**EXPERIMENT-3**

**Aim:** Install and configure Linux and work with Linux commands for the activities given in Experiment 1.

**Theory:** Linux is an open-source operating system developed in 1991 by Linus Torvalds as an idea to improve Unix; but was developed as a standalone operating system. It can be used in phones, laptops, PCs, cars or even in refrigerators. It offers many advantages like getting rid of viruses, malwares, crashes, slowdowns etc.

**Procedure:**

*Installing and Configuring Linux*

1. Partitioning Hard Disk (on Windows 10)
2. Open the Windows search bar.
3. Type “DISKMGMT.MSC” in search bar and press enter.
4. Right click on the main hard disk and select the option shrink volume.
5. Enter the desired amount of partition (atleast 20 GB).
6. Click finally on “shrink”.
7. Making Linux bootable USB
8. Download the Linux distro in ISO format from the distributers’ main website (Ubuntu).
9. Insert the USB device on your computer.
10. Download Rufus.
11. Open Rufus and select your USB drive from the device list.
12. Under Boot section, click Select button and choose the ISO file downloaded earlier.
13. Finally, click on “start” ( If you get a pop-up message asking you to select a mode that you want to use to write the image, choose ISO.)

Then wait for Rufus to mount your ISO file onto your drive. This might take some time.

1. Installing Linux from the USB drive
2. Insert the bootable Linux USB drive.
3. Click on the start menu.
4. Hold the shift key while restarting.
5. Select “Use a device”.
6. Find the device in the list.
7. Select the device and click on it, the computer would now boot Linux.
8. Select “Install Ubuntu” for installing.
9. Complete the installation process as guided.
10. Reboot when prompted.

The Linux would then be installed on your computer and can be used.

*Linux Commands*

***File commands-***

* ls – List the content of current directory
* cp – copy source file to target file
* mv – copy source file to target file and delete source file after that
* rm – remove specified files from the system
* ln – create internal link from source file to target file
* cd – changes the current directory to specified
* mkdir – create a new directory
* rmdir – delete the specified directory
* chown - transfers the ownership of a file to the user with the specified user name
* chgrp – transfer the group ownership of a given file to the group with the specified group name
* chmod – change access permission

***Accessing file content***

* cat – display content of the specified file
* less – browse content of specified file
* grep – find a specific search-string in specified file
* diff – compares content of two files

***File system***

* mount – mount data media (hard disk, CD-ROM, etc.) to directory of Linux file system.
* unmount – unmounts a mounted device from the file device

***System Commands***

* df – disk free; when used without any options, displays information about the total disk space, the disk space currently in use, and the free space on all the mounted drives. If a directory is specified, the information is limited to the drive on which that directory is located.
* free – displays information about RAM and swap space usage, showing the total and the used amount in both categories.
* date – this simple program displays the current system time.

***Processes***

* top – provides a quick overview of the currently running processes
* ps – if run without any options, this command displays a table of all your own programs or processes — those you started
* kill – It sends a TERM signal that instructs the program to shut itself down
* killall - This command is similar to kill, but uses the process name (instead of the process ID) as an argument, causing all processes with that name to be killed