/student 0 2022-03-30 03:33 NEW/
-rw-rw-r-- student/student 0 2022-03-30 03:33 NEW/file2.txt
-rw-rw-r-- student/student 0 2022-03-30 03:33 NEW/file1.txt
-rw-rw-r-- student/student 0 2022-03-30 03:33 TXT/
drwxrwxr-x student/student 0 2022-03-30 03:40 TXT/
-rw-rw-r-- student/student 86 2022-03-30 03:40 TXT/TXT.txt
drwxrwxr-x student/student 0 2022-03-30 03:35 TXT/NEW2/
-rw-rw-r-- student/student 0 2022-03-30 03:35 TXT/NEW2/file2.txt
-rw-rw-r-- student/student 0 2022-03-30 03:35 TXT/NEW2/file1.txt
drwxrwxr-x student/student 0 2022-03-30 03:33 TXT/NEW/
-rw-rw-r-- student/student 0 2022-03-30 03:33 TXT/NEW/file2.txt
-rw-rw-r-- student/student 0 2022-03-30 03:33 TXT/NEW/file1.txt
-rw-rw-r-- student/student 0 2022-03-30 03:33 TXT/a.txt
-rw-rw-r-- student/student 0 2022-03-30 03:31 TXT.txt
-rw-rw-r-- student/student 0 2022-04-01 16:02 v
student@U20:~/Documents$ nano TXT.txt
student@U20:~/Documents$ grep aabb TXT.txt
aabb
student@U20:~/Documents$ expr 10 +
expr: syntax error: unexpected argument '+'
student@U20:~/Documents$ expr 10 + 2
12
student@U20:~/Documents$ expr 10 - 5
5
student@U20:~/Documents$ expr 2 \* 10
20
student@U20:~/Documents$ 
```

NETWORKING & SYSTEM ADMINISTRATION LAB**Experiment No.: 7****Name: ALLEN S PHILIP****Roll No: 20****Batch: RMCA- A****Date: 04-04-2022****Aim**

Understand ssh command, login into a remote system using ssh.

Procedure**1. Remotely connecting a device**

The ssh command provides a secure encrypted connection between two hosts over an insecure network. This connection can also be used for terminal access, file transfers, and for tunneling other applications

Syntax:

```
:~$ ssh <user_name>@<machine_ip_number>
```

Eg: :~\$ ssh student@192.168.6.189

Then enter the user password to login in

2. Creates a key pair for public key authentication**Syntax:**

```
:~$ ssh-keygen
```

-it will create a public and private key

Copying key to the remote machine

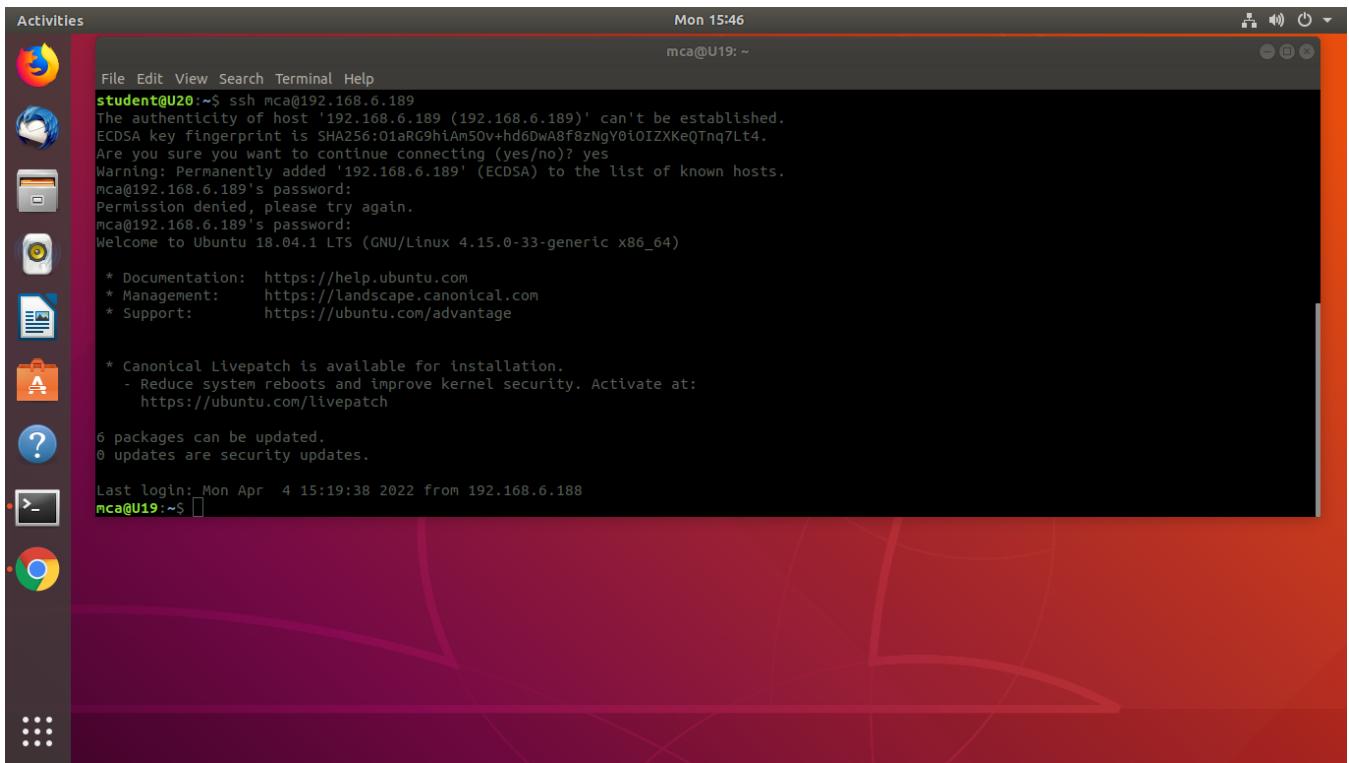
```
:~$ ssh-copy-id [option] <location of the public_key>
```

```
<remote_username>@<remote_ip_address>
```

Eg: ssh-copy-id -i .ssh/id_rsa.pub mca@192.168.6189

-Then you need to enter password for the first time and after that the key is used to authenticate login.

Output



A screenshot of an Ubuntu desktop environment. On the left is a dock with icons for various applications like the Dash, Home, and Dash to Dock. The main area shows a terminal window titled 'Terminal' with the command 'ssh mca@192.168.6.189' being run. The terminal output shows the authenticity of the host being checked, a warning about adding it to the list of known hosts, and a password prompt. It also displays system updates information and a last login timestamp.

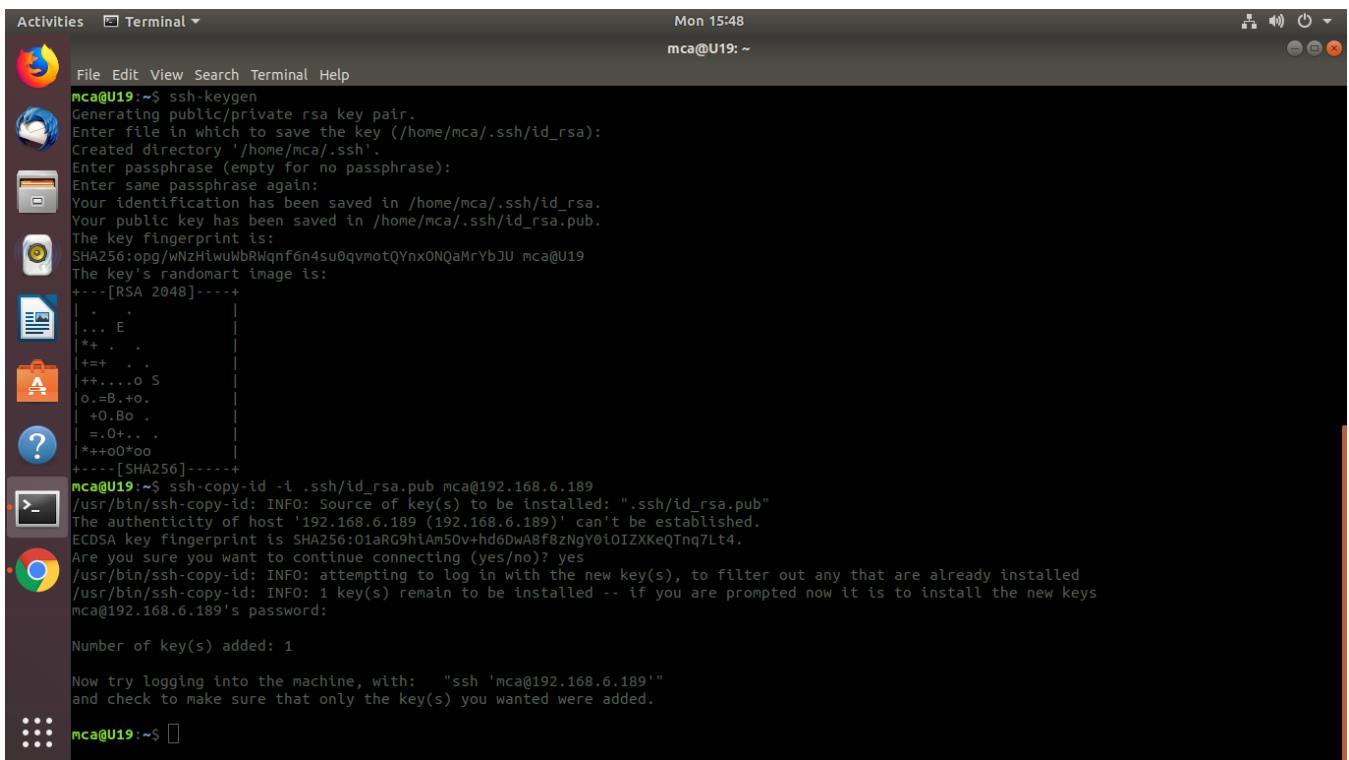
```
student@U20:~$ ssh mca@192.168.6.189
The authenticity of host '192.168.6.189' (192.168.6.189) can't be established.
ECDSA key fingerprint is SHA256:01aRG9hiAm50v+hd6DwA8f8zNgY0l0IZXKeQTnq7Lt4.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.6.189' (ECDSA) to the list of known hosts.
mca@192.168.6.189's password:
Permission denied, please try again.
mca@192.168.6.189's password:
Welcome to Ubuntu 18.04.1 LTS (GNU/Linux 4.15.0-33-generic x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/advantage

 * Canonical Livepatch is available for installation.
 - Reduce system reboots and improve kernel security. Activate at:
   https://ubuntu.com/livepatch

6 packages can be updated.
0 updates are security updates.

Last login: Mon Apr  4 15:19:38 2022 from 192.168.6.188
mca@U19:~$
```



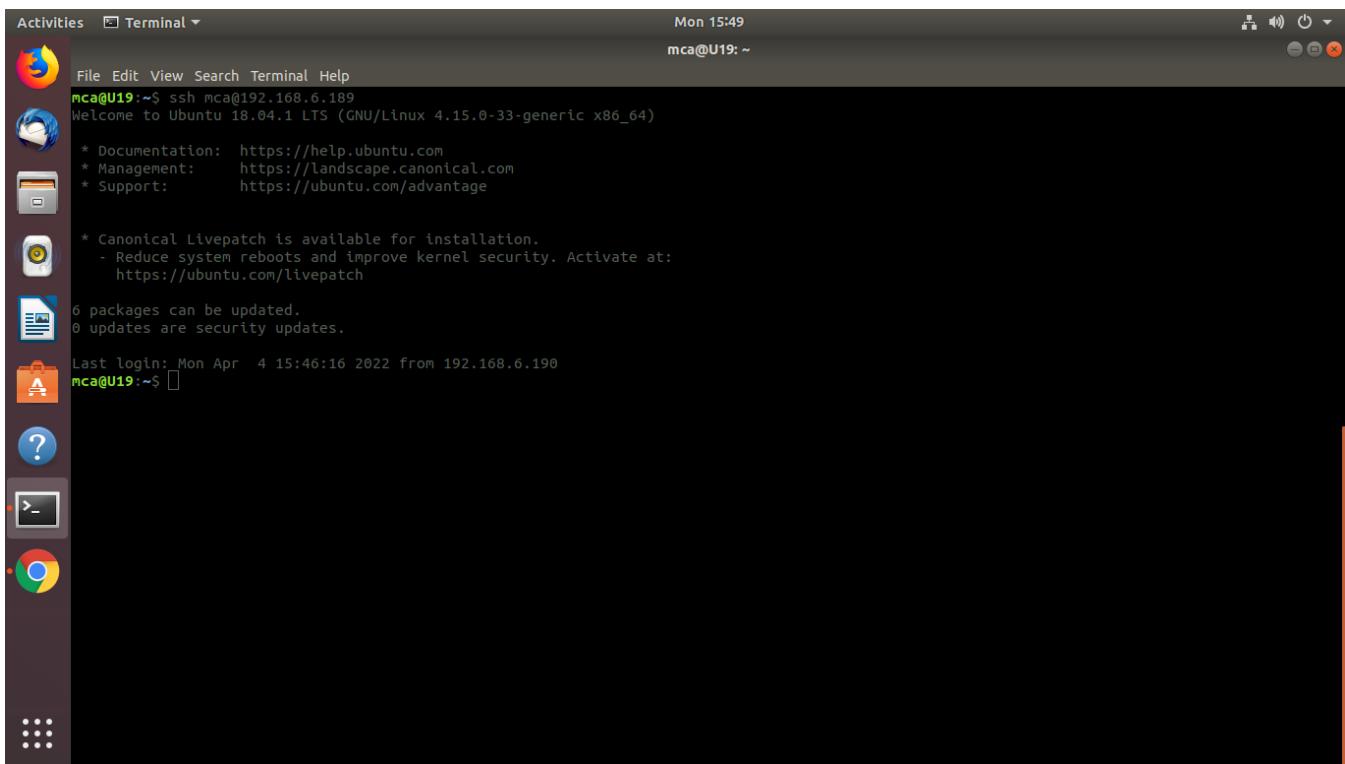
A screenshot of an Ubuntu desktop environment. On the left is a dock with icons for various applications like the Dash, Home, and Dash to Dock. The main area shows a terminal window titled 'Terminal' with the command 'ssh-keygen' being run. The terminal output shows the generation of an RSA key pair, the creation of an SSH directory, and the saving of the public key. It then uses 'ssh-copy-id' to copy the public key to another machine. Finally, it attempts to log in via SSH and adds the new key to the list of known hosts.

```
mca@U19:~$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/home/mca/.ssh/id_rsa):
Created directory '/home/mca/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/mca/.ssh/id_rsa.
Your public key has been saved in /home/mca/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256:0pg/wNzHlwuWbRWqnf6n4su0qvmtQYnxONQaMrYbJU mca@U19
The key's randomart image is:
+---[RSA 2048]---+
| . .
| ... E
| *+ . .
| +=+ . .
| ++...o S
| o.=B.+o.
| +O.Bo .
| =.O+.. .
| *++o*oo
+---[SHA256]---+
mca@U19:~$ ssh-copy-id -i .ssh/id_rsa.pub mca@192.168.6.189
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: ".ssh/id_rsa.pub"
The authenticity of host '192.168.6.189' (192.168.6.189) can't be established.
ECDSA key fingerprint is SHA256:01aRG9hiAm50v+hd6DwA8f8zNgY0l0IZXKeQTnq7Lt4.
Are you sure you want to continue connecting (yes/no)? yes
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys
mca@192.168.6.189's password:

Number of key(s) added: 1

Now try logging into the machine, with: "ssh 'mca@192.168.6.189'"
and check to make sure that only the key(s) you wanted were added.

mca@U19:~$
```



A screenshot of a Ubuntu desktop environment. On the left is a vertical dock with icons for Activities, Terminal, Dash, Help, Dash Home, Dash Help, and Dash Search. The main window is a terminal window titled "Terminal". The terminal shows the following text:

```
Activities Terminal Mon 15:49
mca@U19:~$ ssh mca@192.168.6.189
Welcome to Ubuntu 18.04.1 LTS (GNU/Linux 4.15.0-33-generic x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/advantage

 * Canonical Livepatch is available for installation.
 - Reduce system reboots and improve kernel security. Activate at:
   https://ubuntu.com/livepatch

6 packages can be updated.
0 updates are security updates.

Last login: Mon Apr  4 15:46:16 2022 from 192.168.6.190
mca@U19:~$
```

NETWORKING & SYSTEM ADMINISTRATION LAB

Combined Experiments

Procedure

Name: ALEN S PHILIP

Roll No: 20

Batch: RMCA- A

Date: 08/04/2022

Experiment 1

1. Login to your home directory
2. List contents of your current working directory
3. List all contents of your current working directory, including hidden files
4. Make a directory called April2022 inside your current working directory
5. Change to the directory April2022
6. Create an empty file name file1
7. Make a copy of file1 to file2
8. Copy file1 from the current working directory and save it as the name file2 in one directory up from the current directory
9. Clear the terminal window

Output

The terminal window shows a session on a host named 'allensphilip@SEC-ROG'. The user runs several commands to copy files from one directory to another:

- \$ cd ~
- \$ ls
- \$ ls -a
- \$ bash history
- \$ BurpSuite
- \$.cache
- \$.config
- \$.dbeaver4
- \$.dmrc
- \$.emacs
- \$.gtkrc-2.0
- \$.icons
- \$.lessht
- \$.local
- \$.mozilla
- \$.msf4
- \$.profile
- \$.vimrc
- \$.vscode-oss
- \$.xauthority
- \$.xsession
- \$.xsession-errors
- \$.xsession-errors.old
- \$.zshrc
- \$ mkdir April2022
- \$ cd April2022/
- \$ touch file1
- \$ ls
- \$ file1
- \$ file1 file2
- \$ scp file1 file2
- \$ ls
- \$ file1 file2
- \$ scp file1 ..//file2
- \$ ls
- \$ cd ..
- \$ ls

Finally, the user clears the screen:

```
[allensphilip@SEC-ROG:~]$ clear
```

Experiment 2

1. Login to your home directory
2. Writes the contents of syslog (located in the /var/log/ directory) onto the screen a page at a time.
3. Read documentation on a command: less

Output

```
mca@U20: ~
File Edit View Search Terminal Help
mca@U20:~/Desktop$ cd ~
mca@U20:~$ more /var/log/syslog > logfile
mca@U20:~$ less logfile
```

```
mca@U20: ~
File Edit View Search Terminal Help
Apr 8 14:06:25 U20 rsyslogd: [origin software="rsyslogd" swVersion="8.32.0" x-pid="887" x-info="http://www.rsyslog.com"] rsyslogd was HUPed
Apr 8 14:06:33 U20 dbus-daemon[891]: [system] Activating via systemd: service name='org.freedesktop.timedate1' unit='dbus-org.freedesktop.timedate1.service' requested by ':1.18' (uid=0 pid=934 comm="/usr/lib/snapd/snapd" label="unconfined")
Apr 8 14:06:33 U20 systemd[1]: Starting Time & Date Service...
Apr 8 14:06:33 U20 dbus-daemon[891]: [system] Successfully activated service 'org.freedesktop.timedate1'
Apr 8 14:06:33 U20 systemd[1]: Started Time & Date Service.
Apr 8 14:06:35 U20 snapd[934]: storehelpers.go:721: cannot refresh: snap has no updates available: "atom", "bare", "core18", "core20", "gnome-3-26-1604", "gnome-3-28-1804", "gnome-3-34-1804", "gnome-calculator", "gnome-characters", "gnome-logs", "gnome-system-monitor", "gtk-common-themes", "notepad-plus-plus", "pycharm-community", "vlc", "wine-platform-3-stable", "wine-platform-6-stable", "wine-platform-runtime"
Apr 8 14:06:42 U20 systemd-timesyncd[775]: Synchronized to time server 91.189.91.157:123 (ntp.ubuntu.com).
Apr 8 14:06:51 U20 systemd[1]: Reloading.
Apr 8 14:06:51 U20 systemd[1]: /etc/systemd/system/rc-local.service:22: Support for option SysVStartPriority= has been removed and it is ignored
Apr 8 14:06:51 U20 systemd[1]: Reloading.
Apr 8 14:06:51 U20 systemd[1]: /etc/systemd/system/rc-local.service:22: Support for option SysVStartPriority= has been removed and it is ignored
Apr 8 14:06:51 U20 systemd[1]: Mounting Mount unit for core, revision 12834...
Apr 8 14:06:51 U20 systemd[1]: Mounted Mount unit for core, revision 12834.
Apr 8 14:06:56 U20 kernel: [ 351.013737] audit: type=1400 audit(1649407016.596:63): apparmor="STATUS" operation="profile_load" profile="unconfined" name="/snap/core/12834/usr/lib/snapd/snap-confine" pid=3519 comm="apparmor_parser"
Apr 8 14:06:56 U20 kernel: [ 351.013852] audit: type=1400 audit(1649407016.596:63): apparmor="STATUS" operation="profile_load" profile="unconfined" name="/snap/core/12834/usr/lib/snapd/snap-confine//mount-namespace-capture-helper" pid=3519 comm="apparmor_parser"
Apr 8 14:06:57 U20 kernel: [ 351.849810] audit: type=1400 audit(1649407017.432:64): apparmor="STATUS" operation="profile_replace" profile="unconfined" name="snap.core.hook.configure" pid=3521 comm="apparmor_parser"
Apr 8 14:06:58 U20 kernel: [ 352.581981] audit: type=1400 audit(1649407018.164:65): apparmor="STATUS" operation="profile_replace" info="same as current profile, skipping" profile="unconfined" name="snap-update-ns.gnome-logs" pid=3524 comm="apparmor_parser"
Apr 8 14:06:58 U20 kernel: [ 352.671308] audit: type=1400 audit(1649407018.256:66): apparmor="STATUS" operation="profile_replace" info="same as current profile, skipping" profile="unconfined" name="snap-update-ns.gnome-characters" pid=3523 comm="apparmor_parser"
Apr 8 14:06:58 U20 kernel: [ 352.672067] audit: type=1400 audit(1649407018.256:67): apparmor="STATUS" operation="profile_replace" info="same as current profile, skipping" profile="unconfined" name="snap-update-ns.gnome-calculator" pid=3522 comm="apparmor_parser"
Apr 8 14:06:58 U20 kernel: [ 352.718749] audit: type=1400 audit(1649407018.300:68): apparmor="STATUS" operation="profile_replace" info="same as current profile, skipping" profile="unconfined" name="snap-update-ns.gnome-system-monitor" pid=3525 comm="apparmor_parser"
Apr 8 14:06:58 U20 kernel: [ 352.748179] audit: type=1400 audit(1649407018.332:69): apparmor="STATUS" operation="profile_replace" info="same as current profile, skipping" profile="unconfined" name="snap-update-ns.notepad-plus-plus" pid=3526 comm="apparmor_parser"
Apr 8 14:06:58 U20 kernel: [ 352.751530] audit: type=1400 audit(1649407018.336:70): apparmor="STATUS" operation="profile_replace" info="same as current profile, skipping" profile="unconfined" name="snap-update-ns.core" pid=3528 comm="apparmor_parser"
logfile
```

Experiment 3

1. Create an untitled document myfile.txt using anyone editor

2. Place the following text in myfile.txt and save it

Neo: What are you trying to tell me? That I can dodge bullets?

Morpheus: No, Neo. I'm trying to tell you that when you're ready, you won't have to.

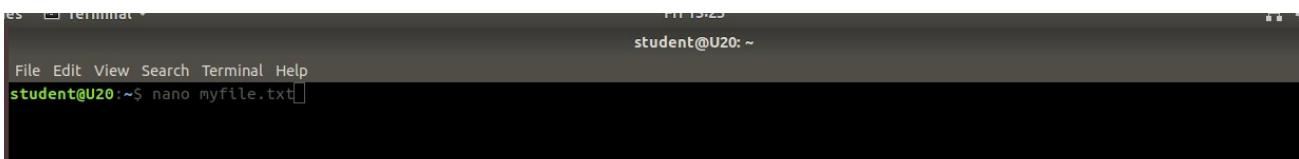
3. Count the number of characters, words, and lines in the file

4. Find the occurrence of the word “tell” in the file

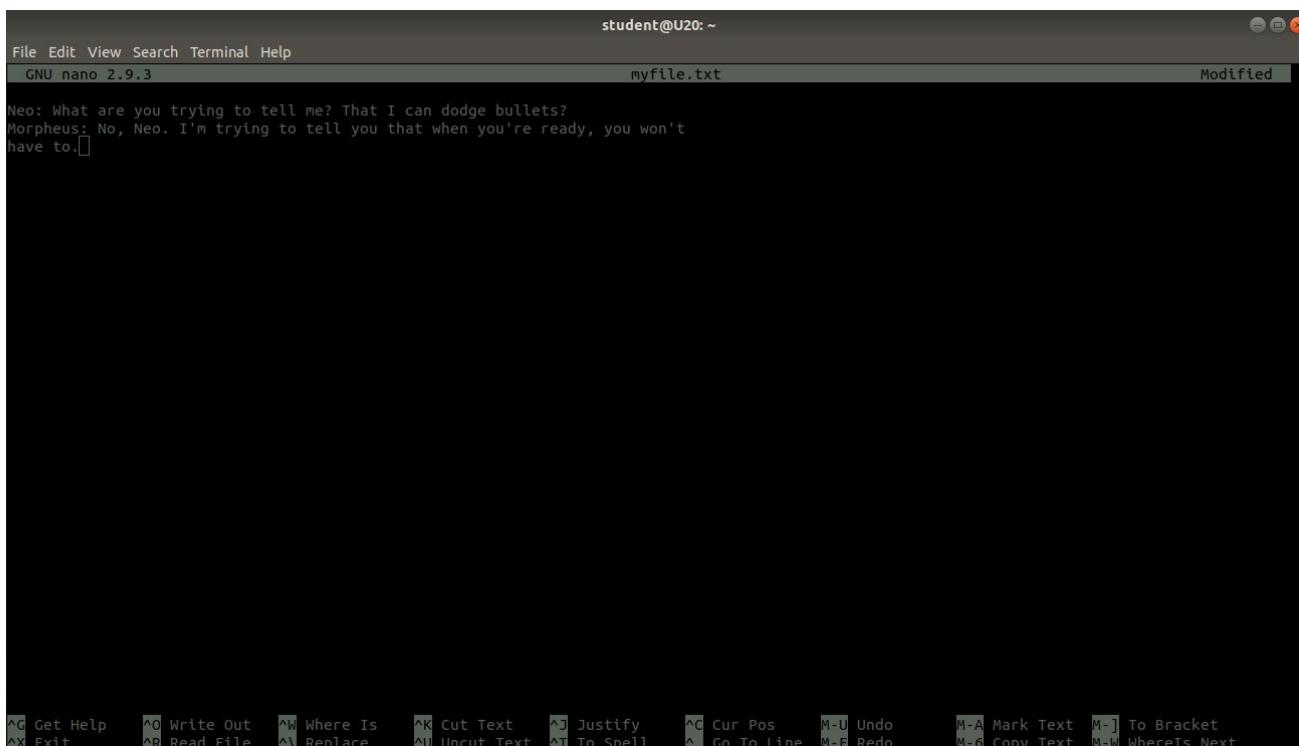
5. Make two copies of myfile.txt with names myfile1.txt and myfile2.txt

6. List all the filenames with the word file in the present working directory.

Output



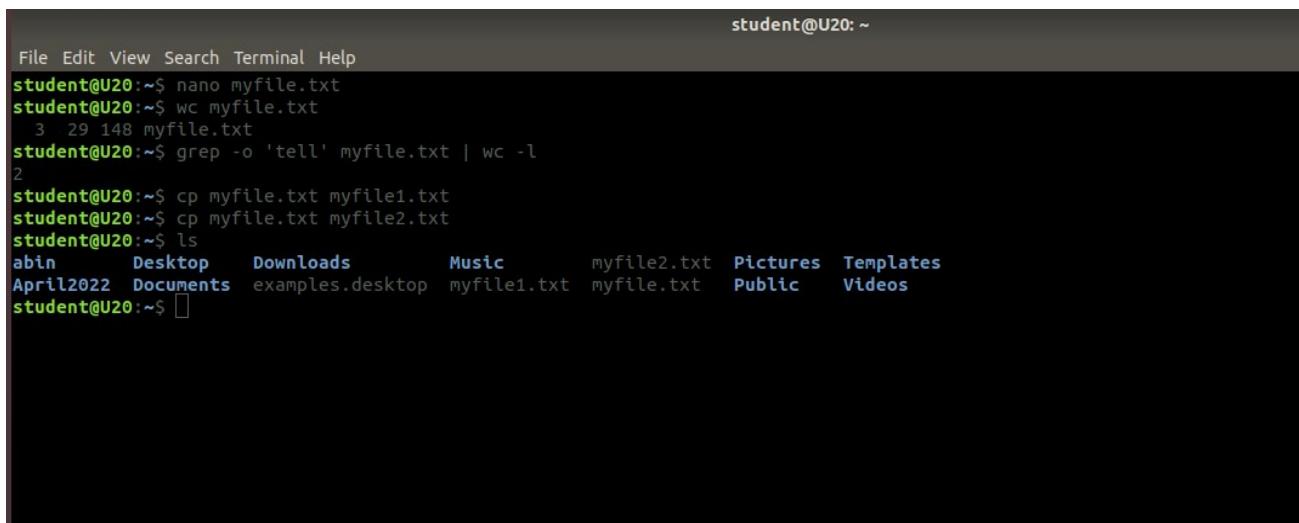
```
student@U20:~$ nano myfile.txt
```



```
student@U20:~$ nano myfile.txt
GNU nano 2.9.3
Modified

Neo: What are you trying to tell me? That I can dodge bullets?
Morpheus: No, Neo. I'm trying to tell you that when you're ready, you won't
have to.
```

^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos M-U Undo
^X Exit ^R Read File ^V Replace ^U Uncut Text ^T To Spell ^L Go To Line M-E Redo
M-A Mark Text M-J To Bracket M-G Copy Text M-W WhereIs Next



```
student@U20:~$ nano myfile.txt
student@U20:~$ wc myfile.txt
 3 29 148 myfile.txt
student@U20:~$ grep -o 'tell' myfile.txt | wc -l
2
student@U20:~$ cp myfile.txt myfile1.txt
student@U20:~$ cp myfile.txt myfile2.txt
student@U20:~$ ls
abin Desktop Downloads Music myfile2.txt Pictures Templates
April2022 Documents examples.desktop myfile1.txt myfile.txt Public Videos
student@U20:~$
```

Experiment 4

1. Add a user named “roger
2. Create a password for the roger
3. Login using the new account.
4. Repeat step 1) to 2) to create 3 other users.
5. Examine the home directory of each user under /home/.
6. Examine the following files and see what's added for the users/groups you created.

Try to understand the new additions

- i) /etc/passwd
- ii) /etc/shadow
- iii) /etc/group
7. Create two groups: managers, staff
8. Add roger to the “managers” group; add other users you have created to the “staff” group.
9. Add Roger to a new group called “committee”.
10. Check users and groups information and see if they are in the right groups
11. Create a new user: BBrown, Primary group: Faculty, Other groups: web-author, coordinator, Temporary password: bob (the user needs to change it when login for the first time)

Experiment 5

1. Enable access to the remote system (IP: 192.168.6.94) without entering a password.
2. Create a file in your name in a remote system (IP: 192.168.6.94) using the terminal.
3. Learn scp command using the appropriate command. And download a file named 204Lab.txt from the remote system (IP: 192.168.6.94) to your own

system.

Output

[1-5]

```
ACN-LAB- allensphilip
File Edit View Search Terminal Help
[allensphilip@SEC-ROG]~
└─$ sudo -i
[sudo] password for allensphilip:
[root@SEC-ROG]~
└─# useradd roger
[root@SEC-ROG]~
└─# passwd roger
New password:
Retype new password:
passwd: password updated successfully
[root@SEC-ROG]~
└─# su roger
$ id
uid=1002(roger) gid=1003(roger) groups=1003(roger)
$ exit
[root@SEC-ROG]~
└─# useradd roger1
[root@SEC-ROG]~
└─# useradd roger2
[root@SEC-ROG]~
└─# useradd roger3
[root@SEC-ROG]~
└─# passwd roger1
New password:
Retype new password:
passwd: password updated successfully
[root@SEC-ROG]~
└─# passwd roger2
New password:
Retype new password:
passwd: password updated successfully
[root@SEC-ROG]~
└─# passwd roger3
New password:
Retype new password:
passwd: password updated successfully
[root@SEC-ROG]~
```

```
ACN-LAB- allensphilip
File Edit View Search Terminal Help
[root@SEC-ROG]~/home]
└─# ls
allensphilip
[root@SEC-ROG]~/home]
└─# mkdir roger roger1 roger2 roger3
[root@SEC-ROG]~/home]
└─# ls
allensphilip roger roger1 roger2 roger3
[root@SEC-ROG]~/home]
└─# chown roger:roger roger
[root@SEC-ROG]~/home]
└─# chown roger1:roger1 roger1
[root@SEC-ROG]~/home]
└─# chown roger2:roger2 roger2
[root@SEC-ROG]~/home]
└─# chown roger3:roger3 roger3
[root@SEC-ROG]~/home]
└─# ls -lrt
total 4
drwxr-xr-x 1 allensphilip allensphilip 564 Jun 3 02:19 allensphilip
drwxr-xr-x 1 roger3 roger3 0 Jun 3 02:35 roger3
drwxr-xr-x 1 roger2 roger2 0 Jun 3 02:35 roger2
drwxr-xr-x 1 roger1 roger1 0 Jun 3 02:35 roger1
drwxr-xr-x 1 roger roger 0 Jun 3 02:35 roger
[root@SEC-ROG]~/home]
└─#
```

[6]

```
[root@SEC-ROG ~]# cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin/nologin
bin:x:2:2:bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
_apt:x:100:65534:/nonexistent:/usr/sbin/nologin
systemd-network:x:101:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:102:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
tss:x:103:109:TPM software stack,,,:/var/lib/tpm:/bin/false
strongswan:x:104:65534:/var/lib/strongswan:/usr/sbin/nologin
messagebus:x:105:111:/nonexistent:/usr/sbin/nologin
systemd-timesync:x:106:112:system Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
Debian-exim:x:107:113:/var/spool/exim:/usr/sbin/nologin
uuid:x:108:114:/run/uuid:/usr/sbin/nologin
debian-tor:x:109:115:/var/lib/tor:/bin/false
usbmux:x:110:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
rtkit:x:111:118:RealtimeKit,,,:/proc:/usr/sbin/nologin
xrdp:x:112:119:/run/xrdp:/usr/sbin/nologin
dnsmasq:x:113:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
avahi:x:114:121:Avahi-Daemon,,,:/run/avahi-daemon:/usr/sbin/nologin
nm-openvpn:x:115:122:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
nm-openconnect:x:116:123:NetworkManager OpenConnect plugin,,,:/var/lib/NetworkManager:/usr/sbin/nologin
speech-dispatcher:x:117:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
pulse:x:118:125:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin
saned:x:119:128:/var/lib/saned:/usr/sbin/nologin
colord:x:120:129:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:121:130:/var/lib/geoclue:/usr/sbin/nologin
lightdm:x:122:131:Light Display Manager:/var/lib/lightdm:/bin/false
allensphilip:x:123:65534:/run/sshd:/usr/sbin/nologin
sshd:x:123:65534:/run/sshd:/usr/sbin/nologin
roger:x:1002:1003::/home/roger:/bin/sh
roger1:x:1003:1004::/home/roger1:/bin/sh
roger2:x:1004:1005::/home/roger2:/bin/sh
roger3:x:1005:1006::/home/roger3:/bin/sh
```

```
[root@SEC-ROG ~]# cat /etc/shadow
root::19115:0:99999:7:::
daemon::19115:0:99999:7:::
bin::19115:0:99999:7:::
sync::19115:0:99999:7:::
games::19115:0:99999:7:::
man::19115:0:99999:7:::
lp::19115:0:99999:7:::
mail::19115:0:99999:7:::
news::19115:0:99999:7:::
uucp::19115:0:99999:7:::
proxy::19115:0:99999:7:::
www-data::19115:0:99999:7:::
backup::19115:0:99999:7:::
list::19115:0:99999:7:::
irc::19115:0:99999:7:::
gnats::19115:0:99999:7:::
nobody::19115:0:99999:7:::
_apt::19115:0:99999:7:::
systemd-network::19115:0:99999:7:::
systemd-resolve::19115:0:99999:7:::
tss::19115:0:99999:7:::
strongswan::19115:0:99999:7:::
messagebus::19115:0:99999:7:::
systemd-timesync::19115:0:99999:7:::
Debian-exim::19115:0:99999:7:::
uuid::19115:0:99999:7:::
debian-tor::19115:0:99999:7:::
usbmux::19115:0:99999:7:::
rtkit::19115:0:99999:7:::
xrdp::19115:0:99999:7:::
dnsmasq::19115:0:99999:7:::
avahi::19115:0:99999:7:::
nm-openvpn::19115:0:99999:7:::
nm-openconnect::19115:0:99999:7:::
speech-dispatcher::19115:0:99999:7:::
pulse::19115:0:99999:7:::
saned::19115:0:99999:7:::
colord::19115:0:99999:7:::
geoclue::19115:0:99999:7:::
lightdm::19115:0:99999:7:::
allensphilip::sys$9TbHAAkU89PDNToe9BgvyBs1KdPQ2r81R6cyawP0EoD1MKPkdVVJW.nf0BGc/AE6:19134:0:99999:7:::
sshd::19135:0:99999:7:::
roger:$y$9Tg$BXQBFGNa.HzXE0gVOY/$0d.HVYkRzJNlPK6tmICuTVqElirwBz08ex0SRo.x1oB:19145:0:99999:7:::
roger1:$y$9T0hCgfylxL10y053a9A05008bzAPzfHydbE/tHcm8eAzkwR/d76cpdwCe1fF9knQk/3:19145:0:99999:7:::
roger2:$y$9T1l04iyWUv.TjMthnglw3K0$8TBibeoPuZ9k.euUfZRUaQ/rAvxF0t4XfrTCGlnvgPB:19145:0:99999:7:::
roger3:$y$9Tgyc8bvDy3vcgBoCGIhtF3$cqacbymey3zKavlwed7K50NtzngVCUP08NnjUFEVrD:19145:0:99999:7:::
```

The screenshot shows a terminal window with the title "ACN-LAB- allensphilip". The window has a dark background and a light-colored text area. At the top, there is a menu bar with options: File, Edit, View, Search, Terminal, Help. Below the menu bar, the terminal prompt is "[root@SEC-ROG ~]#". The user has run the command "cat /etc/group" and the output is displayed in green text. The output lists numerous group entries, each consisting of a name followed by a colon, a numerical ID, and a colon, followed by a list of users separated by commas. Some groups have a password field after the users. The output ends with another terminal prompt "[root@SEC-ROG ~]#".

```
[root@SEC-ROG ~]# cat /etc/group
root:x:0:
daemon:x:1:
bin:x:2:
sys:x:3:
adm:x:4:allensphilip
tty:x:5:
disk:x:6:
lp:x:7:
mail:x:8:
news:x:9:
uucp:x:10:
man:x:12:
proxy:x:13:
kmem:x:15:
dialout:x:20:allensphilip
fax:x:21:allensphilip
voice:x:22:
cdrom:x:24:allensphilip
floppy:x:25:allensphilip
tape:x:26:allensphilip
sudo:x:27:allensphilip
audio:x:29:pulse,allensphilip
dip:x:30:allensphilip
www-data:x:33:
backup:x:34:
operator:x:37:
list:x:38:
irc:x:39:
src:x:40:
gnats:x:41:
shadow:x:42:
utmp:x:43:
video:x:44:allensphilip
sasl:x:45:
plugdev:x:46:allensphilip
staff:x:50:
games:x:60:
users:x:100:
nogroup:x:65534:
systemd-journal:x:101:
systemd-network:x:102:
systemd-resolve:x:103:
input:x:104:
kvm:x:105:
render:x:106:
crontab:x:107:
netdev:x:108:allensphilip
tss:x:109:
ssl-cert:x:110:
messagebus:x:111:
systemd-timesync:x:112:
Debian-exim:x:113:
uuidd:x:114:
debian-tor:x:115:
ssh:x:116:
bluetooth:x:117:
rtkit:x:118:
xrdp:x:119:
vboxsf:x:120:
avahi:x:121:
nm-openvpn:x:122:
nm-openconnect:x:123:
lpadmin:x:124:allensphilip
pulse:x:125:
pulse-access:x:126:
scanner:x:127:saned,allensphilip
saned:x:128:
colord:x:129:
geoclue:x:130:
lightdm:x:131:
sgx:x:132:
docker:x:1000:allensphilip
allensphilip:x:1002:
roger:x:1003:
roger1:x:1004:
roger2:x:1005:
roger3:x:1006:
[root@SEC-ROG ~]#
```

[7]

```
ACN-LAB- allensphilip
File Edit View Search Terminal Help
[root@SEC-ROG ~]
→ #groupadd managers
[root@SEC-ROG ~]
→ #groupadd staff
[root@SEC-ROG ~]
→ #cat /etc/group
root:x:0:
daemon:x:1:
bin:x:2:
sys:x:3:
adm:x:4:allensphilip
tty:x:5:
disk:x:6:
lp:x:7:
mail:x:8:
news:x:9:
uucp:x:10:
man:x:12:
proxy:x:13:
kmem:x:15:
dialout:x:20:allensphilip
fax:x:21:allensphilip
voice:x:22:
cdrom:x:24:allensphilip
floppy:x:25:allensphilip
tape:x:26:allensphilip
sudo:x:27:allensphilip
audio:x:29:pulse,allensphilip
dip:x:30:allensphilip
www-data:x:33:
backup:x:34:
operator:x:37:
list:x:38:
irc:x:39:
src:x:40:
gnats:x:41:
shadow:x:42:
utmp:x:43:
video:x:44:allensphilip
sasl:x:45:
```

```
ACN-LAB- allensphilip
File Edit View Search Terminal Help
systemd-resolve:x:103:
input:x:104:
kvm:x:105:
render:x:106:
crontab:x:107:
netdev:x:108:allensphilip
tss:x:109:
ssl-cert:x:110:
messagebus:x:111:
systemd-timesync:x:112:
Debian-exim:x:113:
uuidd:x:114:
debian-tor:x:115:
ssh:x:116:
bluetooth:x:117:
rtkit:x:118:
xrdp:x:119:
vboxsf:x:120:
avahi:x:121:
nm-openvpn:x:122:
nm-opencconnect:x:123:
ipadmin:x:124:allensphilip
pulse:x:125:
pulse-access:x:126:
scanner:x:127:saned,allensphilip
saned:x:128:
colord:x:129:
geoclue:x:130:
lightdm:x:131:
sgx:x:132:
docker:x:1000:allensphilip
allensphilip:x:1002:
roger:x:1003:
roger1:x:1004:
roger2:x:1005:
roger3:x:1006:
managers:x:1007:
staff:x:1008:
[root@SEC-ROG ~]
→ #
```

[8-10]

```
ACN-LAB- allensphilip
File Edit View Search Terminal Help
[root@SEC-ROG:~]# usermod -aG managers roger
[root@SEC-ROG:~]# cat /etc/group
root:x:0:
daemon:x:1:
bin:x:2:
sys:x:3:
adm:x:4:allensphilip
tty:x:5:
disk:x:6:
lmc:x:7:

render:x:100:
crontab:x:107:
netdev:x:108:allensphilip
tss:x:109:
ssl-cert:x:110:
messagebus:x:111:
systemd-timesync:x:112:
Debian-exim:x:113:
uuid:x:114:
debian-tor:x:115:
ssh:x:116:
bluetooth:x:117:
rtkit:x:118:
xrdp:x:119:
vboxsf:x:120:
avahi:x:121:
nm-openvpn:x:122:
nm-openconnect:x:123:
lpadmin:x:124:allensphilip
pulse:x:125:
pulse-access:x:126:
scanner:x:127:saned,allensphilip
saned:x:128:
colord:x:129:
geoclue:x:130:
lightdm:x:131:
sqix:x:132:
docker:x:1000:allensphilip
allensphilip:x:1002:
roger:x:1003:
roger1:x:1004:
roger2:x:1005:
roger3:x:1006:
managers:x:1007:roger
staff:x:1008:
[root@SEC-ROG:~]# id roger
uid=1002(roger) gid=1003(roger) groups=1003(roger),1007(managers)
[root@SEC-ROG:~]#
```

```
ACN-LAB- allensphilip
File Edit View Search Terminal Help
[root@SEC-ROG:~]# usermod -aG staff roger1
[root@SEC-ROG:~]# usermod -aG staff roger2
[root@SEC-ROG:~]# usermod -aG staff roger3
[root@SEC-ROG:~]# id roger1
uid=1003(roger1) gid=1004(roger1) groups=1004(roger1),1008(staff)
[root@SEC-ROG:~]# id roger2
uid=1004(roger2) gid=1005(roger2) groups=1005(roger2),1008(staff)
[root@SEC-ROG:~]# id roger3
uid=1005(roger3) gid=1006(roger3) groups=1006(roger3),1008(staff)
[root@SEC-ROG:~]# groupadd committee
[root@SEC-ROG:~]# usermod -aG committee roger
[root@SEC-ROG:~]# id roger
uid=1002(roger) gid=1003(roger) groups=1003(roger),1007(managers),1009(committee)
```

[_11_]

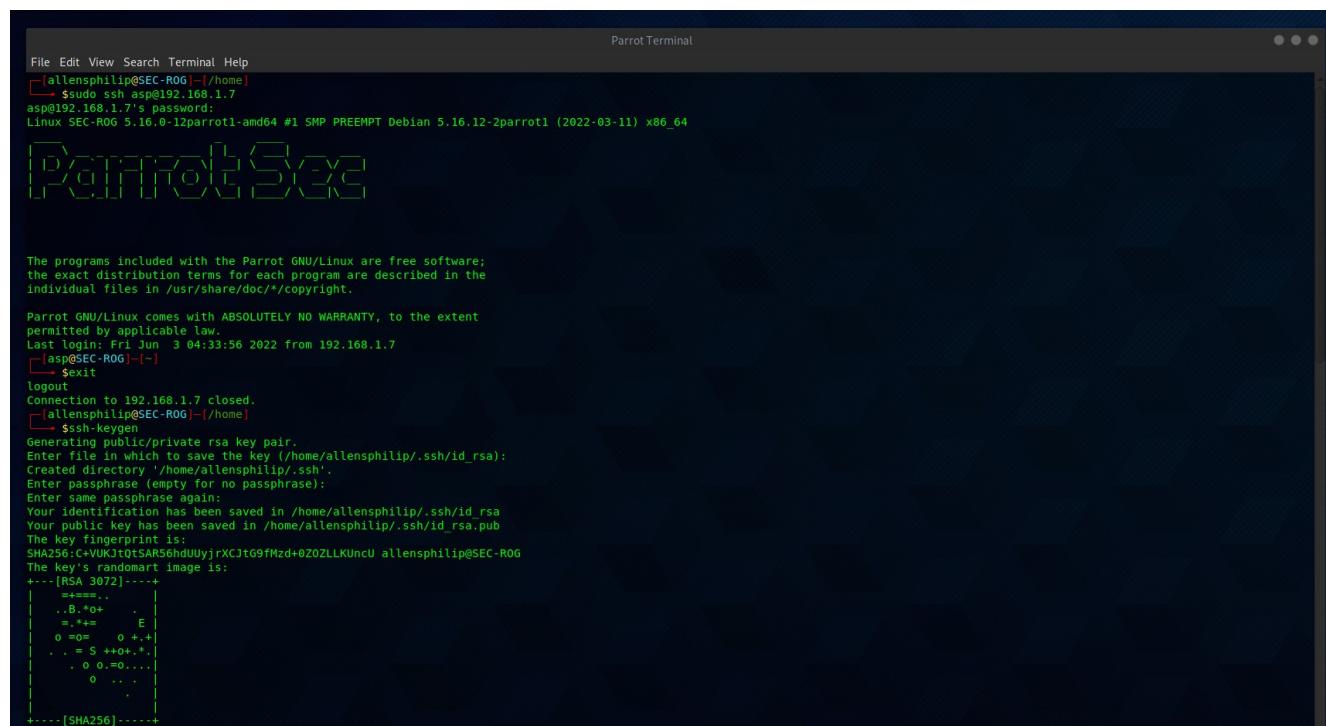
```
ACN- LAB- allensphilip
File Edit View Search Terminal Help
[root@SEC-ROG]~
└─#useradd BBrown
[root@SEC-ROG]~
└─#groupadd Faculty
[root@SEC-ROG]~
└─#groupadd web-author
[root@SEC-ROG]~
└─#groupadd coordinator
[root@SEC-ROG]~
└─#usermod -g Faculty BBrown
[root@SEC-ROG]~
└─#usermod -aG web-author BBrown
[root@SEC-ROG]~
└─#usermod -aG coordinator BBrown
[root@SEC-ROG]~
└─#id BBrown
uid=1006(BBrown) gid=1011(Faculty) groups=1011(Faculty),1012(web-author),1013(coordinator)
[root@SEC-ROG]~
└─#passwd BBrown
New password:
Retype new password:
passwd: password updated successfully
[root@SEC-ROG]~
└─#chage -d 0 BBrown
[root@SEC-ROG]~
└─#su BBrown
You are required to change your password immediately (administrator enforced).
Changing password for BBrown.
Current password:
New password:
Retype new password:
You must choose a longer password.
New password:
Retype new password:
$ id
uid=1006(BBrown) gid=1011(Faculty) groups=1011(Faculty),1012(web-author),1013(coordinator)
$ exit
[root@SEC-ROG]~
└─#
```

Experiment 5

1. Enable access to the remote system (IP: 192.168.1.7) without entering a password.
2. Create a file in your name in a remote system (IP: 192.168.1.7) using the terminal.
3. Learn scp command using the appropriate command. And download a file named 204Lab.txt from the remote system (IP: 192.168.6.94) to your own system.

Output

[1]



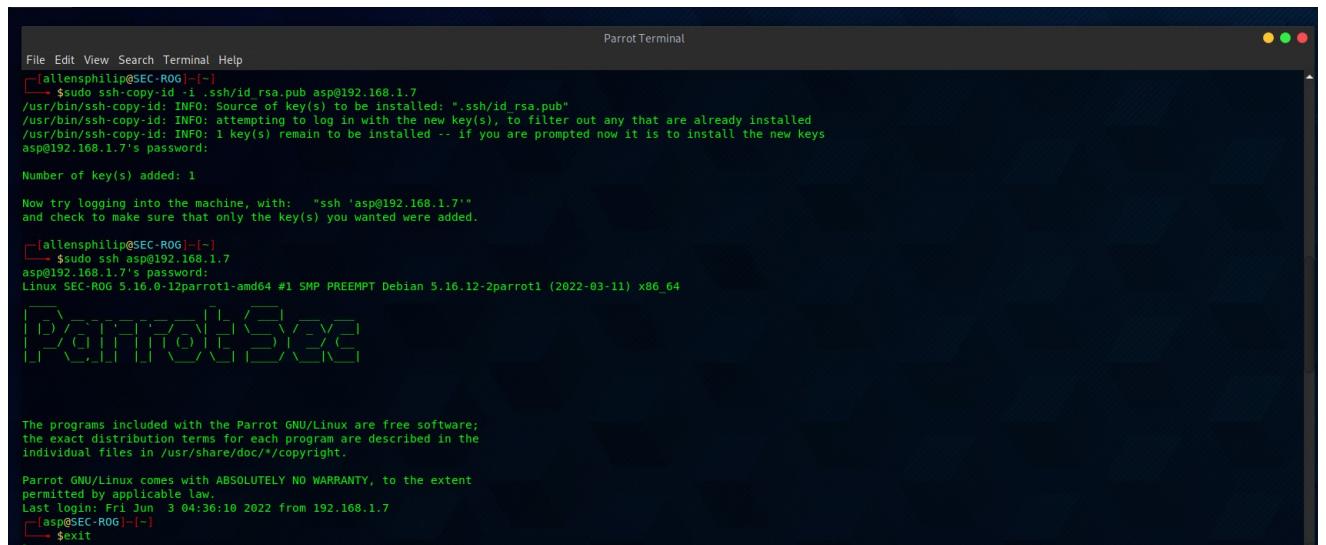
```

File Edit View Search Terminal Help
[allensphilip@SEC-ROG ~]/
└─$ sudo ssh asp@192.168.1.7
asp@192.168.1.7's password:
Linux SEC-ROG 5.16.0-12parrot1-amd64 #1 SMP PREEMPT Debian 5.16.12-2parrot1 (2022-03-11) x86_64

The programs included with the Parrot GNU/Linux are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Parrot GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Fri Jun 3 04:33:56 2022 from 192.168.1.7
[asp@SEC-ROG](-)
└─$ exit
logout
Connection to 192.168.1.7 closed.
[allensphilip@SEC-ROG ~]/
└─$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/home/allensphilip/.ssh/id_rsa):
Created directory '/home/allensphilip/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/allensphilip/.ssh/id_rsa
Your public key has been saved in /home/allensphilip/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:+VUKJtQCSR56hdUyjrxCJtG9fMzd+0Z0ZLLKUncU allensphilip@SEC-ROG
The key's randomart image is:
+---[RSA 3072]---+
=++...
..B.+*
.=+* E
0 =+* 0 +*.
.= S ++*.*.
. o .=0.....
o ...
.
+---[SHA256]---+

```



```

File Edit View Search Terminal Help
[allensphilip@SEC-ROG ~]/
└─$ sudo ssh-copy-id -i .ssh/id_rsa.pub asp@192.168.1.7
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: ".ssh/id_rsa.pub"
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys
asp@192.168.1.7's password:

Number of key(s) added: 1

Now try logging into the machine, with: "ssh 'asp@192.168.1.7'"
and check to make sure that only the key(s) you wanted were added.

[allensphilip@SEC-ROG](-)
└─$ sudo ssh asp@192.168.1.7
asp@192.168.1.7's password:
Linux SEC-ROG 5.16.0-12parrot1-amd64 #1 SMP PREEMPT Debian 5.16.12-2parrot1 (2022-03-11) x86_64

The programs included with the Parrot GNU/Linux are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Parrot GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Fri Jun 3 04:36:10 2022 from 192.168.1.7
[asp@SEC-ROG](-)
└─$ exit
logout

```

The screenshot shows a terminal window titled "Parrot Terminal". The session is connected to a host at 192.168.1.7. The user has run the command `ssh asp@192.168.1.7`. The terminal displays a warning about the host's key fingerprint and asks if the user wants to add it to the list of known hosts. The user responds "yes". The terminal then shows the standard Parrot Linux welcome message, which includes a logo consisting of various symbols like arrows and text. The message ends with the text "The programs included with the Parrot GNU/Linux are free software; the exact distribution terms for each program are described in the individual files in /usr/share/doc/*copyright.". Finally, the terminal shows the user's last login information and a prompt for the user "asp".

[2]

This screenshot shows a terminal session on a Parrot Linux system. The user has run `ssh asp@192.168.1.7` and accepted the host key fingerprint. The terminal displays the Parrot Linux welcome message with its distinctive logo. After the welcome message, the user runs `ls` to list the contents of the current directory. The directory contains a file named "204Lab.txt" and a folder named "Desktop". The user then runs `stouch allensphilip` to update the timestamp of the "allensphilip" file. Finally, the user runs `logout` to disconnect from the remote host.

[3]

The screenshot shows a terminal window titled "Parrot Terminal". The terminal output is as follows:

```
File Edit View Search Terminal Help
[allensphilip@SEC-ROG]~]
└─$ ssh asp@192.168.1.7
Linux SEC-ROG 5.16.0-12parrot1-amd64 #1 SMP PREEMPT Debian 5.16.12-2parrot1 (2022-03-11) x86_64

The programs included with the Parrot GNU/Linux are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Parrot GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Fri Jun  3 04:39:50 2022 from 192.168.1.7
[asp@SEC-ROG]~]
└─$ ls
204Lab.txt  Desktop  Templates
[asp@SEC-ROG]~]
└─$ exit
logout
Connection to 192.168.1.7 closed.
[allensphilip@SEC-ROG]~]
└─$ scp asp@192.168.1.7:204Lab.txt /home/allensphilip
204Lab.txt
          100%   0     0.0KB/s  00:00
[allensphilip@SEC-ROG]~]
└─$ ls
204Lab.txt  April2022  Desktop  Documents  Downloads  file2  logfile  MCA  Music  Pictures  Public  Templates
  Videos  website
[allensphilip@SEC-ROG]~]
└─$
```

NETWORKING & SYSTEM ADMINISTRATION LAB

Experiment No: 9

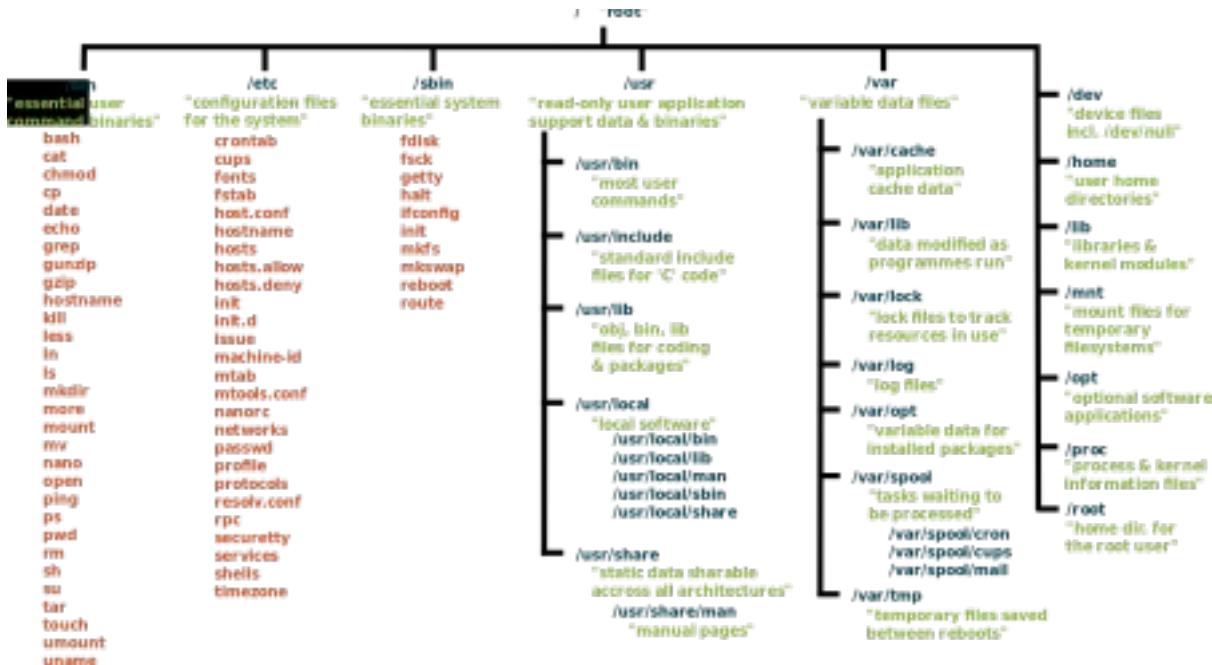
Name: ALLEN S PHILIP

Roll No: 20

Batch: RMCA- A

Date: 22-04-2022

Aim



- Acquire knowledge about locations of various system and configuration files listed above
- Study of system configuration files in **/etc**, familiarizing log files for system events, user activity, network events.

Procedure

Installing Tree utility

```

mca@U20:~$ sudo apt-get install tree
[sudo] password for mca:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  debhelper dh-autoreconf dh-strip-nondeterminism libarchive-cpio-perl
  libfile-stripnondeterminism-perl libmail-sendmail-perl libpcre16-3
  libpcre3-dev libpcre32-3 libpcrecpp0v5 libssl-dev libssl-doc
  libsys-hostname-long-perl php-common php-pear php-xml php7.2-cli
  php7.2-common php7.2-json php7.2-opcache php7.2-readline php7.2-xml
  php7.2-common php7.2-xsl po-debconf shtool
Use 'sudo apt autoremove' to remove them.
The following NEW packages will be installed:
  tree
0 upgraded, 1 newly installed, 0 to remove and 5 not upgraded.
Need to get 40.7 kB of archives.
After this operation, 105 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu bionic/universe amd64 tree amd64 1.7.0-5 [40.7 kB]
Fetched 40.7 kB in (67.4 kB/s)
Selecting previously unselected package tree.
(Reading database ... 181441 files and directories currently installed.)
Preparing to unpack .../tree_1.7.0-5_amd64.deb ...
Unpacking tree (1.7.0-5) ...
Setting up tree (1.7.0-5) ...
Processing triggers for man-db (2.8.3-2) ...
mca@U20:~$ 
  
```

Listing root with tree

```
mca@U20:~$ tree -L 1 /
/
bin
boot
cdrom
dev
etc
home
initrd.img -> boot/initrd.img-4.15.0-33-generic
initrd.img.old -> boot/initrd.img-4.15.0-23-generic
lib
lib32
lib64
lost+found
media
mnt
opt
proc
root
run
sbin
snap
srv
sys
tmp
usr
var
vmlinuz -> boot/vmlinuz-4.15.0-33-generic
vmlinuz.old -> boot/vmlinuz-4.15.0-23-generic

23 directories, 4 files
mca@U20:~$
```

/bin

```
mca@U20:~$ tree -L 1 /bin
/bin
-- bash
-- brlty
-- bunzip2
-- busybox
-- bzip
-- bzcmp -> bzdiff
-- bzdiff
-- bzgrep -> bzgrep
-- bzexe
-- bzfgrep -> bzgrep
-- bzgrep
-- bzip
-- bzip2recover
-- bzless -> bzmore
-- bzmore
-- cat
-- chacl
-- chgrp
-- chmod
-- chown
-- chvt
-- cp
-- cpio
-- dash
-- date
-- dd
-- df
-- dir
-- dmesg
-- dnsdomainname -> hostname
-- domainname -> hostname
-- dumpkeys
-- echo
-- ed
-- efibootdump
-- efibootmgr
```

/boot

```
mca@U20:~$ tree -L 1 /boot
/boot
-- abi-4.15.0-23-generic
-- abi-4.15.0-33-generic
-- config-4.15.0-23-generic
-- config-4.15.0-33-generic
-- grub
-- initrd.img-4.15.0-23-generic
-- initrd.img-4.15.0-33-generic
-- memtest86+.bin
-- memtest86+.elf
-- memtest86+_multiboot.bin
-- retpoline-4.15.0-23-generic
-- retpoline-4.15.0-33-generic
-- System.map-4.15.0-23-generic
-- System.map-4.15.0-33-generic
-- vmlinuz-4.15.0-23-generic
-- vmlinuz-4.15.0-33-generic

1 directory, 15 files
mca@U20:~$
```

/dev

```
mca@U20:~$ tree -L 1 /dev
mca@U20:~$ tree -L 1 /dev
/dev
├── autofs
├── block
├── bsg
├── btrfs-control
├── bus
├── char
├── console
│   core -> /proc/kcore
├── cpu
│   cpu_dma_latency
├── cuse
├── disk
├── dri
│   drm_dp_aux0
├── encryptfs
├── fb0
├── fd -> /proc/self/fd
├── full
├── fuse
├── hidraw0
├── hidraw1
├── hidraw2
├── hpet
├── hugepages
├── hwrng
├── i2c-0
├── i2c-1
├── i2c-2
├── i2c-3
├── i2c-4
├── initctl -> /run/systemd/initctl/fifo
├── input
├── kmsg
├── kvm
├── lightningvm
└── log -> /run/systemd/journal/dev-log
```

/etc

```
mca@U20:~$ tree -L 1 /etc
mca@U20:~$ tree -L 1 /etc
/etc
├── acpi
├── adduser.conf
├── alternatives
├── anacrontab
├── apg.conf
├── aptm
├── apparmor
├── apparmor.d
├── apport
├── appstream.conf
├── apt
├── avahi
├── bash.bashrc
├── bash_completion
├── bash_completion.d
├── bindresvport.blacklist
├── binfmt.d
├── bluetooth
├── brlapi.key
├── brltty
├── brltty.conf
├── ca-certificates
├── ca-certificates.conf
├── calendar
├── chatscripts
├── console-setup
├── cracklib
├── cron.d
├── cron.daily
├── cron.hourly
├── cron.monthly
├── crontab
├── cron.weekly
├── cups
├── cupshelpers
└── dbus-1
```

20MCA136 – NETWORKING & SYSTEM ADMINISTRATION LAB
Dept. of Computer Applications

/lib

```
mca@U20:~$ tree -L 1 /lib
/lib
├── apparmor
├── brlity
├── console-setup
├── cpp -> /etc/alternatives/cpp
├── crda
├── firmware
├── hdparm
├── ifupdown
├── init
├── klibc-wBFLvVtxy4xJqEadIBJMa78iJz8.so
├── ld-linux.so.2 -> /lib32/ld-linux.so.2
├── linux-sound-base
└── lsb

19 directories, 3 files
mca@U20:~$
```

/media, /mnt, /opt, /root

```
mca@U20:~$ tree -L 1 /media
/media [error opening dir]

0 directories, 0 files
mca@U20:~$ tree -L 1 /mnt
/mnt

0 directories, 0 files
mca@U20:~$ tree -L 1 /opt
/opt
├── android-studio
├── google
└── lampp

3 directories, 0 files
mca@U20:~$ tree -L 1 /root
/root [error opening dir]

0 directories, 0 files
mca@U20:~$ sudo tree -L 1 /root
[sudo] password for mca:
/root
└── Desktop
    └── snap

2 directories, 0 files
mca@U20:~$
```

20MCA136 – NETWORKING & SYSTEM ADMINISTRATION LAB
Dept. of Computer Applications

/sbin

```
mca@U20:~$ sudo tree -L 1 /sbin
/sbin
├── acpi_available
├── agetty
├── alsa
├── apm_available
├── apparmor_parser
├── badblocks
├── blkdeactivate
├── blkdiscard
├── blkid
├── blockdev
├── bridge
├── brltty -> /bin/brltty
├── brltty-setup
├── caps
├── cfdisk
├── cgdisk
├── chcpu
├── crda
├── ctrlaltdel
├── debugfs
├── depmod -> /bin/kmod
├── devlink
├── dhclient
├── dhclient-script
├── dmsetup
├── dmstats -> dmsetup
├── dosfsck -> fsck.fat
├── dosfslabel -> fatlabel
├── dumpe2fs
├── e2fsck
├── e2image
├── e2label -> tune2fs
├── e2undo
├── fatlabel
├── fdisk
└── findfs
```

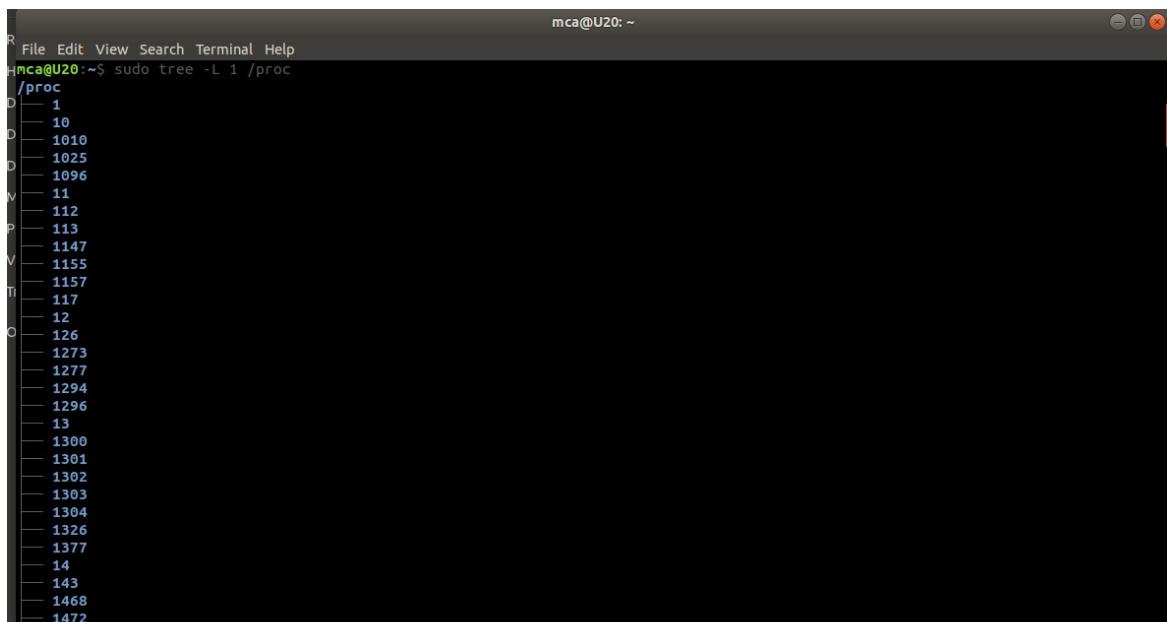
/sys

```
mca@U20:~$ sudo tree -L 1 /sys
File Edit View Search Terminal Help
mca@U20:~$ sudo tree -L 1 /sys
/srv
:
0 directories, 0 files
mca@U20:~$ sudo tree -L 1 /sys
/sys
├── block
├── bus
├── class
├── dev
├── devices
├── firmware
├── fs
├── hypervisor
├── kernel
└── module
└── power
11 directories, 0 files
```

/var, /usr

```
mca@U20:~$ sudo tree -L 1 /var
File Edit View Search Terminal Help
mca@U20:~$ sudo tree -L 1 /var
/var
├── backups
├── cache
├── crash
├── lib
├── local
├── lock -> /run/lock
├── log
├── mail
├── metrics
├── opt
├── run -> /run
├── snap
└── spool
└── tmp
14 directories, 0 files
mca@U20:~$ sudo tree -L 1 /usr
/usr
├── bin
├── games
├── include
├── lib
├── lib32
├── local
├── sbin
└── share
└── src
9 directories, 0 files
mca@U20:~$
```

/proc



```
mca@U20:~$ sudo tree -L 1 /proc
R  File  Edit  View  Search  Terminal  Help
mca@U20:~$ sudo tree -L 1 /proc
/proc
D   1
D   10
D   1010
D   1025
D   1096
N   11
N   112
P   113
N   1147
V   1155
V   1157
Ti  117
O   12
O   126
O   1273
O   1277
O   1294
O   1296
O   13
O   1300
O   1301
O   1302
O   1303
O   1304
O   1326
O   1377
O   14
O   143
O   1468
O   1472
```