

Practical-1

Durgesh Dilip Mandge

2023510032

- 1. Downloading and setup Linux OS over the Virtual Box**
- 2. Linux Commands Demonstration**

1. Downloading and setting Linux OS over the Virtual Box

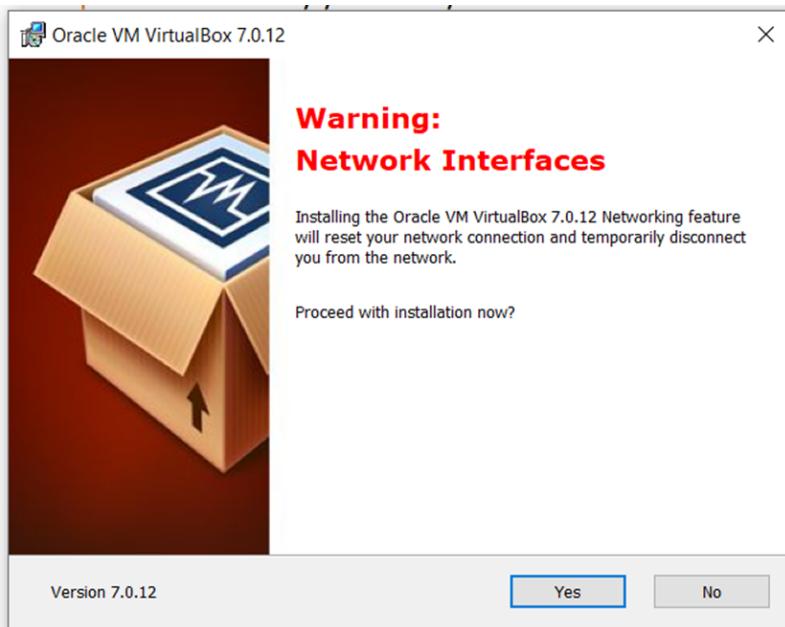
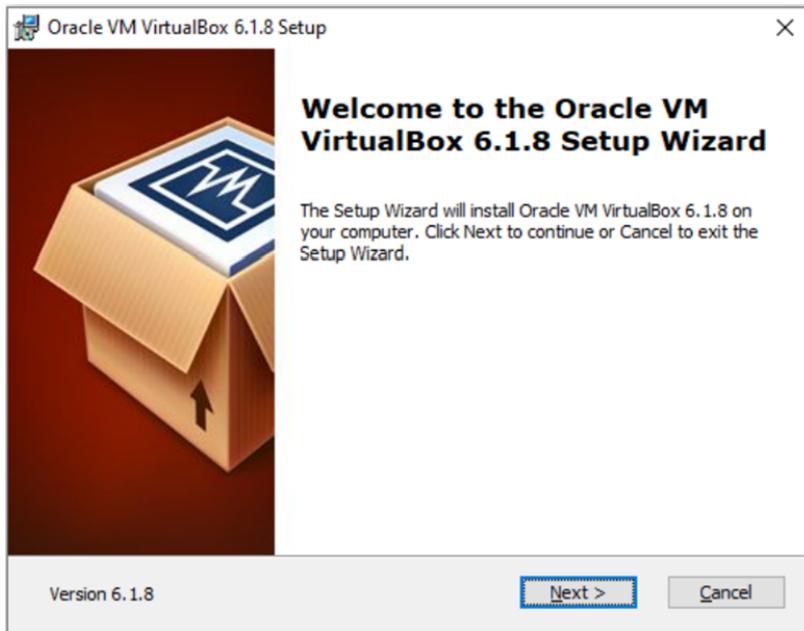
1> Click on the link to download the Oracle's Virtual Box:

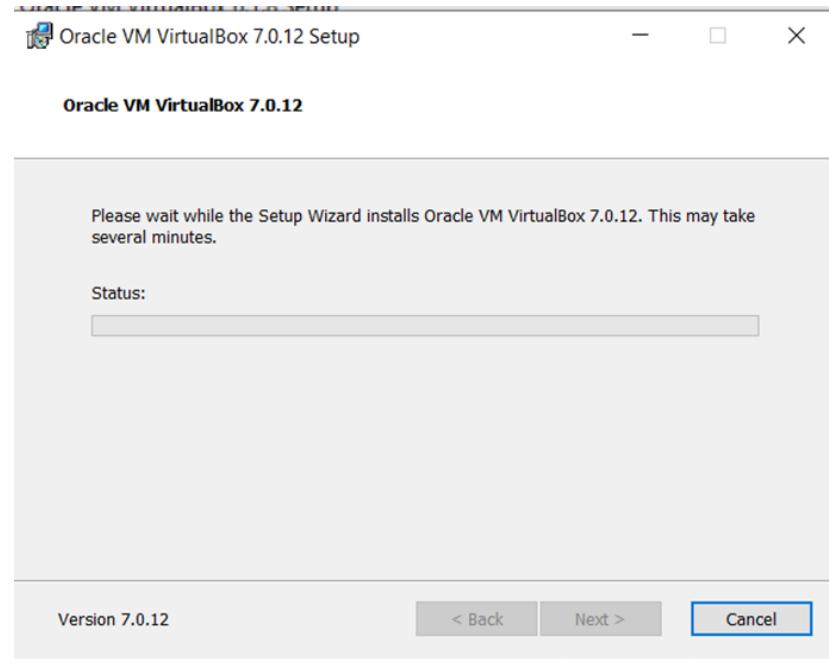
<http://www.oracle.com/technetwork/server-storage/virtualbox/downloads/index.html> , this page will be shown , select windows installer

The screenshot shows the Oracle VM VirtualBox download page. At the top, there is a navigation bar with links for Products, Industries, Resources, Customers, Partners, Developers, Company, a search bar, and account options. Below the navigation bar, there is a sidebar with links for Oracle VM VirtualBox Extension Pack, Source Code for Oracle VM VirtualBox Base Packages, Oracle VM VirtualBox Pre-built Appliances, Oracle Vagrant Boxes for Oracle VM VirtualBox - GitHub, Programming Guide and Reference (PDF), and VBox GuestAdditions. The main content area is titled "Oracle VM VirtualBox Base Packages - 7.0.14" and states that it is freely available for Windows, Mac OS X, Linux and Solaris x86 platforms under GPLv3. A table lists download links for different platforms: Windows (Windows Installer), Mac OS X (dmg Image), and Solaris 11 (Solaris Package). The "Linux Platforms" section is also visible.

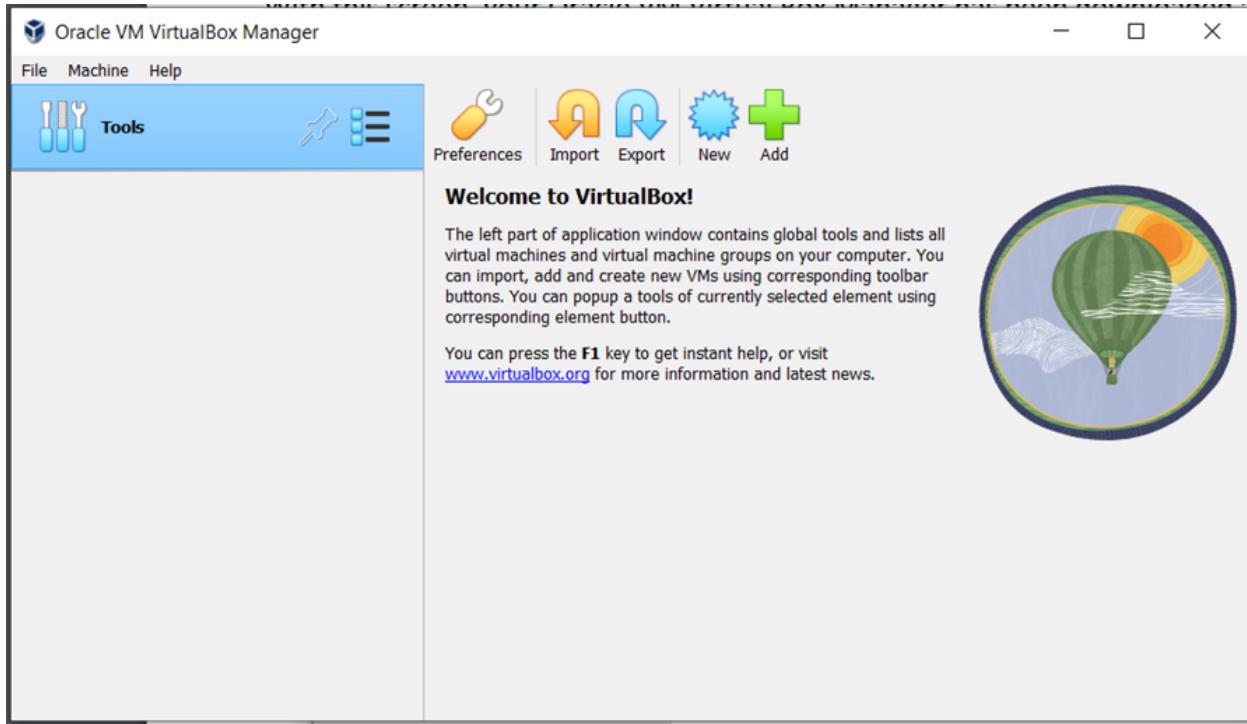
Platform	64-bit
Windows	Windows Installer
Mac OS X	dmg Image
Solaris 11	Solaris Package
Linux Platforms	

2> Then run the installed exe or msi file and give permissions for setup like follows:



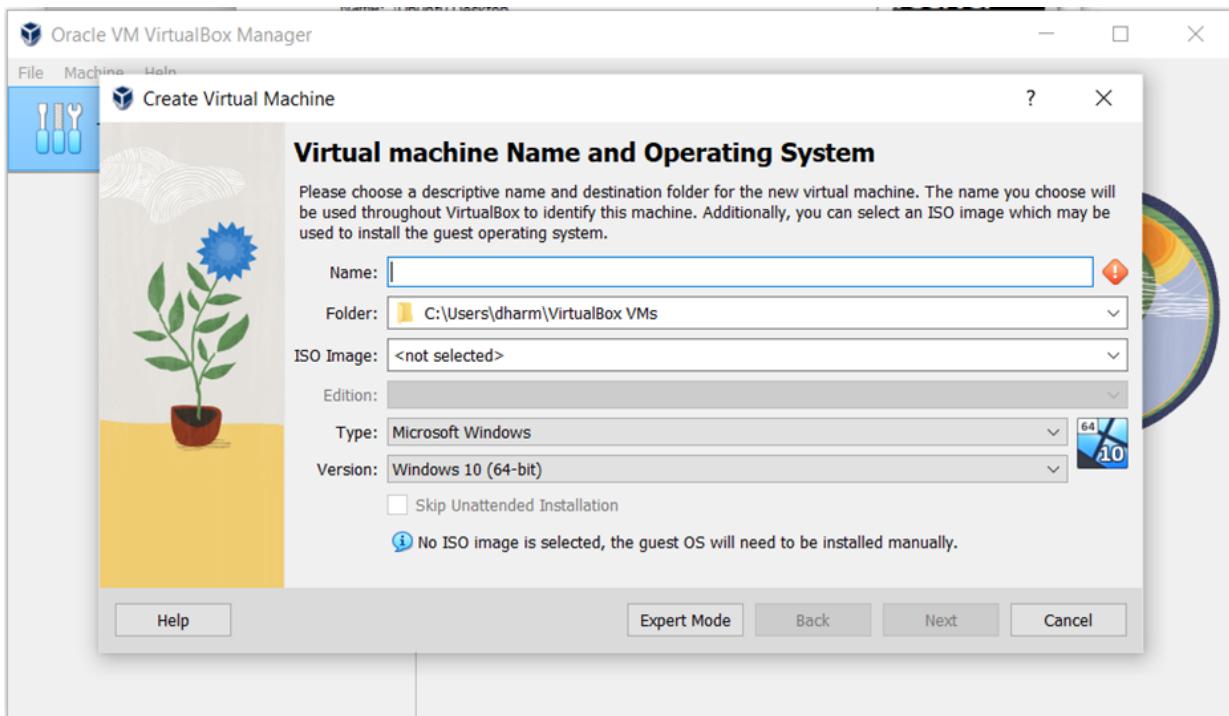


3> Once the Virtual Box is downloaded, its time to create the new machine here it is Linux : Open the VBox

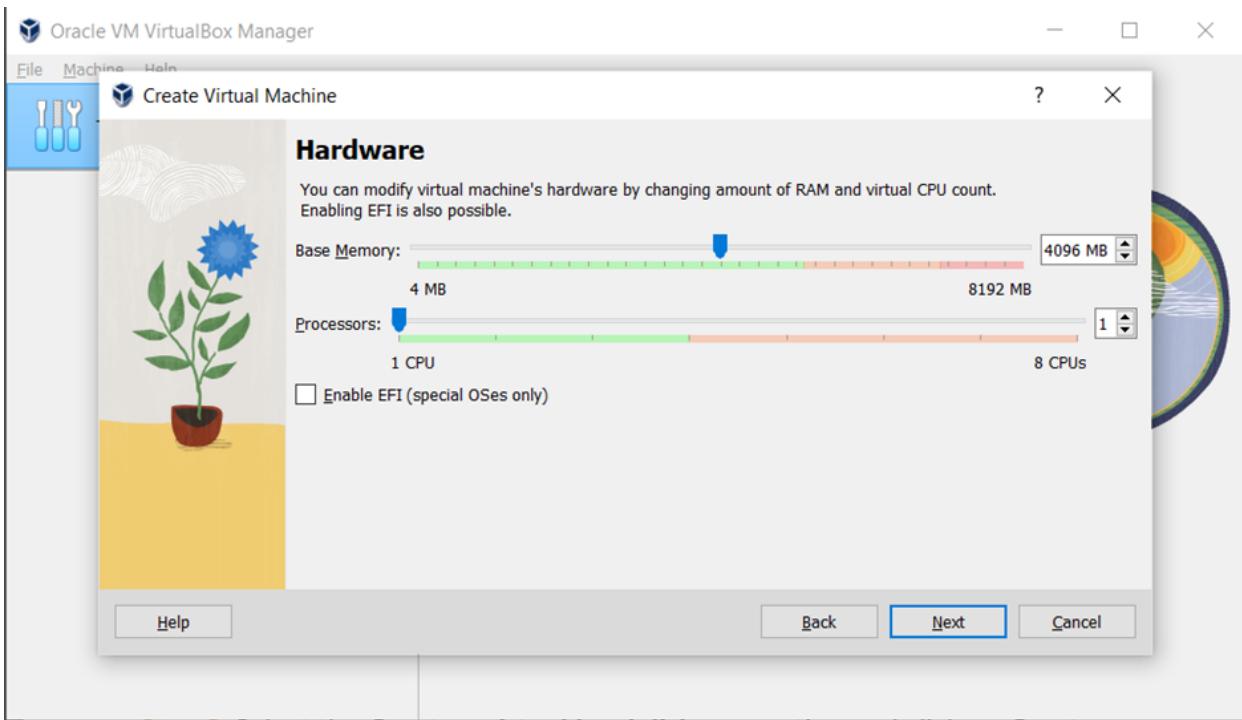


4> Click on New tab and below dialogue will be displayed

Enter the name and necessary information and click on Next:

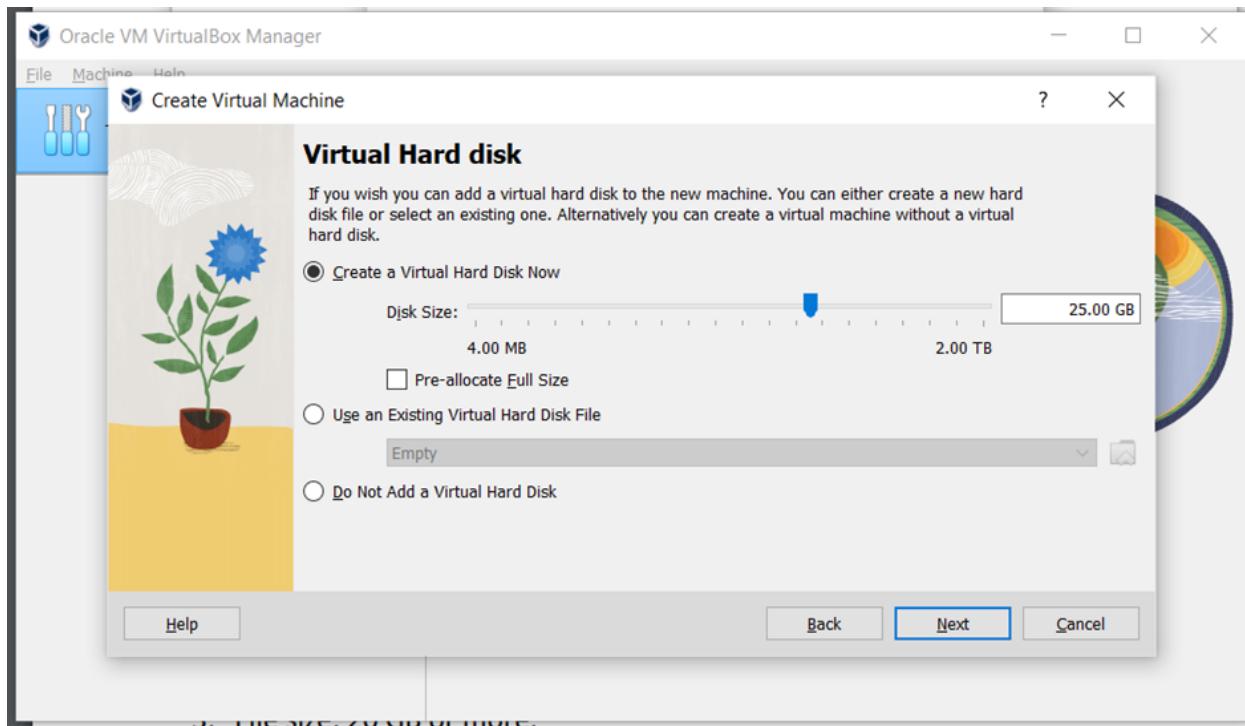


Then select the Base memory size to 4096mb with single processor and process with default settings :This will be space utilized by the Linux machine



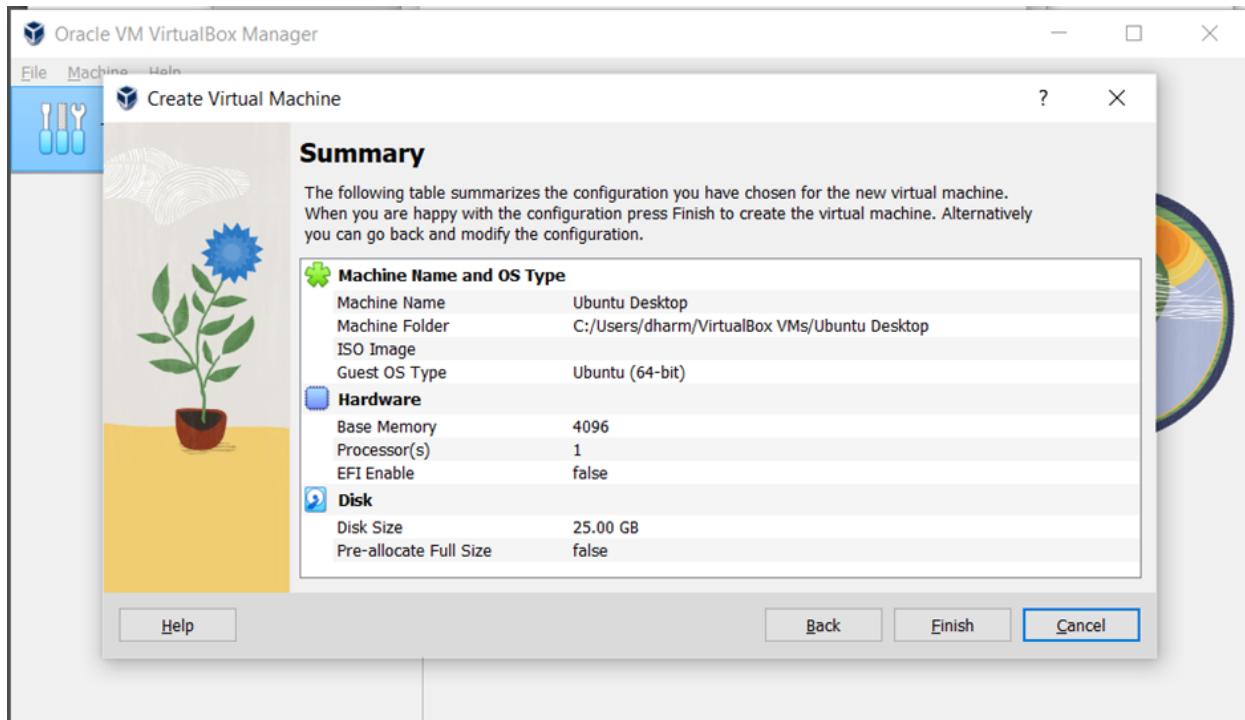
Step 5: Select the Create a virtual hard disk now option and click on Create

5> Now we have create virtual hard disk for virtual machine

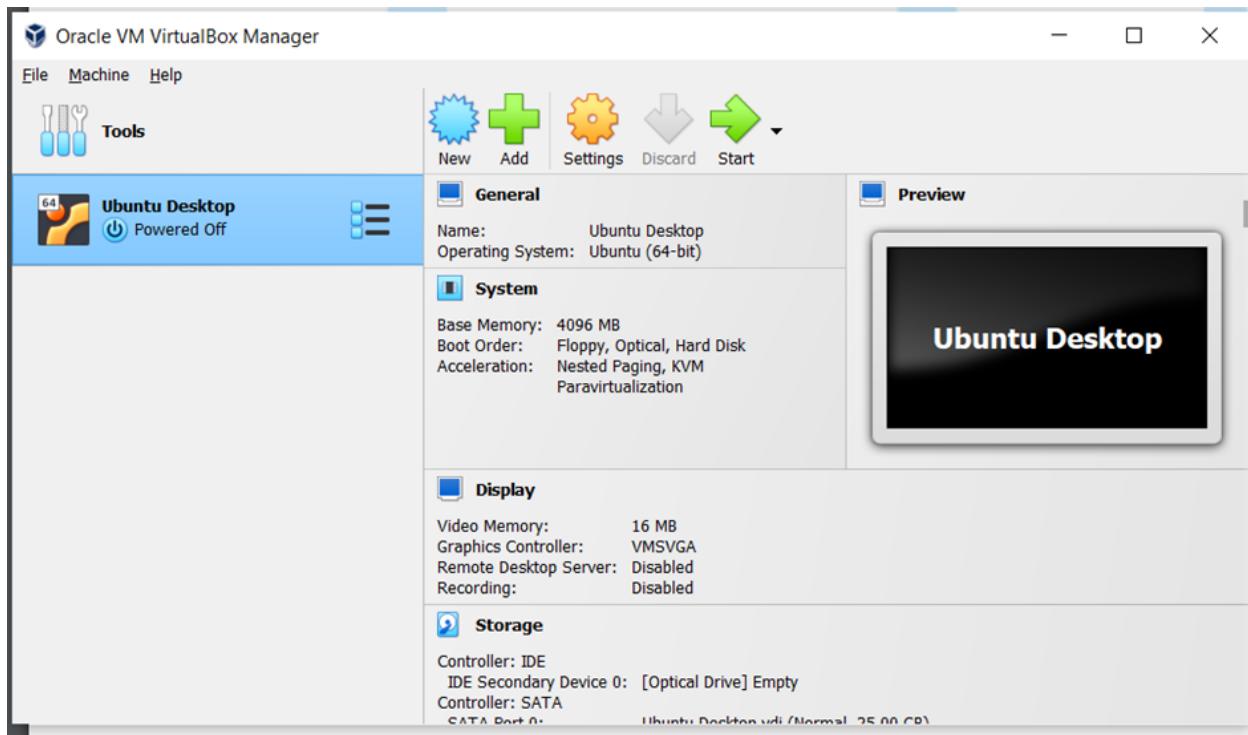


5. The size, 20 GB or more.

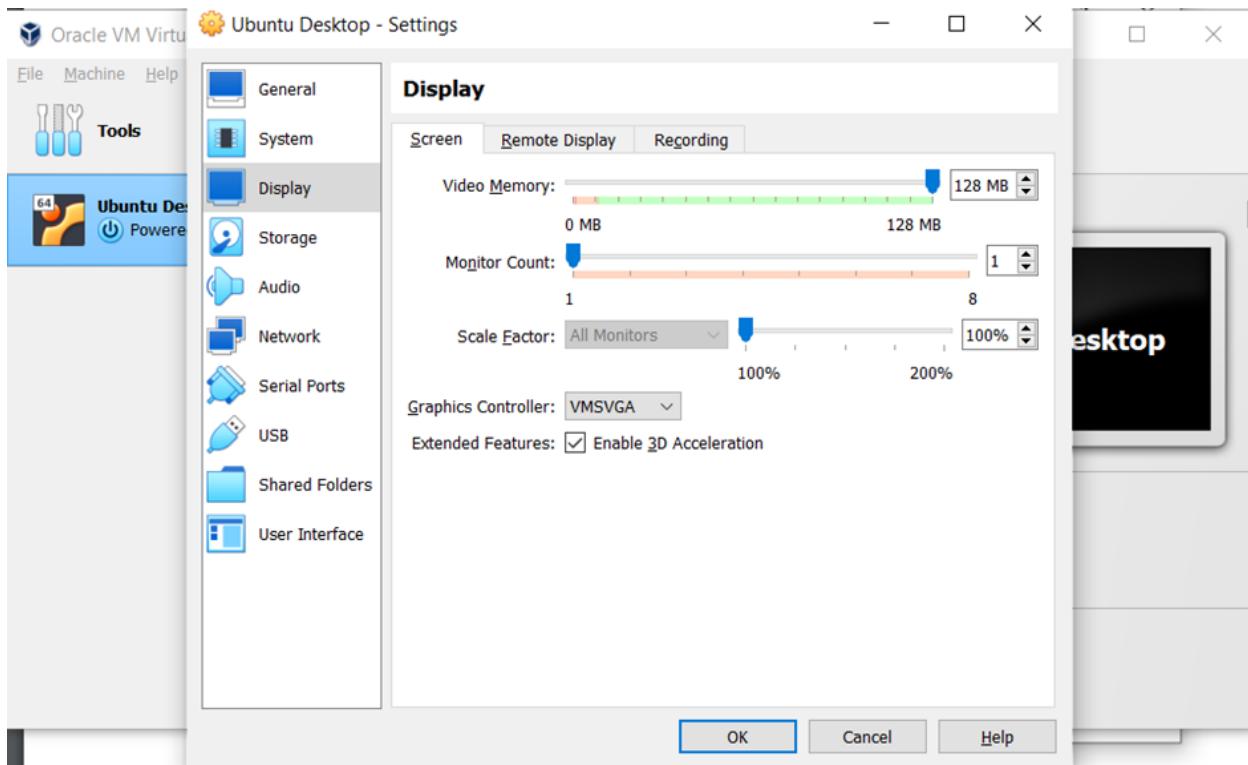
6> Check the settings and finish the machine setup



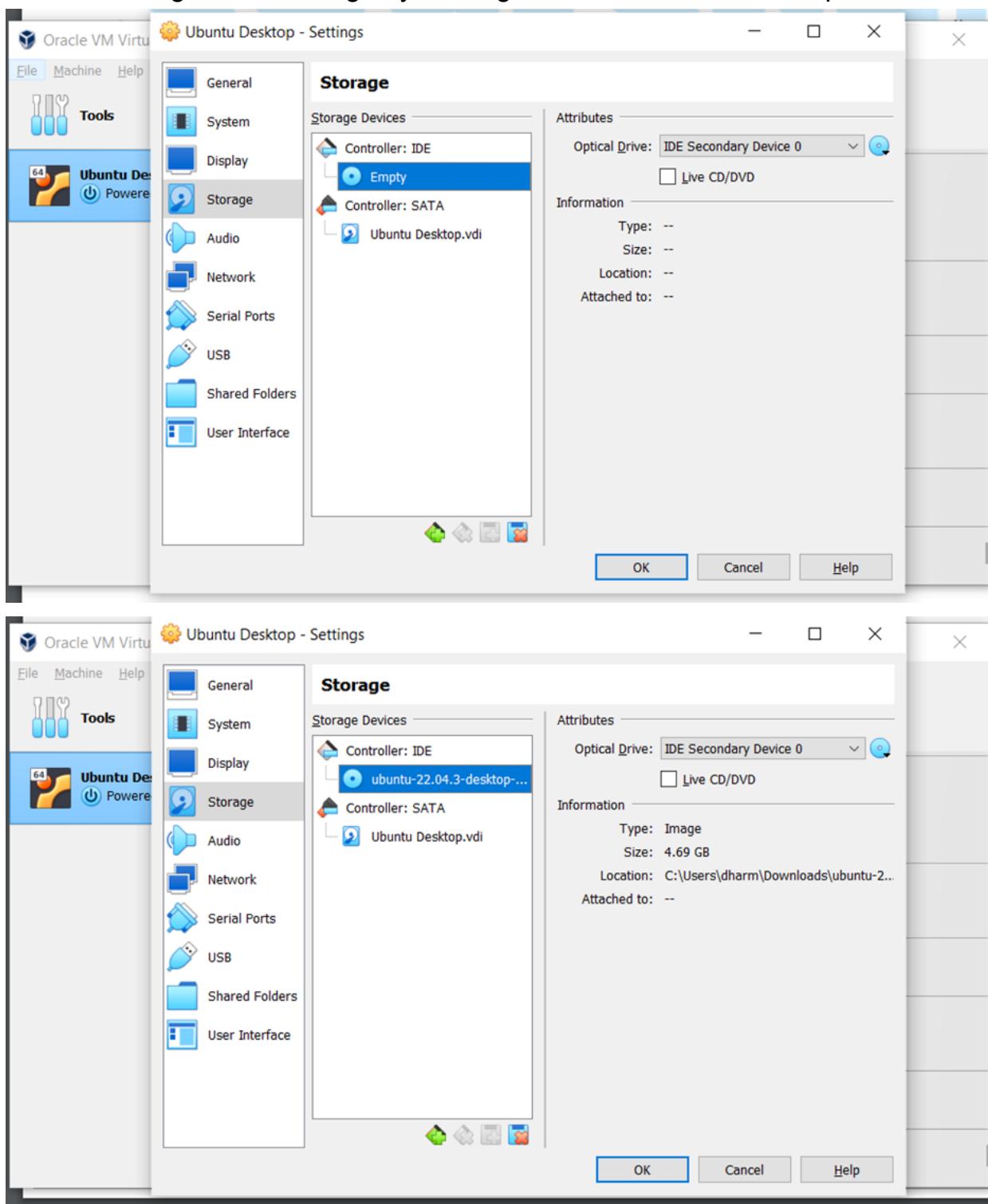
7> Virtual Machine is downloaded then its time to finish some configurations:



8> Select the Display menu to configure the display setting as follows:

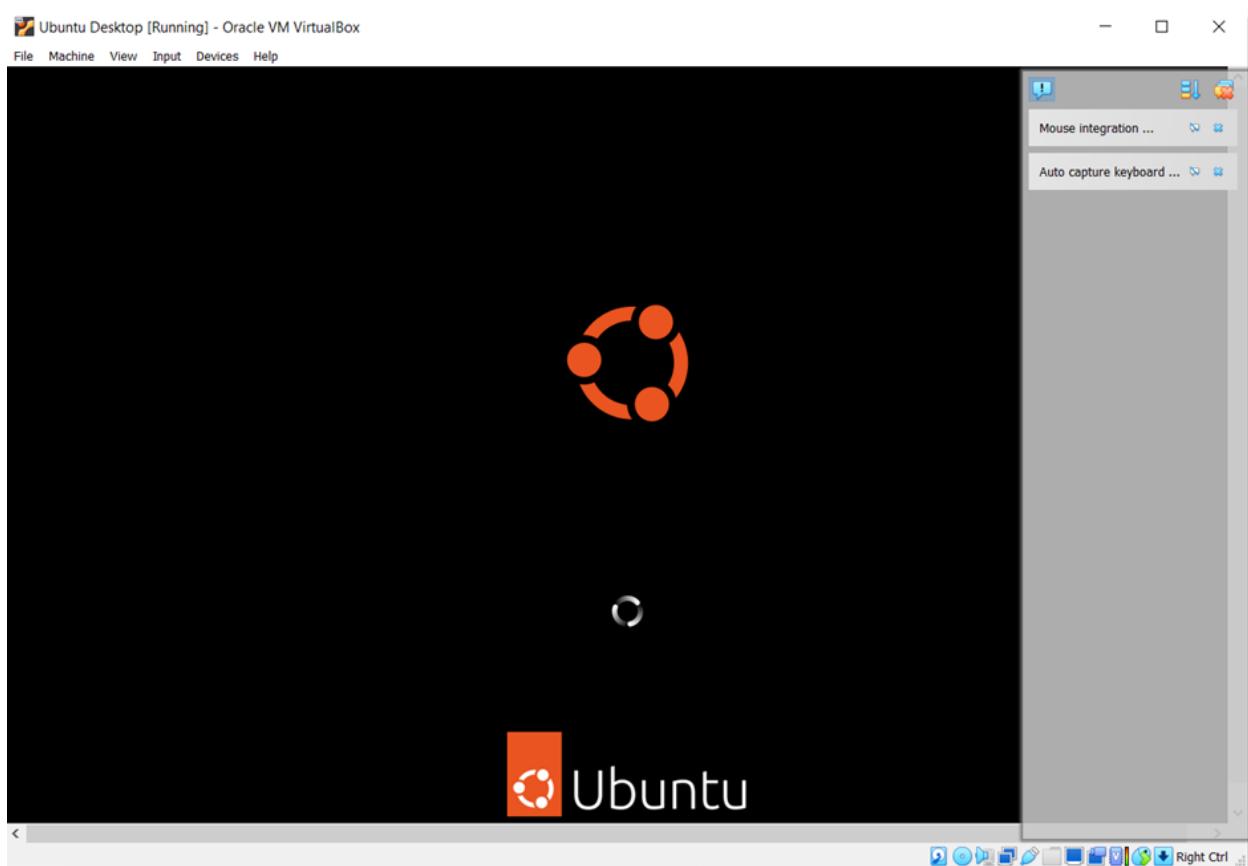
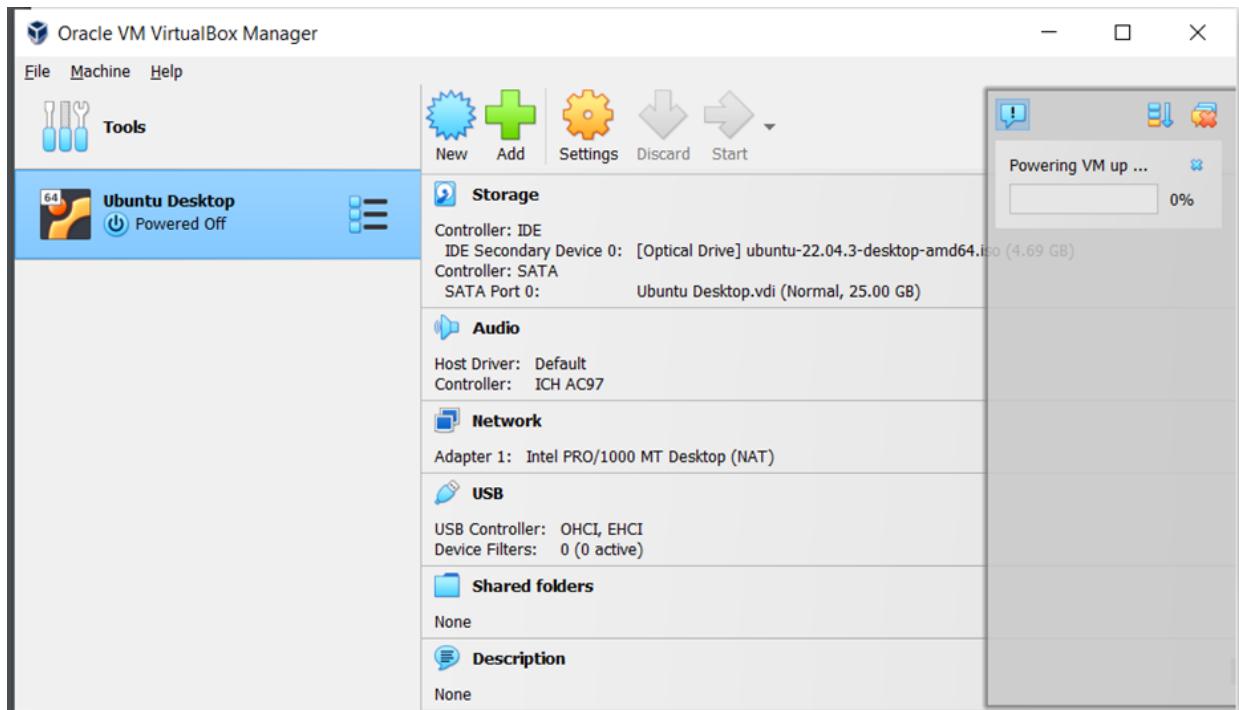


9> Then configure the Storage by clicking on sidebar and follow steps as follows

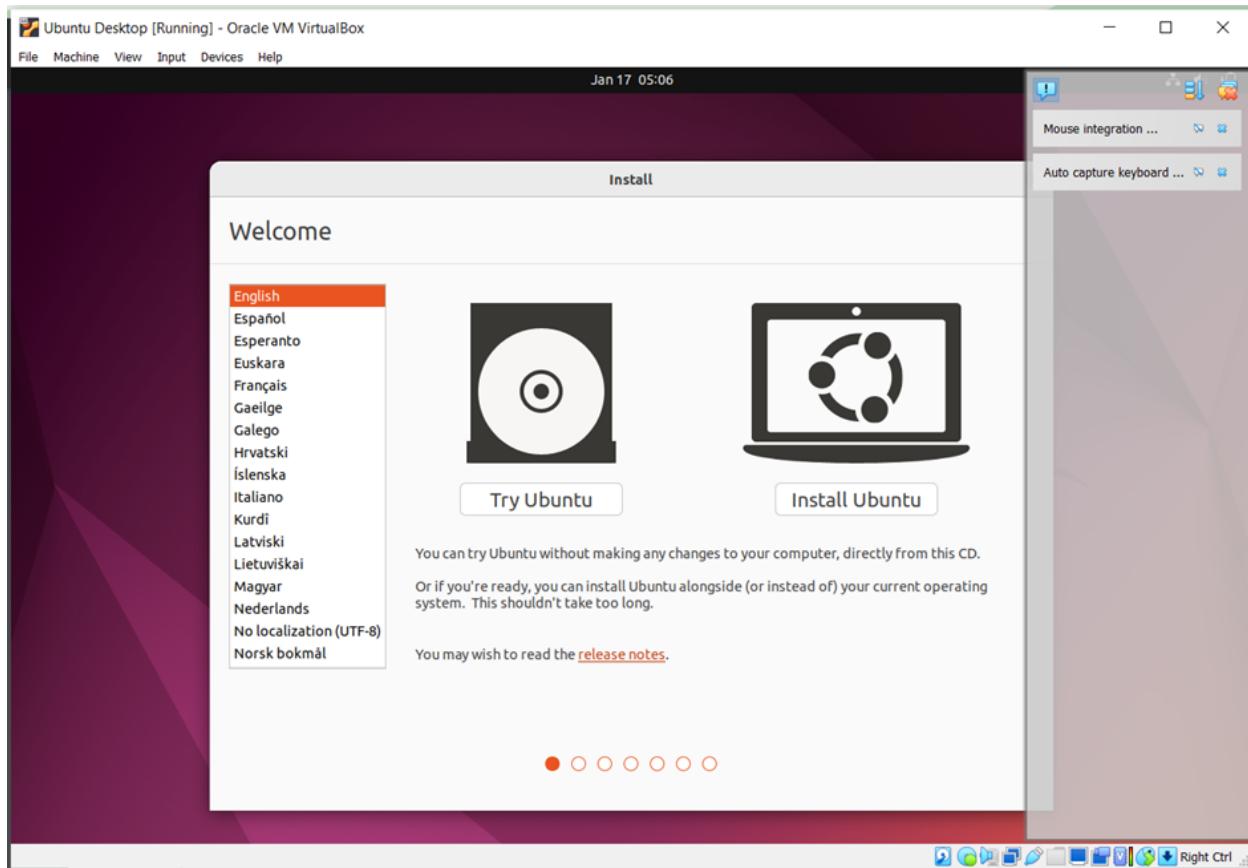


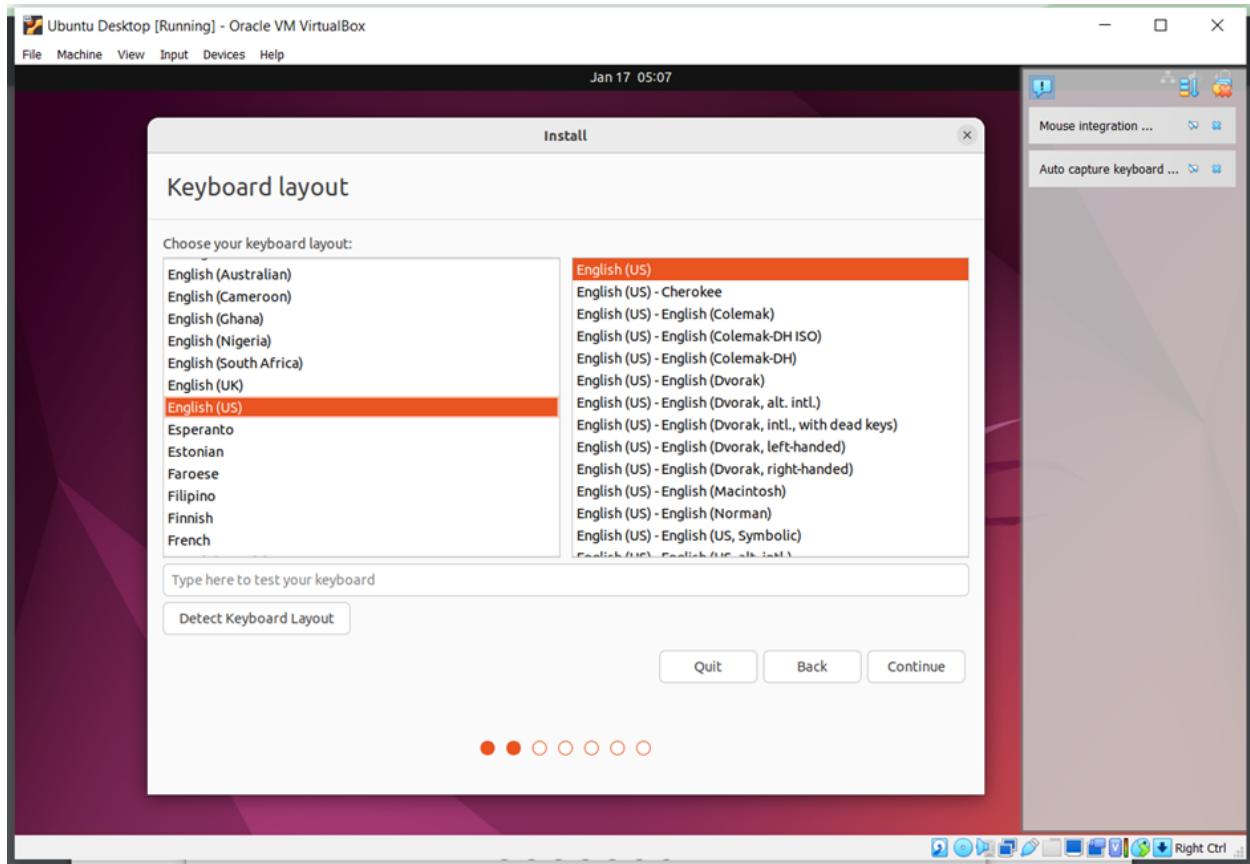
10> Now the Machine has set up and ready to use:

Click on Start dropdown and select normal start the machine will start:

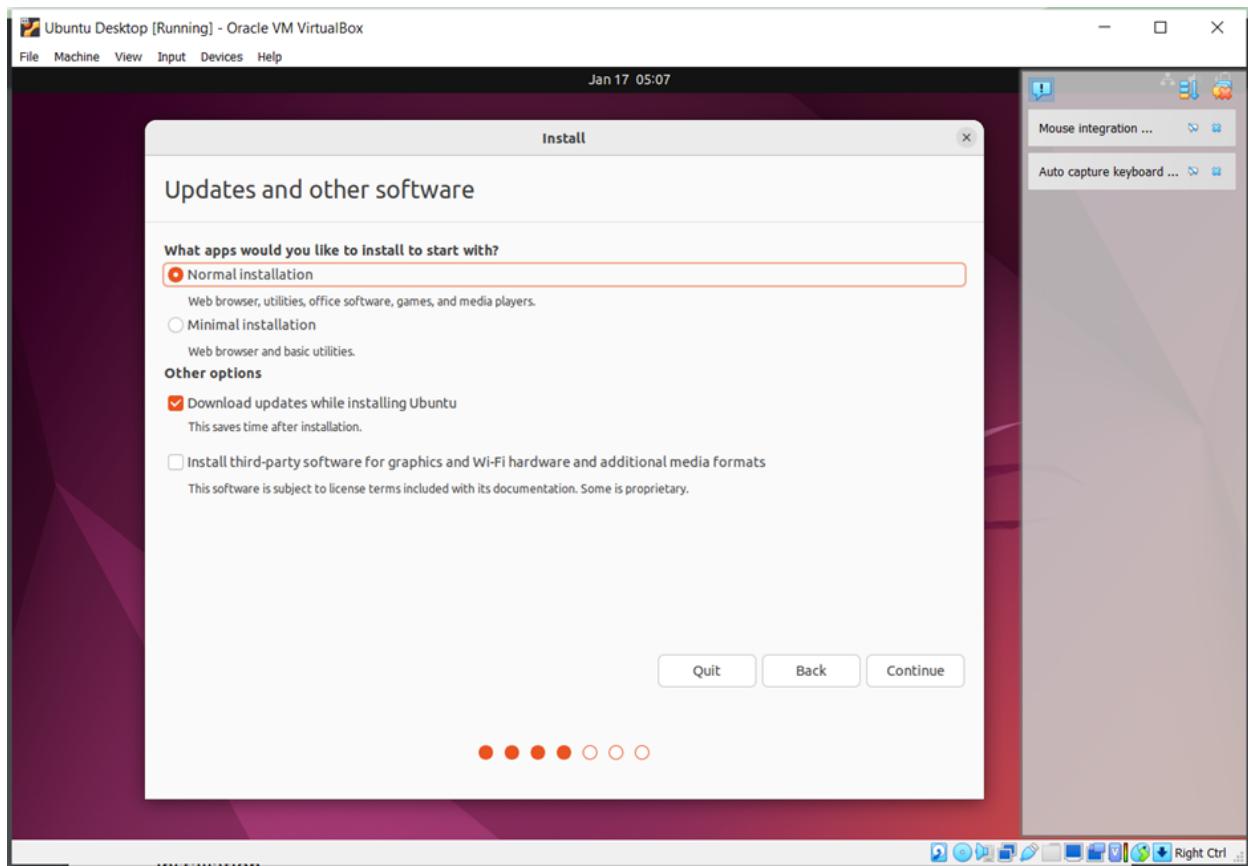


11> Select the preferable language

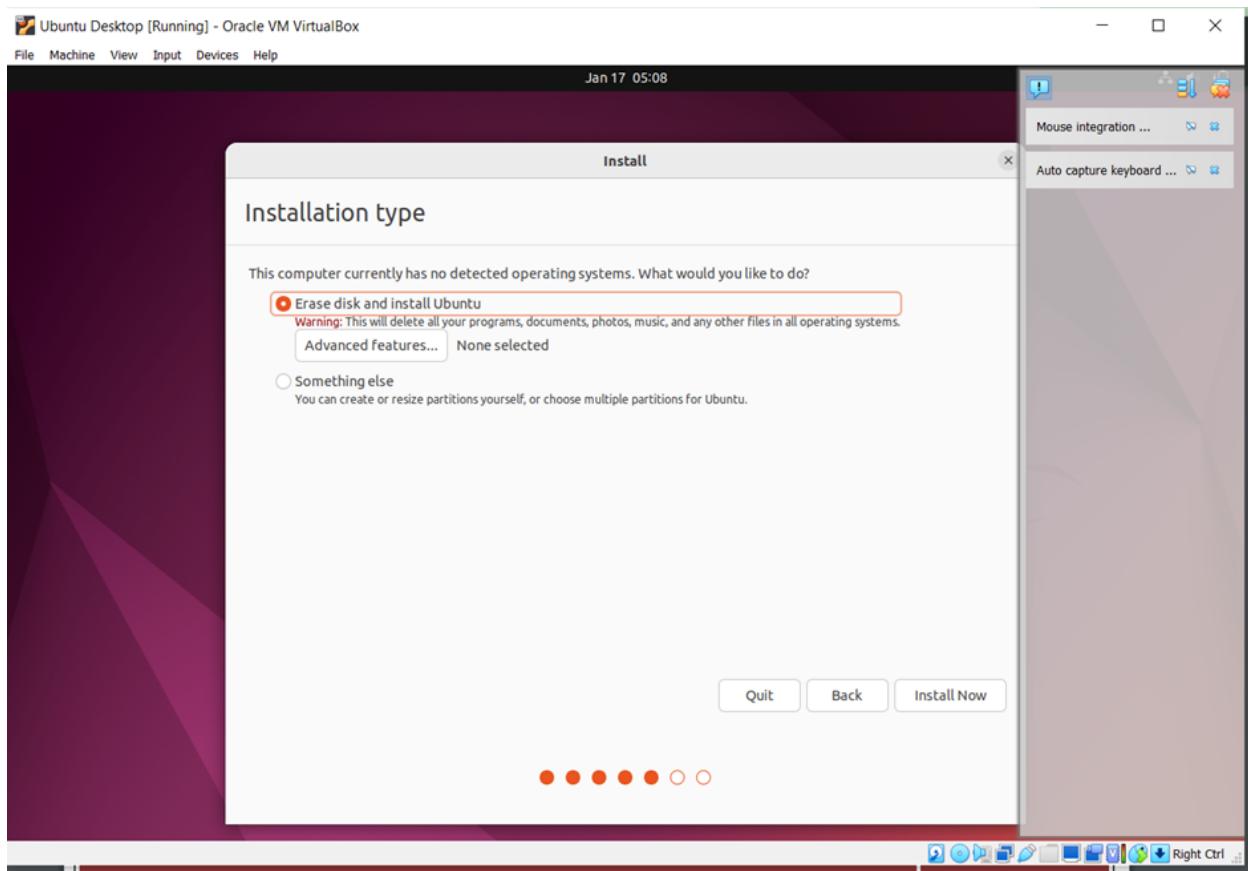




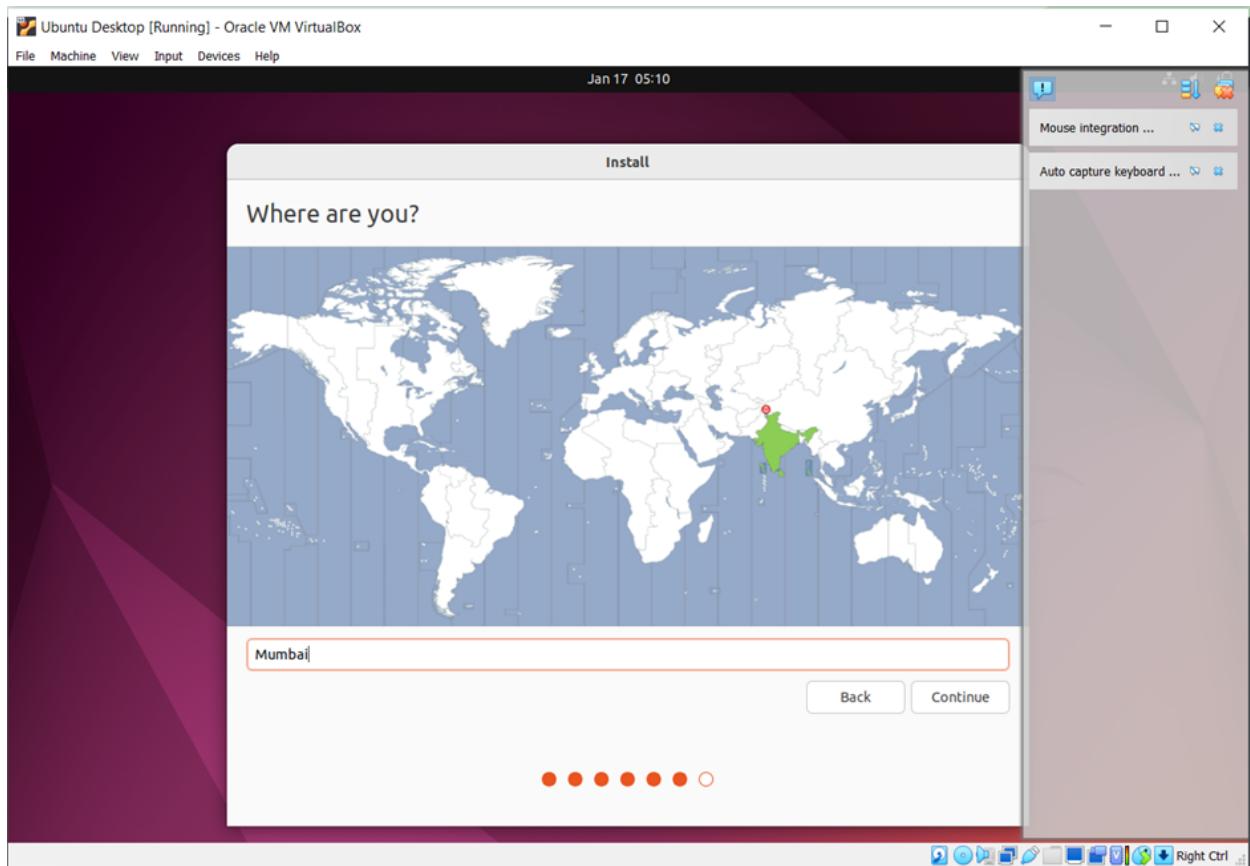
12> Its time to install new updates and softwares for Linux click on normal install



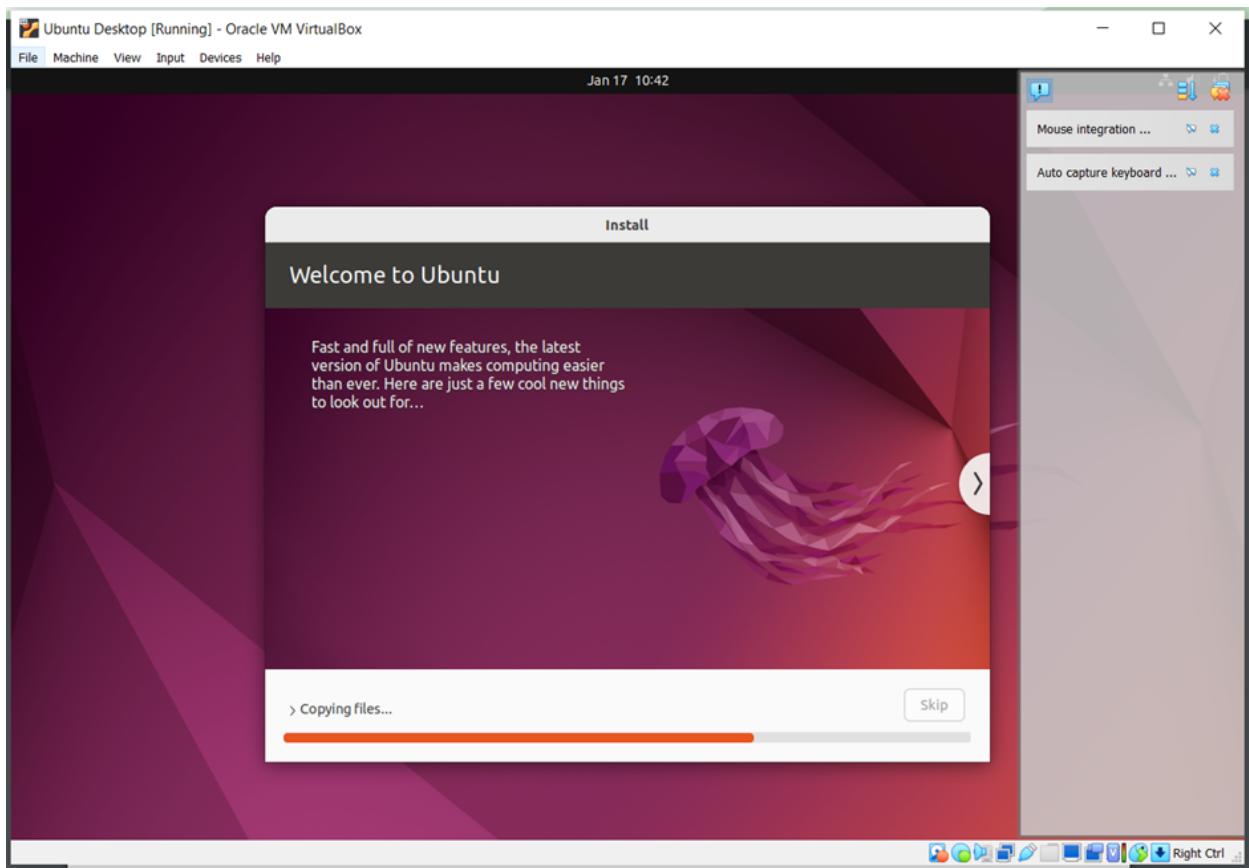
13> Select the erase disk option for installation type



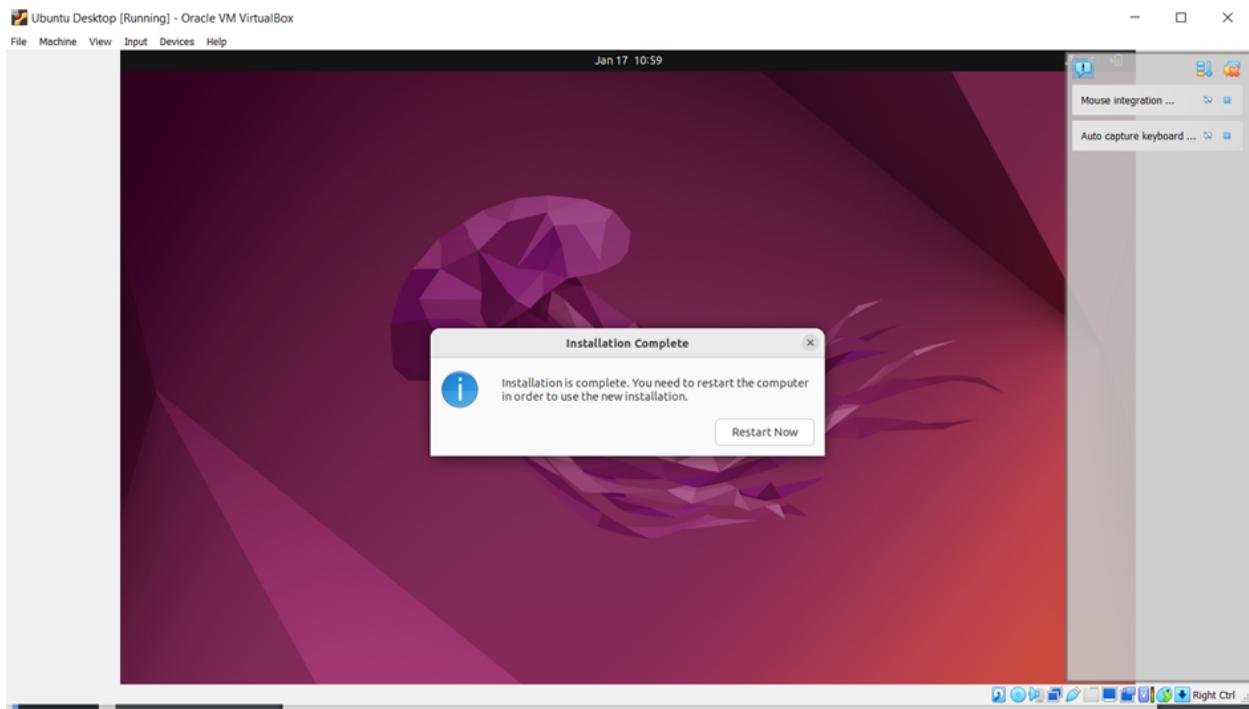
14> Select the region you are in:



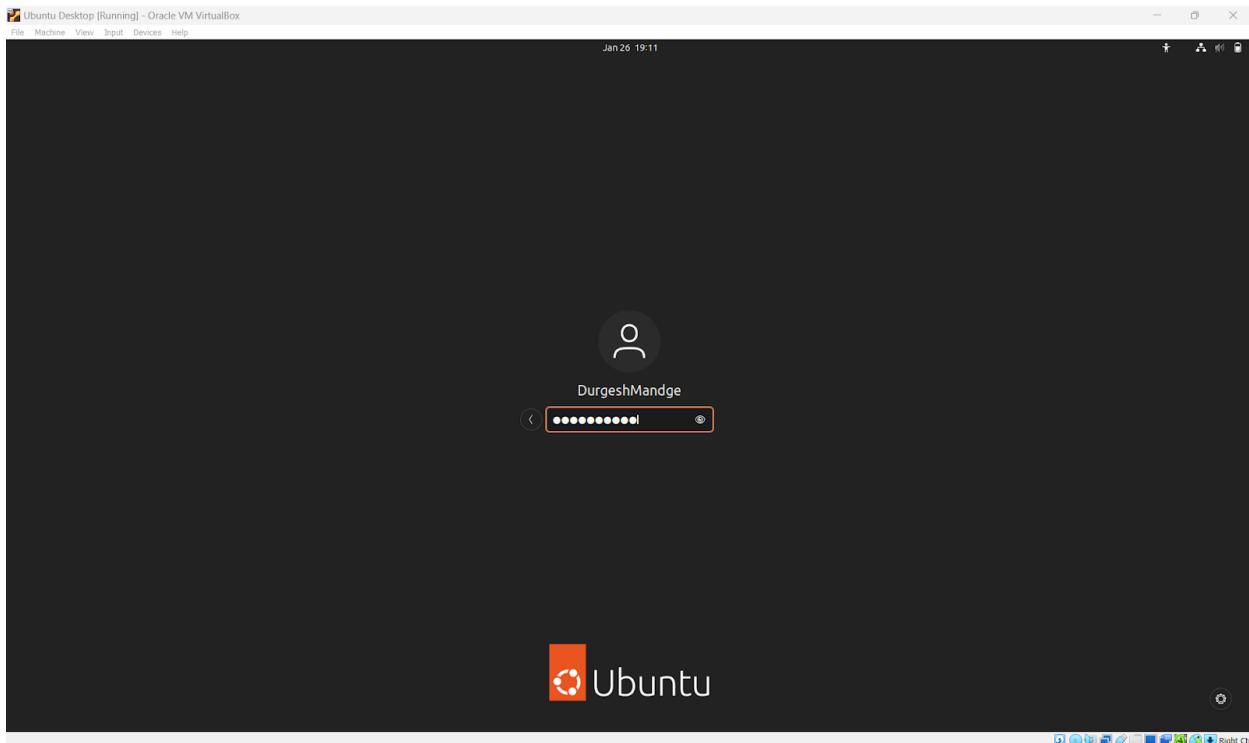
15> And the downloadation starts which will last for 20-25 mins then we are ready to use Linux OS on the Virtual Box



16> We need to restart the virtual box after installation to run OS:



17> Login with same credentials given at time of configuration and we are ready to go.....



2. Linux Basic Commands

1> **pwd** : print working directory, it prints directory which we are in

```
durgeshmandge@durgeshmandge-VirtualBox:~$ pwd  
/home/durgeshmandge
```

2> **ls** : this command is used to list all files present in current directory

```
durgeshmandge@durgeshmandge-VirtualBox:~$ ls  
Desktop Documents Downloads Music Pictures Public snap Templates Videos  
durgeshmandge@durgeshmandge-VirtualBox:~$ ls -l  
total 36  
drwxr-xr-x 2 durgeshmandge durgeshmandge 4096 Jan 18 12:45 Desktop  
drwxr-xr-x 2 durgeshmandge durgeshmandge 4096 Jan 18 12:45 Documents  
drwxr-xr-x 2 durgeshmandge durgeshmandge 4096 Jan 18 12:45 Downloads  
drwxr-xr-x 2 durgeshmandge durgeshmandge 4096 Jan 18 12:45 Music  
drwxr-xr-x 2 durgeshmandge durgeshmandge 4096 Jan 18 12:45 Pictures  
drwxr-xr-x 2 durgeshmandge durgeshmandge 4096 Jan 18 12:45 Public  
drwx----- 3 durgeshmandge durgeshmandge 4096 Jan 18 12:45 snap  
drwxr-xr-x 2 durgeshmandge durgeshmandge 4096 Jan 18 12:45 Templates  
drwxr-xr-x 2 durgeshmandge durgeshmandge 4096 Jan 18 12:45 Videos
```

3> **mkdir** : make directory , command to create new directory

4> **cd** : change directory , command to change directory

```
durgeshmandge@durgeshmandge-VirtualBox:~$ mkdir demoDirectory  
durgeshmandge@durgeshmandge-VirtualBox:~$ cd demoDirectory/
```

4> **rmdir** : remove directory , command to remove directory

```
durgeshmandge@durgeshmandge-VirtualBox:~/demoDirectory$ cd ..  
durgeshmandge@durgeshmandge-VirtualBox:~$ rmdir demoDirectory/
```

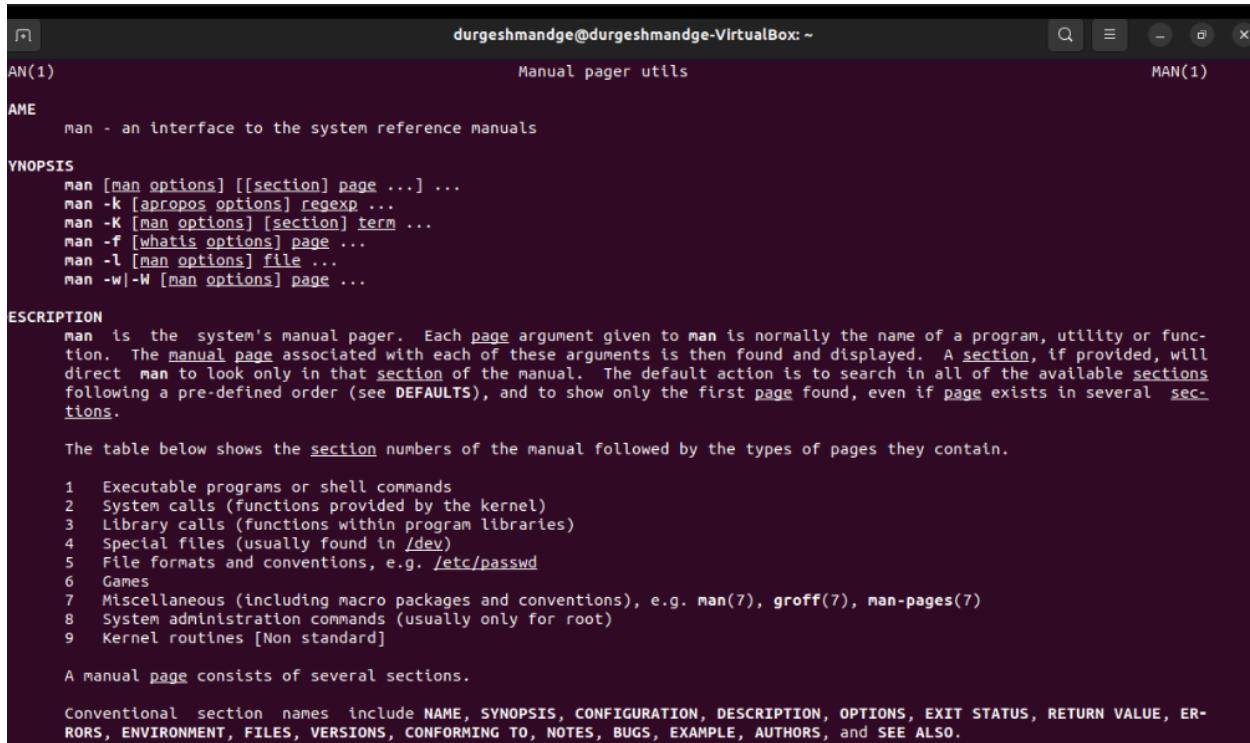
5> **rm -r** : removes directory or file

```
durgeshmandge@durgeshmandge-VirtualBox:~$ mkdir demoDirectory  
durgeshmandge@durgeshmandge-VirtualBox:~$ rm -r demoDirectory/
```

6> **touch** : used to create file

```
durgeshmandge@durgeshmandge-VirtualBox:~$ touch demo.txt
durgeshmandge@durgeshmandge-VirtualBox:~$ ls -l
total 36
-rw-rw-r-- 1 durgeshmandge durgeshmandge 0 Jan 18 12:54 demo.txt
drwxr-xr-x 2 durgeshmandge durgeshmandge 4096 Jan 18 12:45 Desktop
drwxr-xr-x 2 durgeshmandge durgeshmandge 4096 Jan 18 12:45 Documents
drwxr-xr-x 2 durgeshmandge durgeshmandge 4096 Jan 18 12:45 Downloads
drwxr-xr-x 2 durgeshmandge durgeshmandge 4096 Jan 18 12:45 Music
drwxr-xr-x 3 durgeshmandge durgeshmandge 4096 Jan 18 12:57 Pictures
drwxr-xr-x 2 durgeshmandge durgeshmandge 4096 Jan 18 12:45 Public
drwx----- 3 durgeshmandge durgeshmandge 4096 Jan 18 12:45 snap
drwxr-xr-x 2 durgeshmandge durgeshmandge 4096 Jan 18 12:45 Templates
drwxr-xr-x 2 durgeshmandge durgeshmandge 4096 Jan 18 12:45 Videos
```

7> **man** : This command gives the manual



The screenshot shows a terminal window with the title "dурgeshmandge@durgeshmandge-VirtualBox: ~". The window displays the man(1) manual page for the "man" command. The page is titled "Manual pager utils" and includes sections for SYNOPSIS, DESCRIPTION, and NOTES. The SYNOPSIS section lists various command-line options for the "man" command. The DESCRIPTION section provides a detailed explanation of what "man" does and how it finds manual pages. A table at the bottom maps section numbers to their types. The NOTES section contains a note about the "man" command's behavior with respect to section names.

```
MAN(1)                                         Manual pager utils                                         MAN(1)

NAME
       man - an interface to the system reference manuals

SYNOPSIS
       man [man options] [[section] page ...] ...
       man -k [apropos options] regexp ...
       man -K [man options] [section] term ...
       man -f [whatis options] page ...
       man -l [man options] file ...
       man -w|-W [man options] page ...

DESCRIPTION
       man is the system's manual pager.  Each page argument given to man is normally the name of a program, utility or function.  The manual page associated with each of these arguments is then found and displayed.  A section, if provided, will direct man to look only in that section of the manual.  The default action is to search in all of the available sections following a pre-defined order (see DEFAULTS), and to show only the first page found, even if page exists in several sections.

       The table below shows the section numbers of the manual followed by the types of pages they contain.

1   Executable programs or shell commands
2   System calls (functions provided by the kernel)
3   Library calls (functions within program libraries)
4   Special files (usually found in /dev)
5   File formats and conventions, e.g. /etc/passwd
6   Games
7   Miscellaneous (including macro packages and conventions), e.g. man(7), groff(7), man-pages(7)
8   System administration commands (usually only for root)
9   Kernel routines [Non standard]

       A manual page consists of several sections.

       Conventional section names include NAME, SYNOPSIS, CONFIGURATION, DESCRIPTION, OPTIONS, EXIT STATUS, RETURN VALUE, ERRORS, ENVIRONMENT, FILES, VERSIONS, CONFORMING TO, NOTES, BUGS, EXAMPLE, AUTHORS, and SEE ALSO.
```

8> **cp** : This command is used to copy file through command line

```
durgeshmandge@durgeshmandge-VirtualBox:~$ cp demo.txt demo1.txt
```

9> **mv** : This command is used to move data from one file to other

```
durgeshmandge@durgeshmandge-VirtualBox:~$ mv demo.txt demo1.txt
durgeshmandge@durgeshmandge-VirtualBox:~$ ls
demo1.txt Desktop Documents Downloads Music Pictures Public snap Templates Videos
```

10> **locate** : This command is used to get location of provided file

```
Processing triggers for libc-bin (2.19-11ubuntu0.1) ...
durgeshmandge@durgeshmandge-VirtualBox:~$ locate demo1.txt
/home/durgeshmandge/demo1.txt
```

Soft links and Hard links :-

Hard links:

```
durgeshmandge@durgeshmandge-VirtualBox:~$ ln demo1.txt ~/demo.txt
durgeshmandge@durgeshmandge-VirtualBox:~$ rm ~/demo.txt
```

Symbolic Links:

```
durgeshmandge@durgeshmandge-VirtualBox:~$ ln -s demo1.txt ~/demo.txt
durgeshmandge@durgeshmandge-VirtualBox:~$ ls
demo1.txt demo.txt Desktop Documents Downloads Music Pictures Public snap Templates Videos
```

Intermediate Commands :-

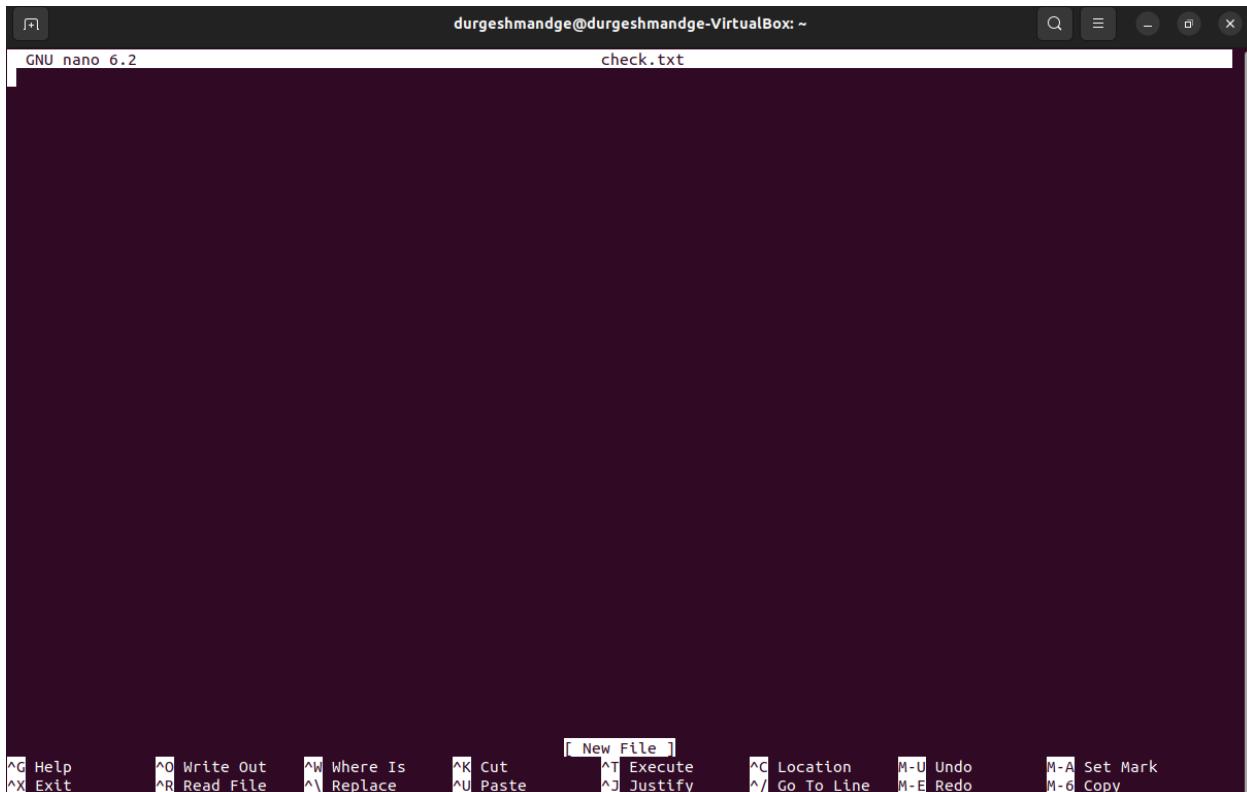
1> **echo** : This command is used to copy data of one file to another. We can create text file or can add into existing one.

```
durgeshmandge@durgeshmandge-VirtualBox:~$ echo demo.txt >> new.txt
```

2> **cat** : command to view content of file, helps to view programs

```
durgeshmandge@durgeshmandge-VirtualBox:~$ cat new.txt
demo.txt
```

3> **nano, vi, jd** : The nano command is a good text editor that denotes keywords with color and can recognize most languages. And vi is simpler than nano. You can create a new file or modify a file using this editor. For example, if you need to make a new file named "check.txt", you can create it by using the command "nano check.txt".



4> **sudo** : sudo stands for 'SuperUser do'. if you want any command to be done with administrative or root privileges, you can use the sudo command.

```
durgeshmandge@durgeshmandge-VirtualBox:~$ sudo nano new.txt  
[sudo] password for durgeshmandge:
```

5> **df** : The df command to see the available disk space in each of the partitions in your system. We can use -m to check the disk space in mega bytes.

```
password is required
durgeshmandge@durgeshmandge-VirtualBox:~$ df -m
Filesystem      1M-blocks  Used Available Use% Mounted on
tmpfs              391      2       390   1% /run
/dev/sda3        24519  13514      9735  59% /
tmpfs              1954      0      1954   0% /dev/shm
tmpfs                  5      1       5   1% /run/lock
/dev/sda2            512      7       506   2% /boot/efi
tmpfs              391      1      391   1% /run/user/1000
durgeshmandge@durgeshmandge-VirtualBox:~$
```

6> **du** : The du command is used to know the disk usage of a file in your system.

```
durgeshmandge@durgeshmandge-VirtualBox:~$ du
4      ./Documents
28     ./snap/snapd-desktop-integration/common/.cache/gio-modules
72     ./snap/snapd-desktop-integration/common/.cache/immodules
108    ./snap/snapd-desktop-integration/common/.cache
112    ./snap/snapd-desktop-integration/common
4      ./snap/snapd-desktop-integration/83/Documents
4      ./snap/snapd-desktop-integration/83/Desktop
4      ./snap/snapd-desktop-integration/83/Music
4      ./snap/snapd-desktop-integration/83/Downloads
4      ./snap/snapd-desktop-integration/83/Pictures
4      ./snap/snapd-desktop-integration/83/Public
4      ./snap/snapd-desktop-integration/83/Templates
4      ./snap/snapd-desktop-integration/83/Videos
4      ./snap/snapd-desktop-integration/83/.local/share/glib-2.0/schemas
8      ./snap/snapd-desktop-integration/83/.local/share/glib-2.0
```

7> **tar** : - Use tar to work with tarballs (or files compressed in a tarball archive) in the Linux command line. It has a long list of uses. It can be used to compress and uncompress different types of tar archives like .tar, .tar.gz, .tar.bz2,etc

8> **zip, unzip** : Use zip to compress files into a zip archive, and unzip to extract files from a zip archive.

9> **uname** : This command use to give the system your Linux distro is running.

```
durgeshmandge@durgeshmandge-VirtualBox:~$ uname -a
Linux durgeshmandge-VirtualBox 6.5.0-14-generic #14~22.04.1-Ubuntu SMP PREEMPT_DYNAMIC Mon Nov 20 18:15:30 UTC 2023 x86_64 x86_64 x86_64 GNU/Linux
```

10> **apt-get** : This command is use to install the packages in system. This requires root privileges, so use the sudo command with it.

```
[sudo] password for durgeshmandge: 
durgeshmandge@durgeshmandge-VirtualBox:~$ sudo apt-get install jed
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  jed-common libbonig5 libslang2-modules slsh
Suggested packages:
  gpm
The following NEW packages will be installed:
  jed jed-common libbonig5 libslang2-modules slsh
0 upgraded, 5 newly installed, 0 to remove and 187 not upgraded.
Need to get 940 kB of archives.
After this operation, 4,338 kB of additional disk space will be used.
Do you want to continue? [Y/n]
```

11> **chmod** : Use chmod to make a file executable and to change the permissions granted to it in Linux.

```
[sudo] password for durgeshmandge: 
durgeshmandge@durgeshmandge-VirtualBox:~$ chmod +x demo.txt
```

12> **hostname** : - Use hostname to know your name in your host or network. Basically, it displays your hostname and IP address

```
[sudo] password for durgeshmandge: 
durgeshmandge@durgeshmandge-VirtualBox:~$ hostname
durgeshmandge-VirtualBox
```

13> **ping** : Use ping to check your connection to a server. For Example- Google.com

```
durgeshmandge@durgeshmandge-VirtualBox:~$ ping google.com
PING google.com (142.250.183.206) 56(84) bytes of data.
64 bytes from bom07s33-in-f14.1e100.net (142.250.183.206): icmp_seq=1 ttl=53 time=25.3 ms
64 bytes from bom07s33-in-f14.1e100.net (142.250.183.206): icmp_seq=2 ttl=53 time=18.7 ms
64 bytes from bom07s33-in-f14.1e100.net (142.250.183.206): icmp_seq=3 ttl=53 time=17.5 ms
64 bytes from bom07s33-in-f14.1e100.net (142.250.183.206): icmp_seq=4 ttl=53 time=21.3 ms
64 bytes from bom07s33-in-f14.1e100.net (142.250.183.206): icmp_seq=5 ttl=53 time=13.5 ms
64 bytes from bom07s33-in-f14.1e100.net (142.250.183.206): icmp_seq=6 ttl=53 time=22.3 ms
64 bytes from bom07s33-in-f14.1e100.net (142.250.183.206): icmp_seq=7 ttl=53 time=39.1 ms
64 bytes from bom07s33-in-f14.1e100.net (142.250.183.206): icmp_seq=8 ttl=53 time=16.1 ms
64 bytes from bom07s33-in-f14.1e100.net (142.250.183.206): icmp_seq=9 ttl=53 time=20.9 ms
64 bytes from bom07s33-in-f14.1e100.net (142.250.183.206): icmp_seq=10 ttl=53 time=20.9 ms
64 bytes from bom07s33-in-f14.1e100.net (142.250.183.206): icmp_seq=11 ttl=53 time=23.8 ms
64 bytes from bom07s33-in-f14.1e100.net (142.250.183.206): icmp_seq=12 ttl=53 time=23.7 ms
64 bytes from bom07s33-in-f14.1e100.net (142.250.183.206): icmp_seq=13 ttl=53 time=32.8 ms
64 bytes from bom07s33-in-f14.1e100.net (142.250.183.206): icmp_seq=14 ttl=53 time=20.2 ms
64 bytes from bom07s33-in-f14.1e100.net (142.250.183.206): icmp_seq=15 ttl=53 time=24.9 ms
64 bytes from bom07s33-in-f14.1e100.net (142.250.183.206): icmp_seq=16 ttl=53 time=29.4 ms
64 bytes from bom07s33-in-f14.1e100.net (142.250.183.206): icmp_seq=17 ttl=53 time=27.4 ms
64 bytes from bom07s33-in-f14.1e100.net (142.250.183.206): icmp_seq=18 ttl=53 time=24.3 ms
```

Linux Filters :

1> **cat** : - When cat command is used inside pipes, it does nothing except moving stdin to stout.

```
durgeshmandge@durgeshmandge-VirtualBox:~$ cat new.txt
demo.txt
durgeshmandge@durgeshmandge-VirtualBox:~$ tac new.txt
demo.txt
```

2> **cut** : Linux cut command is useful for selecting a specific column of a file. It is used to cut a specific sections by byte position, character, and field and writes them to standard output.

```
durgeshmandge@durgeshmandge-VirtualBox:~$ cut -d- -f1 new.txt
demo.txt
```

3> **grep** : The 'grep' command stands for "global regular expression print". grep command filters the content of a file which makes our search easy.

```
durgeshmandge@durgeshmandge-VirtualBox:~$ grep s new.txt
```

4> **comm** : The 'comm' command compares two files or streams. By default, 'comm' will always display three columns. First column indicates non-matching items of first file, second column indicates non-matching items of second file, and third column indicates matching items of both the files.

```
durgeshmandge@durgeshmandge-VirtualBox:~$ comm new.txt demo.txt  
demo.txt
```

5> **wc** : - Linux wc command helps in counting the lines, words, and characters in a file. It displays the number of lines, number of characters, and the number of words in a file.

```
demo.txt  
durgeshmandge@durgeshmandge-VirtualBox:~$ wc new.txt  
1 1 9 new.txt
```

6> **od** : The 'od' term stands for octal dump. It displays content of a file in different humanreadable formats like hexadecimal, octal and ASCII characters.

```
durgeshmandge@durgeshmandge-VirtualBox:~$ od -b new.txt  
0000000 144 145 155 157 056 164 170 164 012  
0000011
```

7> **sort** : The 'sort' command sorts the file content in an alphabetical order.

```
durgeshmandge@durgeshmandge-VirtualBox:~$ sort new.txt  
demo.txt
```

8> **gzip** : Gzip (GNU zip) is a compressing tool, which is used to truncate the file size. By default original file will be replaced by the compressed file ending with extension (.gz).

Gunzip- to decompress the file.

```
demo.txt  
durgeshmandge@durgeshmandge-VirtualBox:~$ gzip new.txt  
durgeshmandge@durgeshmandge-VirtualBox:~$ gunzip new.txt.gz
```

Advanced Filtered Commands : -

1> **head** : Head is used to display the first parts of a file, it outputs the first 10 lines by default. You can use the -n num flag to specify the number of lines to be displayed:

```
durgeshmandge@durgeshmandge-VirtualBox:~$ head new.txt
Durgesh is Student in SPIT Mumbai , Andheri
demo.txt
```

2> **tail** : - tail outputs the last parts (10 lines by default) of a file. Use the -n num switch to specify the number of lines to be displayed.

```
durgeshmandge@durgeshmandge-VirtualBox:~$ tail new.txt
Durgesh is Student in SPIT Mumbai , Andheri
demo.txt
```

3> **fmt** : - fmt simple optimal text formatter, it reformats paragraphs in specified file and prints results to the standard output.

```
durgeshmandge@durgeshmandge-VirtualBox:~$ fmt -w 1 new.txt
Durgesh
is
Student
in
SPIT
Mumbai
,
Andheri
demo.txt
```

4> **more** : more command is a useful file perusal filter created basically for certificate viewing. It shows file content in a page like format, where users can press [Enter] to view more information.

```
[    0.000000] Linux version 5.11.0-34-generic (buildd@lgw01-amd64-001) (gcc (Ubuntu 9.3.0-17ubuntu1~20.04) 9.3.0, GNU ld (GNU Binutils for Ubuntu) 2.34) #36~20.04.1-Ubuntu SMP Fri Aug 27 08:06:32 UTC 2021 (Ubuntu 5.11.0-34.36~20.04.1-generic 5.11.22)
[    0.000000] Command line: BOOT_IMAGE=/boot/vmlinuz-5.11.0-34-generic root=UUID=6796ffef-0b78-4b93-9e0d-d2928de879a1 ro quiet splash
[    0.000000] KERNEL supported cpus:
[    0.000000]   Intel GenuineIntel
[    0.000000]   AMD AuthenticAMD
[    0.000000]   Hygon HygonGenuine
[    0.000000]   Centaur CentaurHauls
[    0.000000]   zhaoxin Shanghai
[    0.000000] x86/fpu: Supporting XSAVE feature 0x001: 'x87 floating point registers'
[    0.000000] x86/fpu: Supporting XSAVE feature 0x002: 'SSE registers'
[    0.000000] x86/fpu: Supporting XSAVE feature 0x004: 'AVX registers'
[    0.000000] x86/fpu: xstate_offset[2]: 576, xstate_sizes[2]: 256
[    0.000000] x86/fpu: Enabled xstate features 0x7, context size is 832 bytes,
using 'standard' format.
```

5> **less** : less is the opposite of more command above but it offers extra features and it's a little faster with large files.

```
[    0.000000] Linux version 5.11.0-34-generic (buildd@lgw01-amd64-001) (gcc (Ubuntu 9.3.0-17ubuntu1~20.04) 9.3.0, GNU ld (GNU Binutils for Ubuntu) 2.34) #36~20.04.1-Ubuntu SMP Fri Aug 27 08:06:32 UTC 2021 (Ubuntu 5.11.0-34.36~20.04.1-generic 5.11.22)
[    0.000000] Command line: BOOT_IMAGE=/boot/vmlinuz-5.11.0-34-generic root=UUID=6796ffef-0b78-4b93-9e0d-d2928de879a1 ro quiet splash
[    0.000000] KERNEL supported cpus:
[    0.000000]   Intel GenuineIntel
[    0.000000]   AMD AuthenticAMD
[    0.000000]   Hygon HygonGenuine
[    0.000000]   Centaur CentaurHauls
[    0.000000]   zhaoxin Shanghai
[    0.000000] x86/fpu: Supporting XSAVE feature 0x001: 'x87 floating point registers'
[    0.000000] x86/fpu: Supporting XSAVE feature 0x002: 'SSE registers'
[    0.000000] x86/fpu: Supporting XSAVE feature 0x004: 'AVX registers'
[    0.000000] x86/fpu: xstate_offset[2]: 576, xstate_sizes[2]: 256
[    0.000000] x86/fpu: Enabled xstate features 0x7, context size is 832 bytes,
using 'standard' format.
[    0.000000] BIOS-provided physical RAM map:
[    0.000000] BIOS-e820: [mem 0x0000000000000000-0x000000000009fbff] usable
[    0.000000] BIOS-e820: [mem 0x000000000009fc00-0x000000000009ffff] reserved
[    0.000000] BIOS-e820: [mem 0x00000000000f0000-0x00000000000fffff] reserved
[    0.000000] BIOS-e820: [mem 0x0000000000100000-0x0000000007ffeffff] usable
[    0.000000] BIOS-e820: [mem 0x0000000007fff0000-0x0000000007ffffffff] ACPI data
[    0.000000] BIOS-e820: [mem 0x00000000fec00000-0x00000000fec00fff] reserved
[    0.000000] BIOS-e820: [mem 0x00000000fee00000-0x00000000fee00fff] reserved
[    0.000000] BIOS-e820: [mem 0x00000000fffc0000-0x000000000fffffff] reserved
```

6> **nl** : nl is used to number the lines of our text data.

```
durgeshmandge@durgeshmandge-VirtualBox:~$ nl new.txt
1  Durgesh is Student in SPIT Mumbai , Andheri
2  demo.txt
```

Start and Stop Services

Managing services in Linux with system

- 1) List all services

In order to manage the services, first need to know what services are available on the system. Use system command.

```
durgeshmandge@durgeshmandge-VirtualBox:~$ systemctl list-unit-files --type service -all
UNIT FILE                                     STATE   VENDOR PRESET
accounts-daemon.service                      enabled enabled
acpid.service                                disabled enabled
alsa-restore.service                         static -
alsa-state.service                           static -
alsa-utils.service                          masked enabled
anacron.service                             enabled enabled
apparmor.service                            enabled enabled
apport-autoreport.service                   static -
apport-forward@.service                     static -
apport.service                             generated -
apt-daily-upgrade.service                  static -
apt-daily.service                          static -
apt-news.service                           static -
autovt@.service                            alias -
avahi-daemon.service                      enabled enabled
bluetooth.service                         enabled enabled
bolt.service                               static -
brltty-udev.service                       static -
brltty.service                            disabled enabled
colord.service                            static -
configure-printer@.service                static -
console-getty.service                     disabled disabled
console-setup.service                     enabled enabled
container-getty@.service                  static -
cron.service                               enabled enabled
cryptdisks-early.service                 masked enabled
cryptdisks.service                        masked enabled
cups-browsed.service                      enabled enabled
cups.service                               enabled enabled
dbus-fi.w1.wpa_supplicant1.service        alias -
dbus-org.bluez.service                    alias -
dbus-org.freedesktop.Avahi.service       alias -
dbus-org.freedesktop.hostname1.service    alias -
dbus-org.freedesktop.locale1.service     alias -
dbus-org.freedesktop.login1.service      alias -
```

For running services : -

```
durgeshmandge@durgeshmandge-VirtualBox:~$ sudo systemctl | grep running
[sudo] password for durgeshmandge:
  proc-sys-fs-binfmt_misc.automount
    loaded active  running  Arbitrary Executable File Formats File System Automount Point
  acpid.path
    loaded active  running  ACPI Events C
heck
  cups.path
    loaded active  running  CUPS Schedule
r
  init.scope
rvice Manager
  session-2.scope
User durgeshmandge
  accounts-daemon.service
ice
  acpid.service
emon
  avahi-daemon.service
S-SD Stack
  colord.service
ll and Generate Color Profiles
  cron.service
round program processing daemon
  cups-browsed.service
UPS printers available locally
  cups.service
r
  dbus.service
Message Bus
  gdm.service
  Manager
  kerneloops.service
atically collect and submit kernel crash signatures
  ModemManager.service
  networkd-dispatcher.service
emon for systemd-networkd
  NetworkManager.service
er
  packagekit.service
emon
```

Start a Service : -

(brltty service : it is a service which provides access linux command for a blind person using a refreshable braille display)

```
durgeshmandge@durgeshmandge-VirtualBox:~$ systemctl start brltty.service
```

Stop a service : -

```
durgeshmandge@durgeshmandge-VirtualBox:~$ systemctl start brltty.service
durgeshmandge@durgeshmandge-VirtualBox:~$ systemctl stop brltty.service
```

Restart a service : -

```
durgeshmandge@durgeshmandge-VirtualBox:~$ systemctl stop brltty.service
durgeshmandge@durgeshmandge-VirtualBox:~$ systemctl restart brltty.service
```

Status of the service :-

```
durgeshmandge@durgeshmandge-VirtualBox:~$ systemctl status brltty.service
● brltty.service - Braille Device Support
   Loaded: loaded (/lib/systemd/system/brltty.service; disabled; vendor preset: enabled)
     Active: active (running) since Fri 2024-01-19 00:33:01 IST; 1min 8s ago
       Docs: man:brltty(1)
              http://brltty.com/
   Main PID: 5529 (brltty)
      Tasks: 6 (limit: 4599)
     Memory: 1.6M
        CPU: 36ms
      CGroup: /system.slice/brltty.service
              └─5529 /bin/brltty --no-daemon

Jan 19 00:33:01 durgeshmandge-VirtualBox brltty[5529]: brltty: CLDR open error: No such file or directory: /usr/share/unicode/cldr/>
Jan 19 00:33:01 durgeshmandge-VirtualBox brltty[5529]: possible cause: the package that defines the CLDR annotations directory is n>
Jan 19 00:33:01 durgeshmandge-VirtualBox brltty[5529]: brltty: possible cause: the package that defines the CLDR annotations direct>
Jan 19 00:33:01 durgeshmandge-VirtualBox brltty[5529]: emoji substitution won't be performed
Jan 19 00:33:01 durgeshmandge-VirtualBox brltty[5529]: brltty: emoji substitutiion won't be performed
Jan 19 00:33:01 durgeshmandge-VirtualBox brltty[5529]: BrlAPI Server: release 0.8.3
Jan 19 00:33:01 durgeshmandge-VirtualBox brltty[5529]: brltty: BrlAPI Server: release 0.8.3
Jan 19 00:33:01 durgeshmandge-VirtualBox systemd[1]: Started Braille Device Support.
Jan 19 00:33:01 durgeshmandge-VirtualBox brltty[5529]: Linux Screen Driver:
Jan 19 00:33:01 durgeshmandge-VirtualBox brltty[5529]: brltty: Linux Screen Driver:
lines 1-22/22 (END)
```

Observations:

In this practical lab I learn how to install the Virtual Box and run Ubuntu operating system over it. I also gained knowledge about linux commands ans also some hands on.

