Lab # 01:

“Introduction to Linux”

Lab Objectives:

The following are the objectives for this lab

- Know about Operating System
- Learn about the Linux
- Installation of Ubuntu on virtual box
- Basic Commands in Linux

What is Linux? :

Just like Windows, iOS, and Mac OS, Linux is an operating system. In fact, one of the most popular platforms on the planet, Android, is powered by the Linux operating system. An operating system is software that manages all of the hardware resources associated with your desktop or laptop. To put it simply, the operating system manages the communication between your software and your hardware. Without the operating system (OS), the software wouldn’t function.

Installation Of Linux:

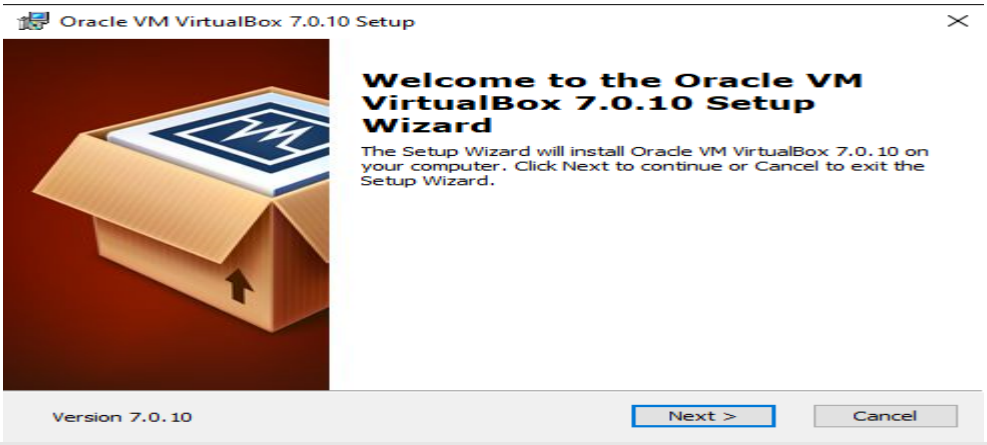
We will use Virtual Box to use Linux operating system on our windows PC.

Linux has a number of different versions to suit any type of user. From new users to hard-core users, you’ll find a “flavor” of Linux to match your needs. These versions are called distributions (or, in the short form, “distros”). Nearly every distribution of Linux can be downloaded for free, burned onto disk (or USB thumb drive), and installed (on as many machines as you like).

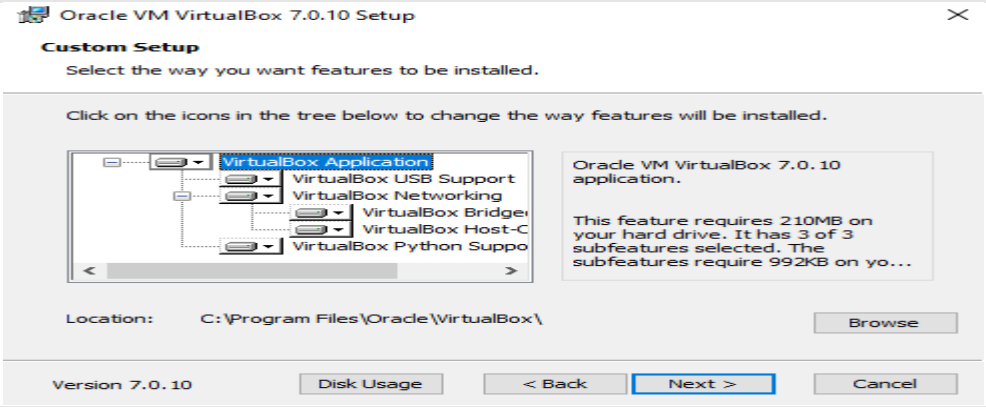
The distribution version of Linux that we are going to install and use is UBUNTU.

The Installation Steps are as follows:-

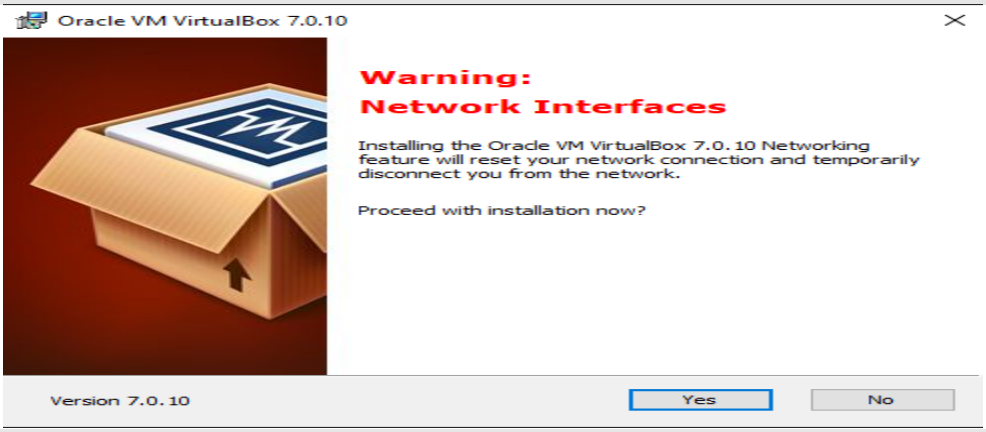
Go Onto the following link to download virtual box ; Click Here
Select the Windows hosts version



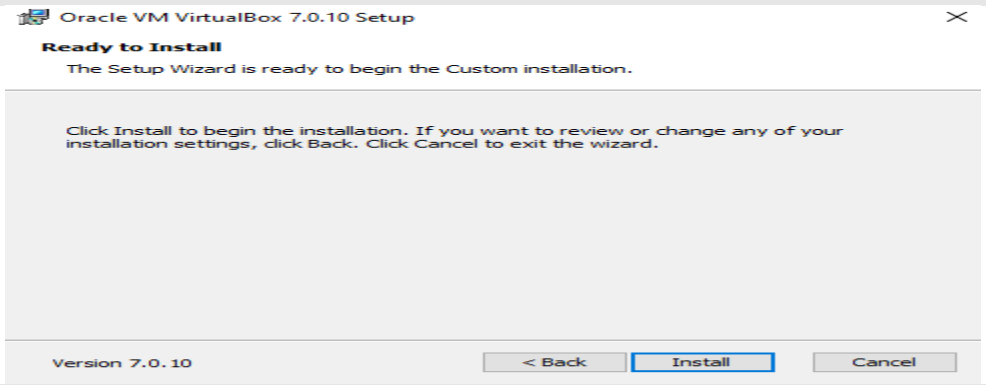
Click on next



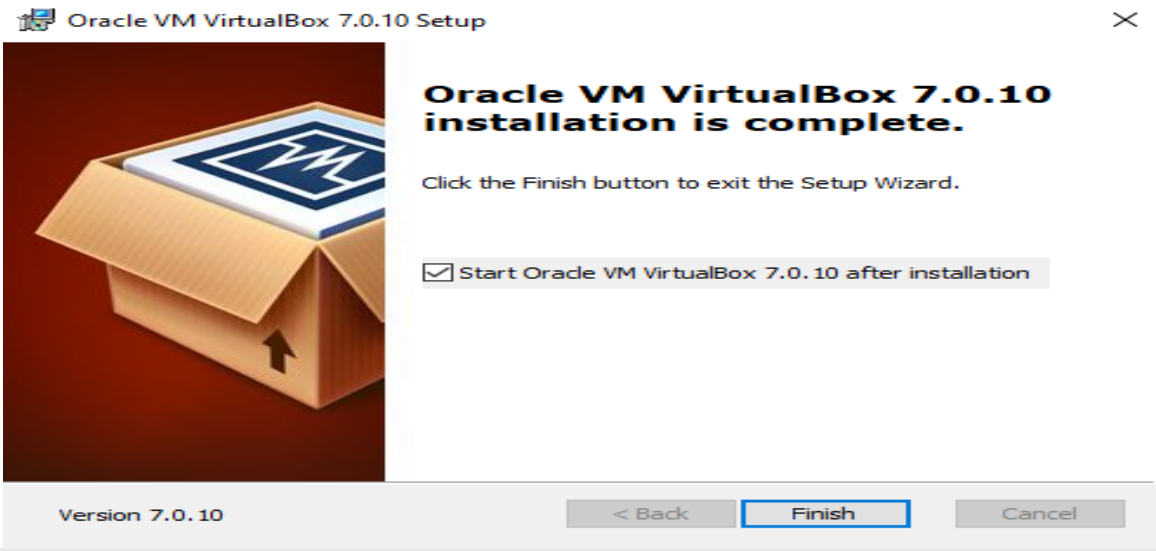
If you want to change the location then you can change it with browse , select next



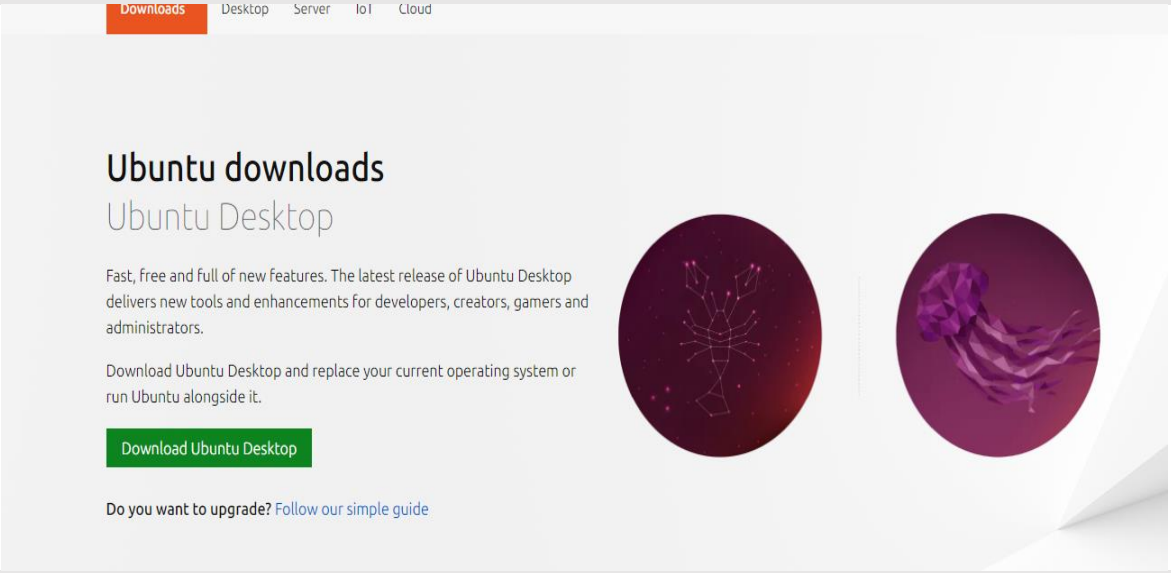
Click yes option



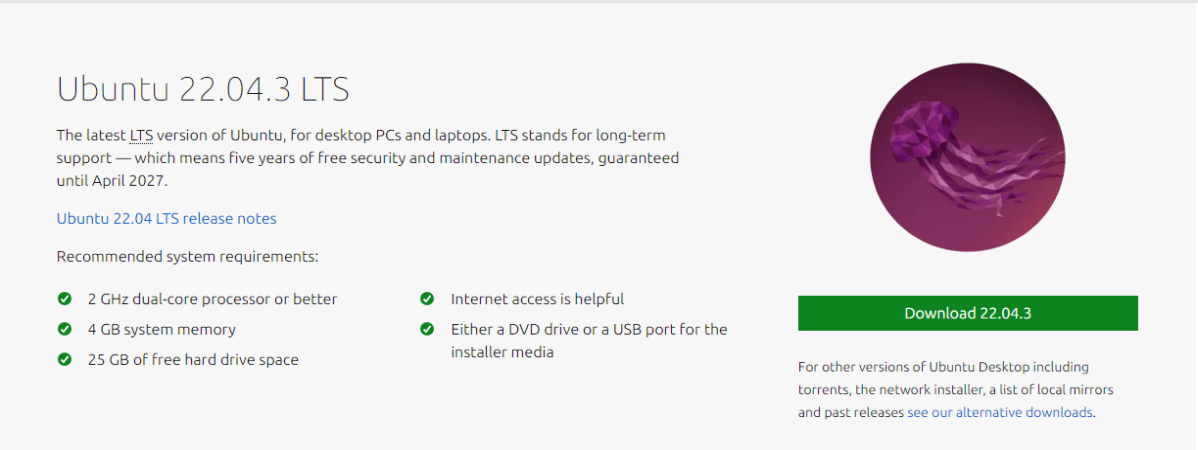
Select install option



Click Finish , The Virtual Box installation has been completed

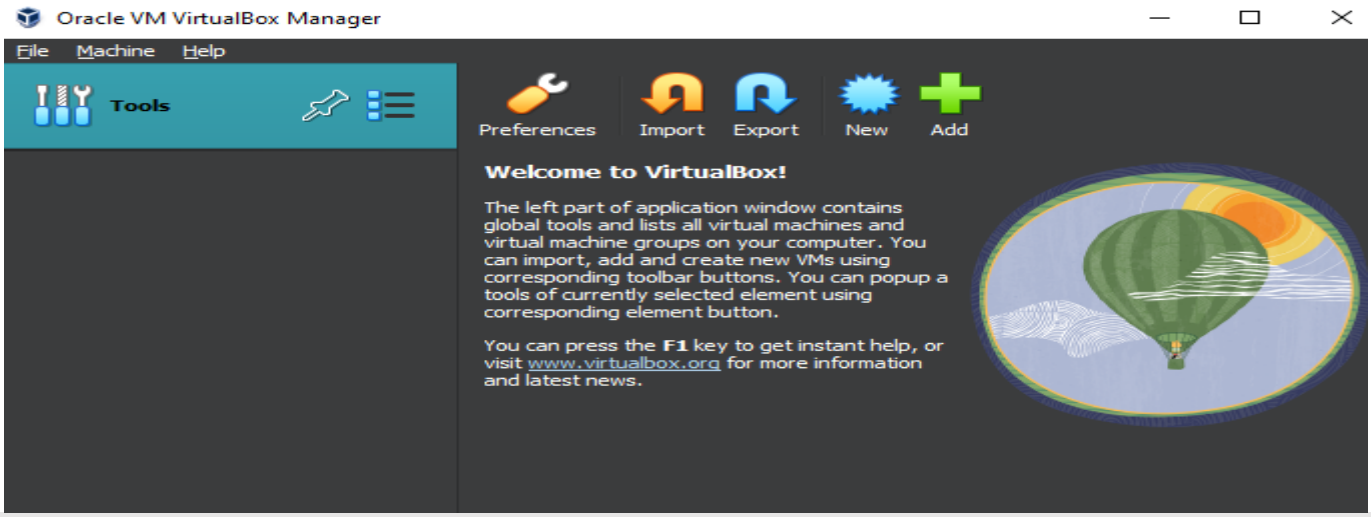


Now visit the Ubuntu official website to download

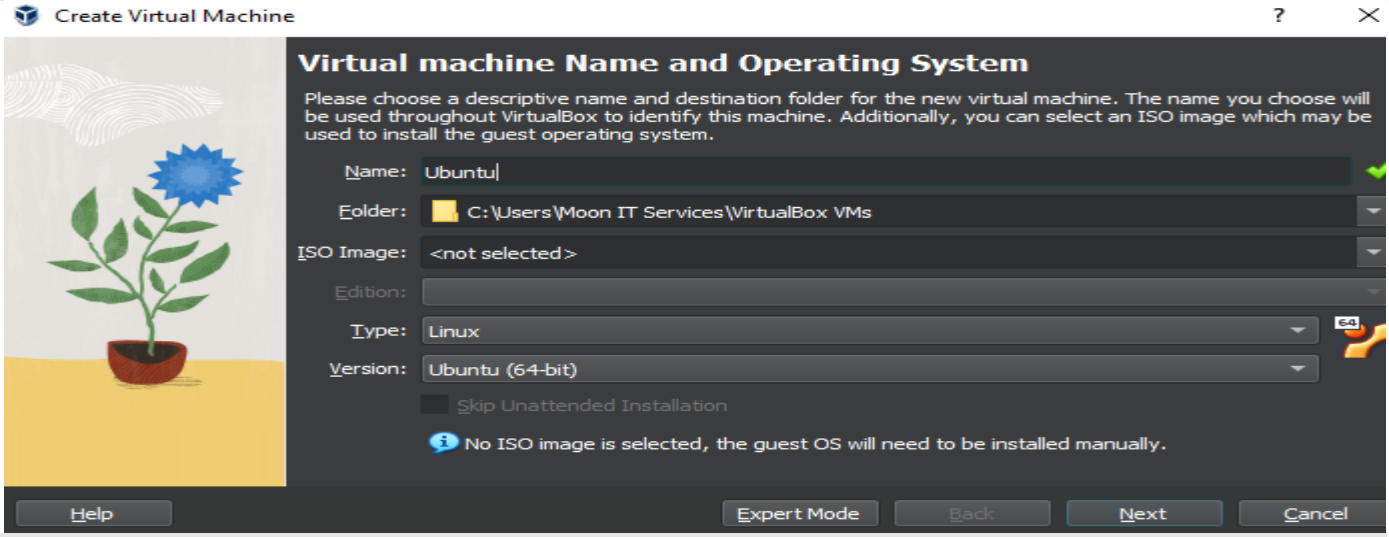


Click Download any available updated version LTS version is preferable ; [Click Here]

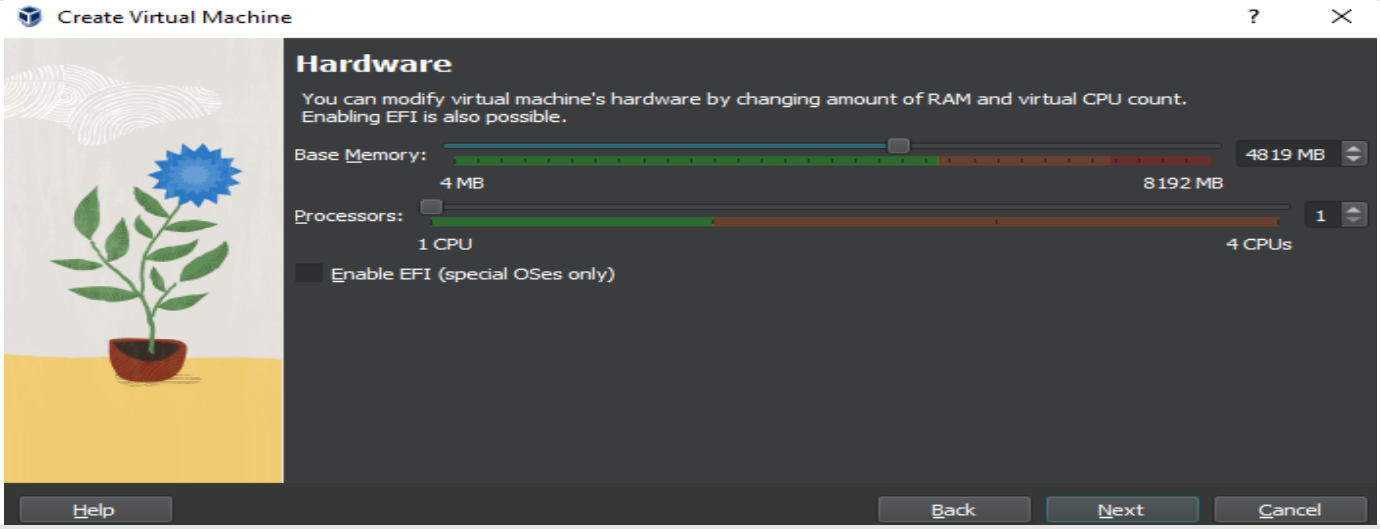
When the Ubuntu is downloaded , now open the Virtual Box app.



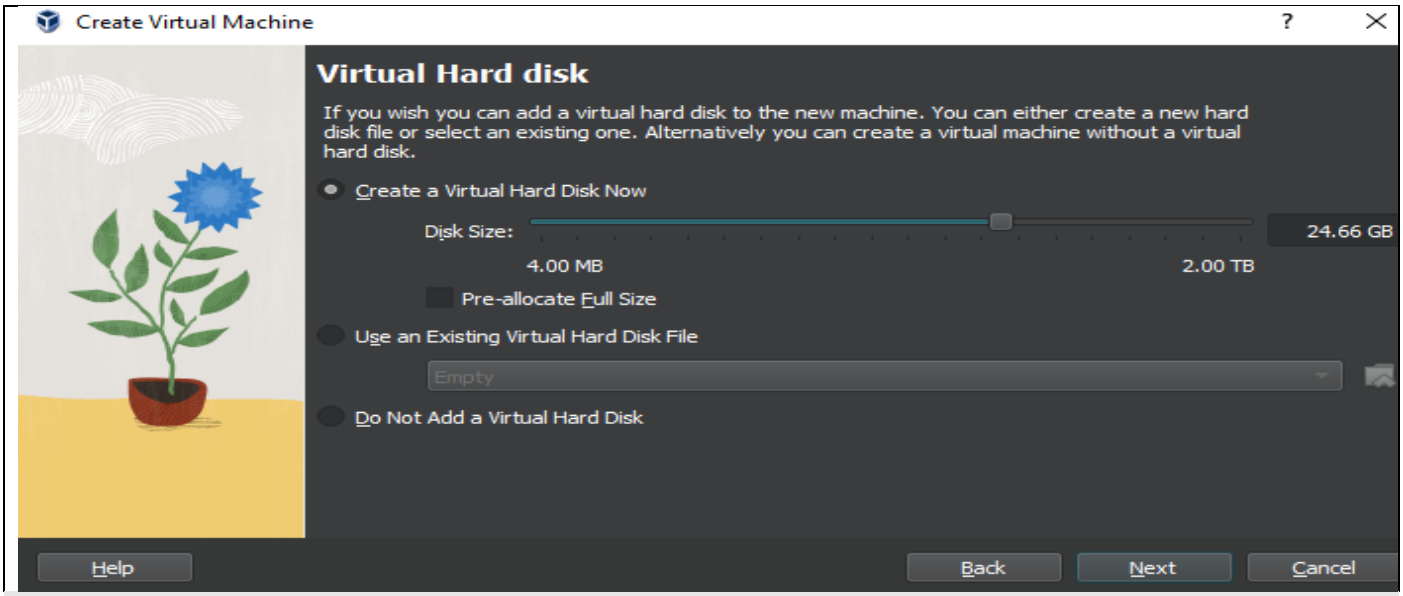
Click on the New button



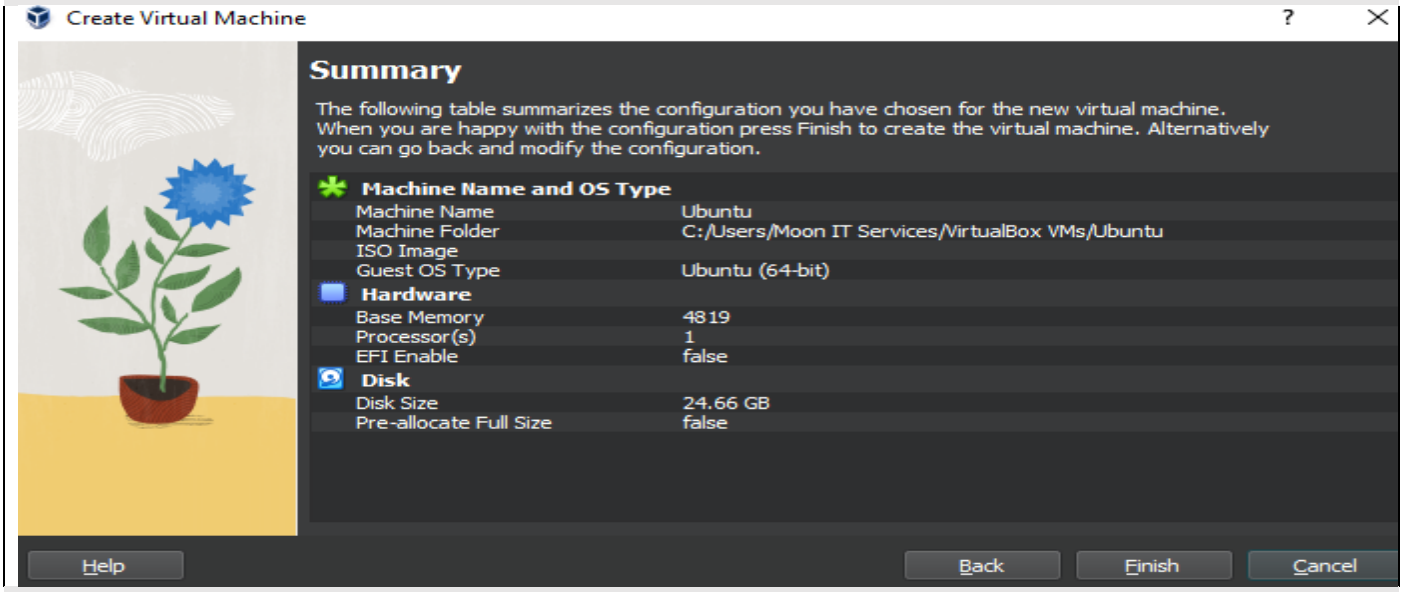
Write Ubuntu in name section it will automatically detects the other required details , also if you want to change the installation location use Folder option , click on Next



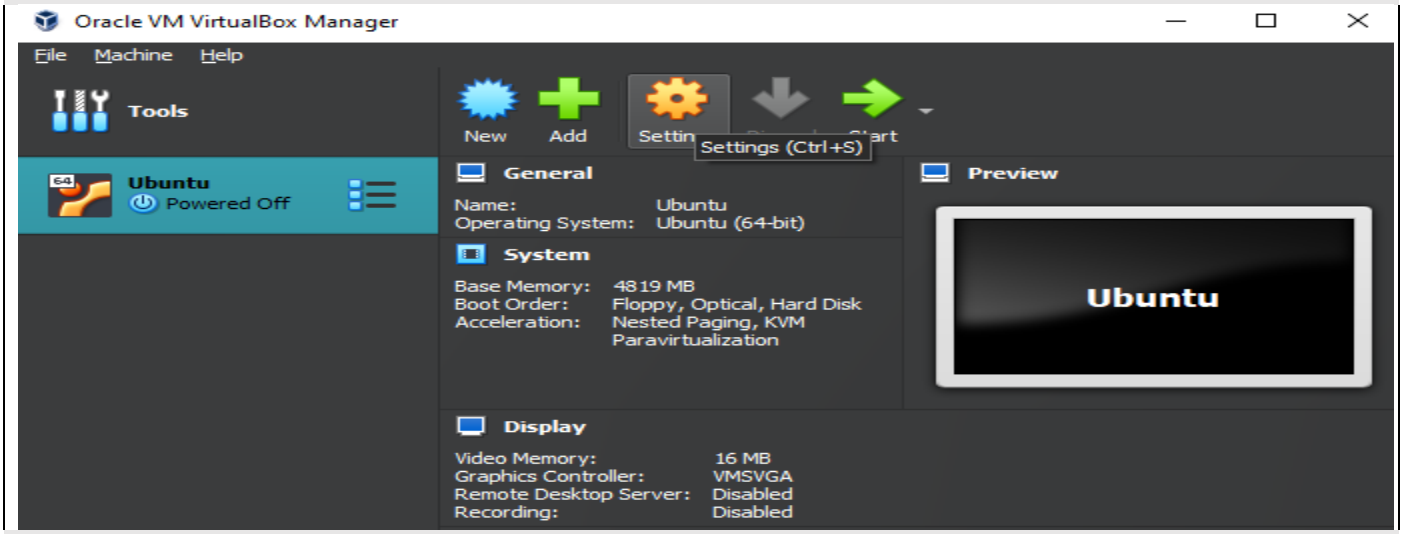
Select the recommended Memory which should be minimum of 4GB , select number of CPUs as well , click on Next



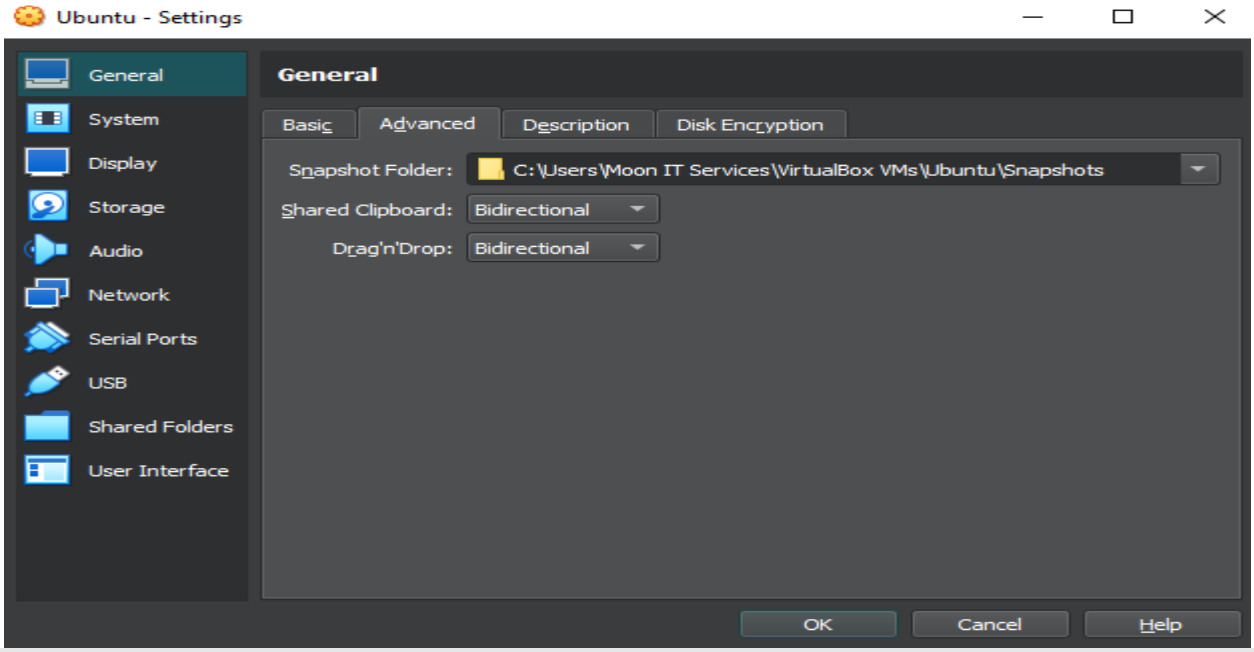
Select Virtual Disk size , 25 GB is recommended , click Next



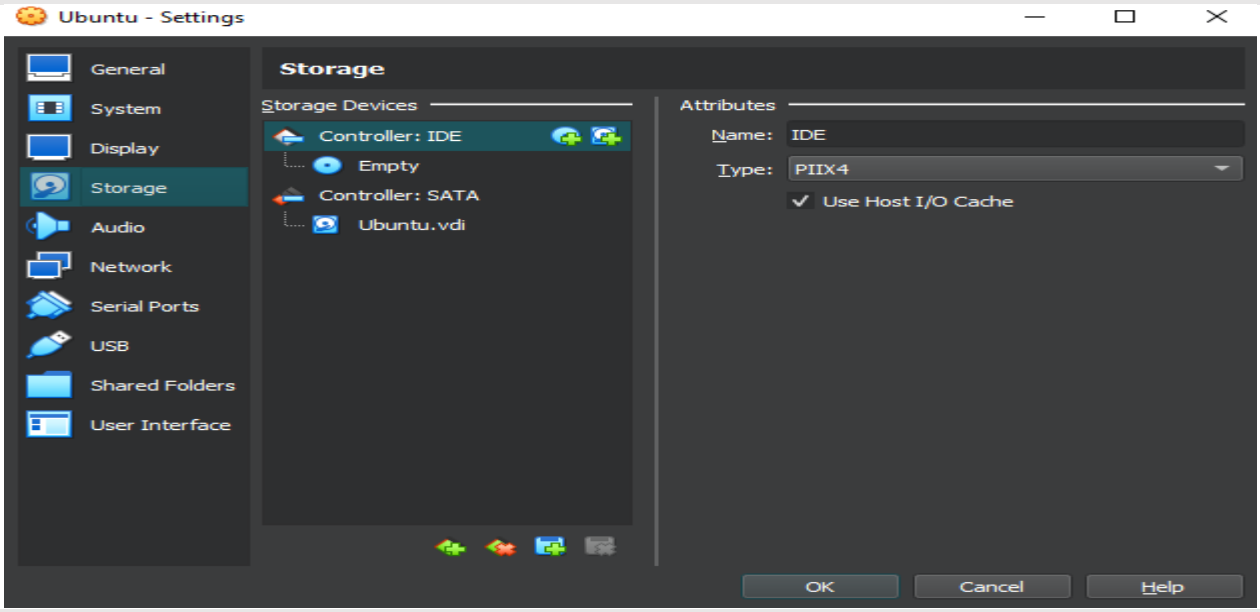
Click Next



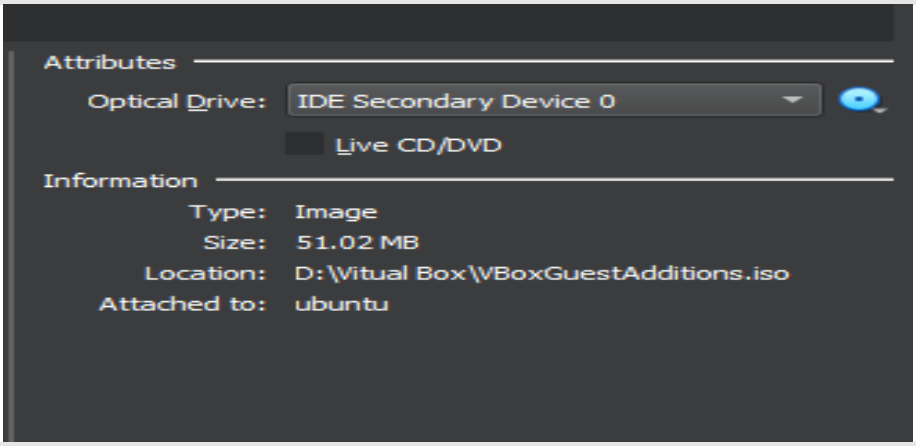
Select Settings



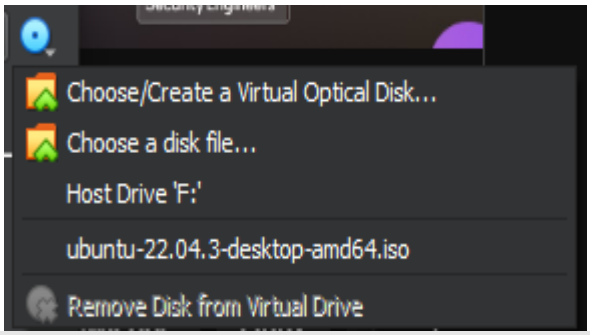
You can change the folder for the snapshot saving , and some other useful settings in this settings Menu ,but for now we are going to use storage option for our installation purpose



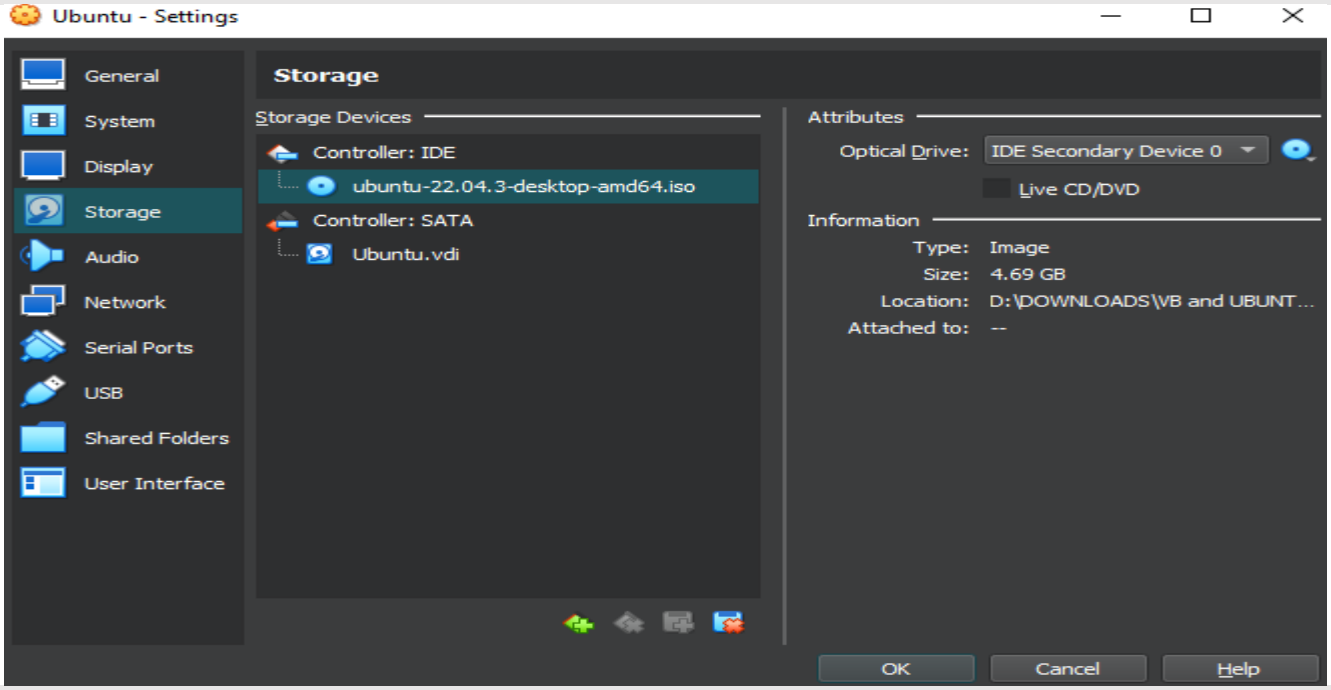
Select the empty option



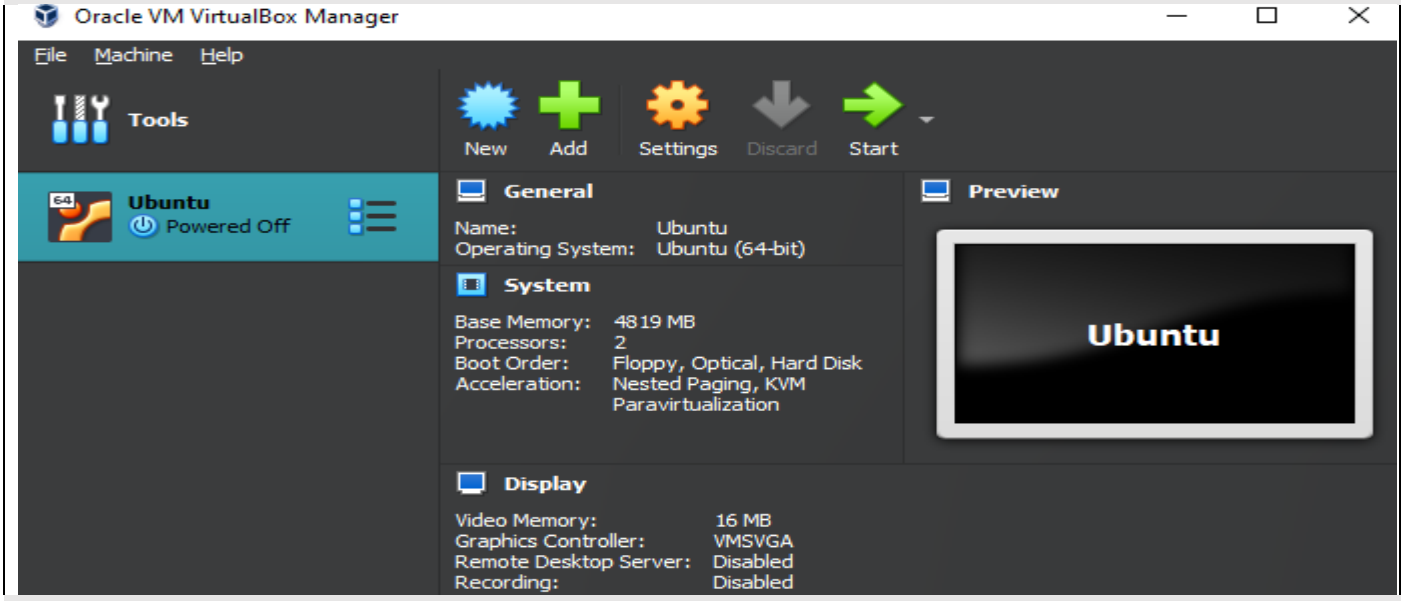
Select the Disc Icon on the right side of the screen



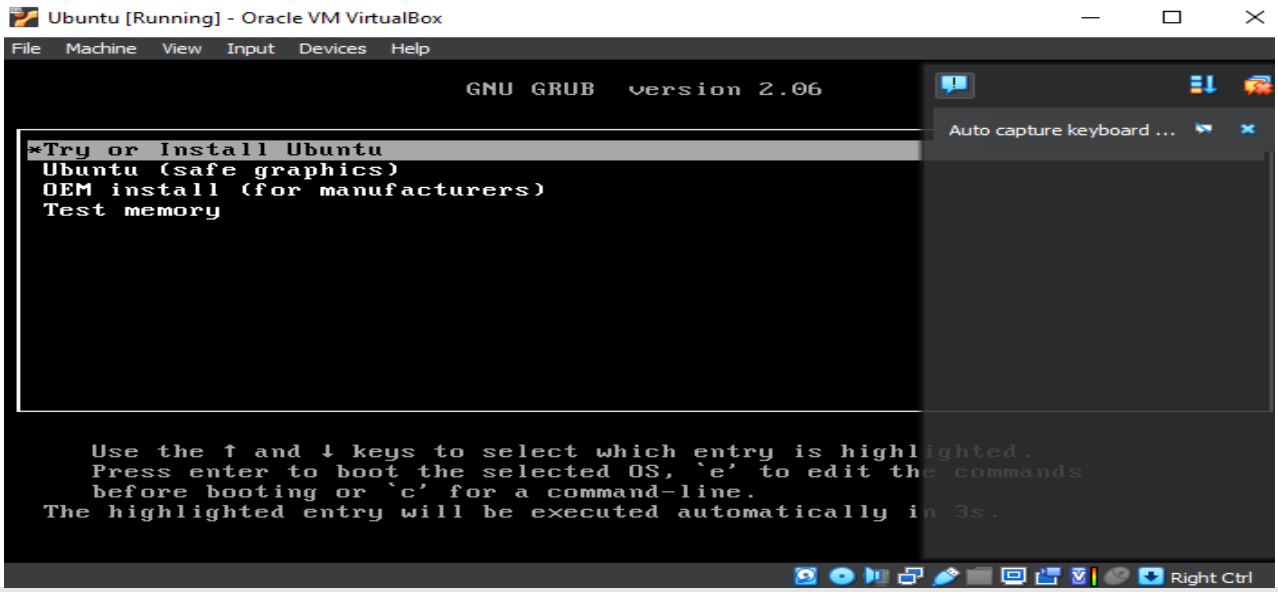
Select Choose a disk file option , then select the setup of Ubuntu that we early on downloaded



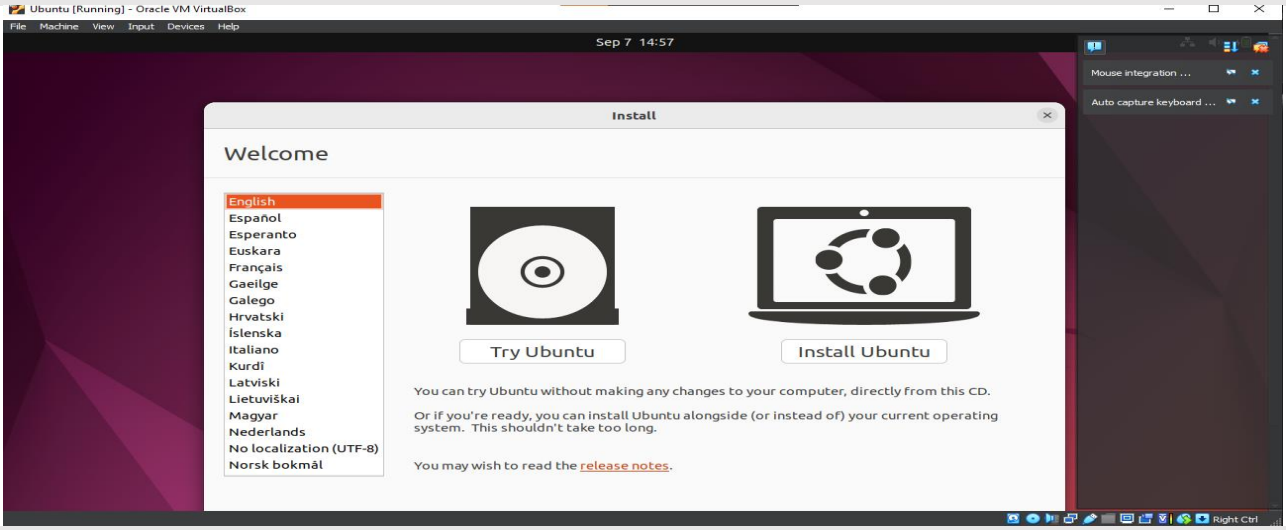
It should look something like this , now select ok



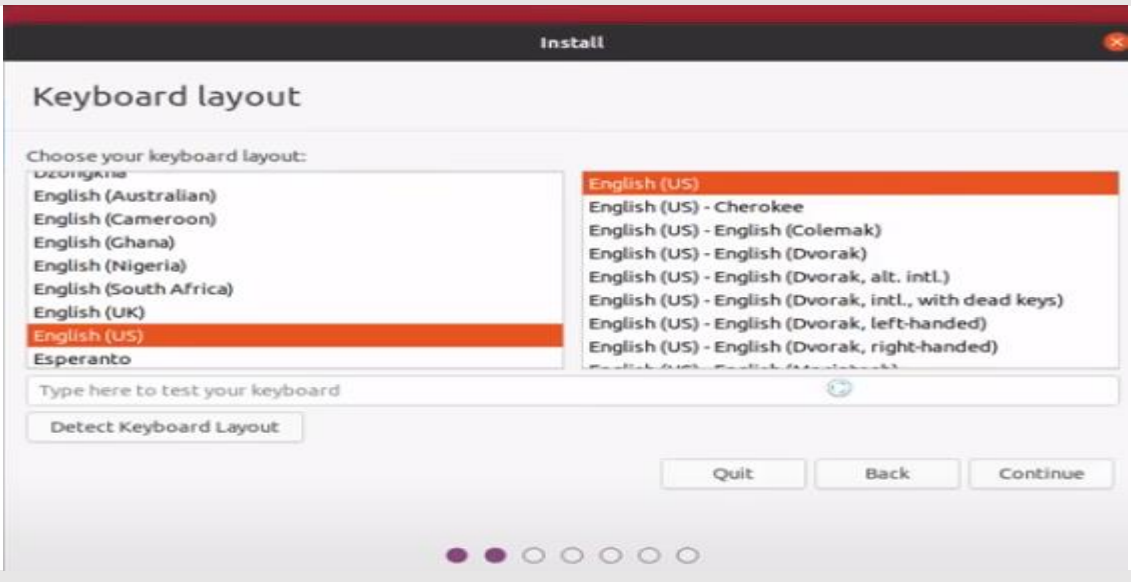
Now select Start option , with that green arrow sign



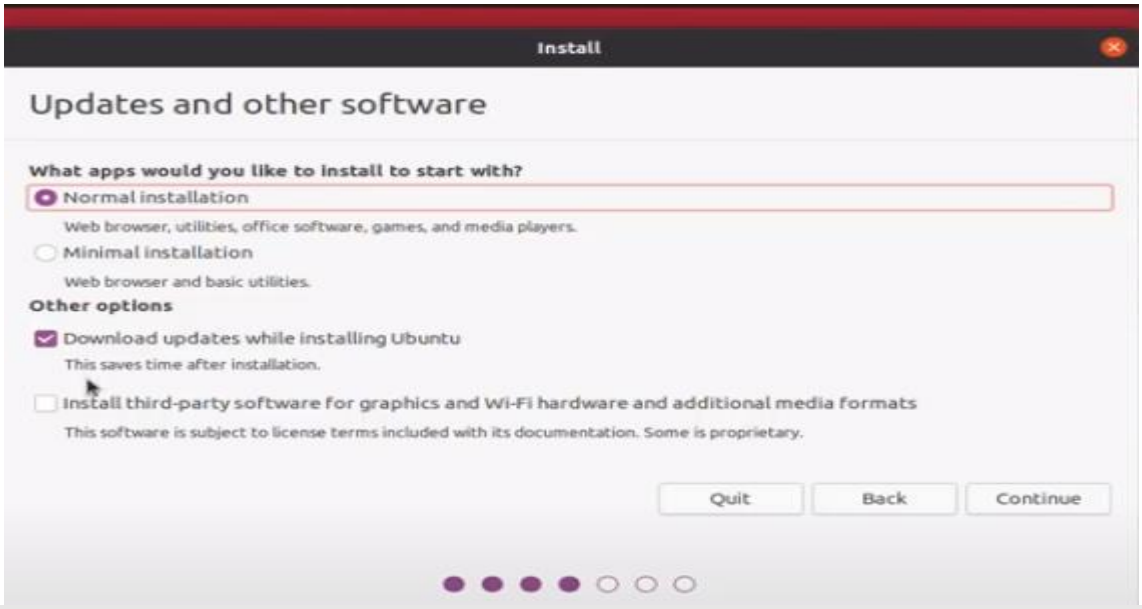
Select try or install option



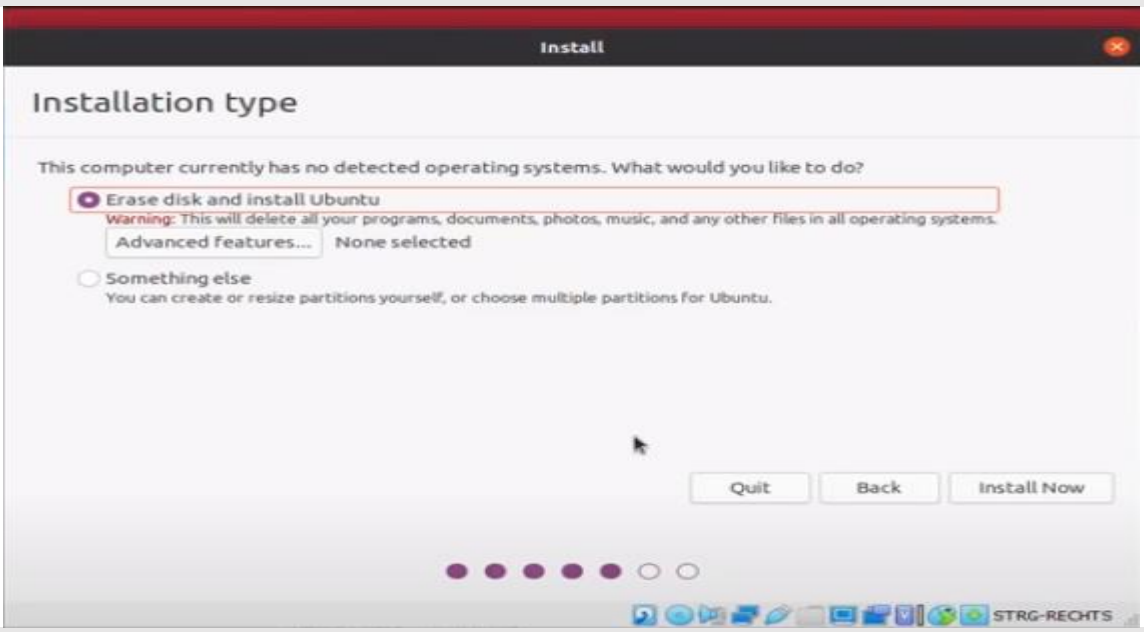
Select install Ubuntu



Select English

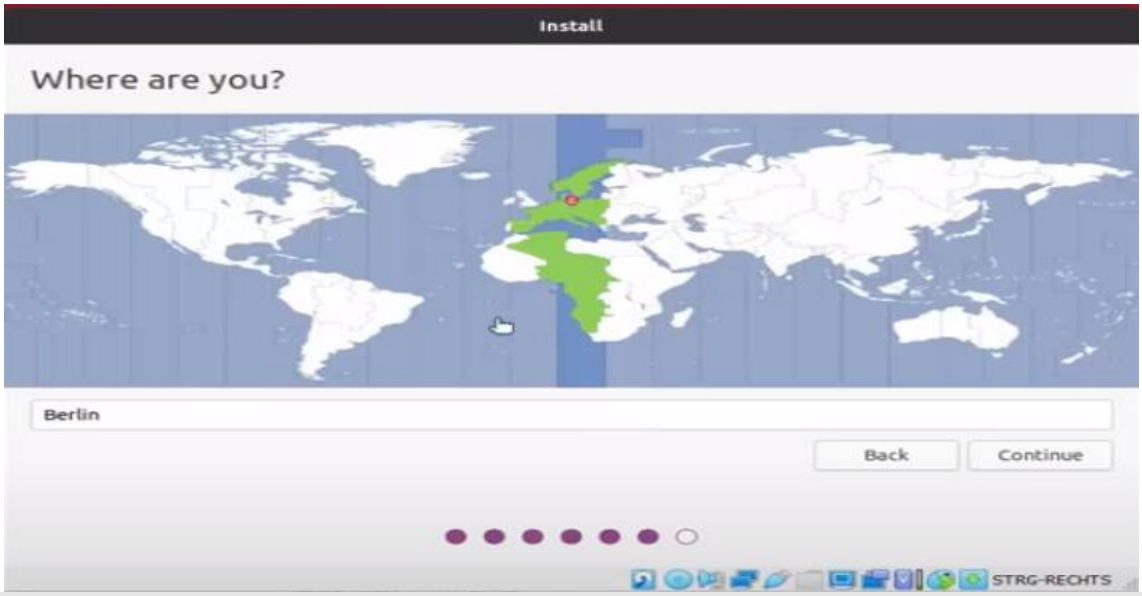


Select all options except for Minimal installation , then press Next

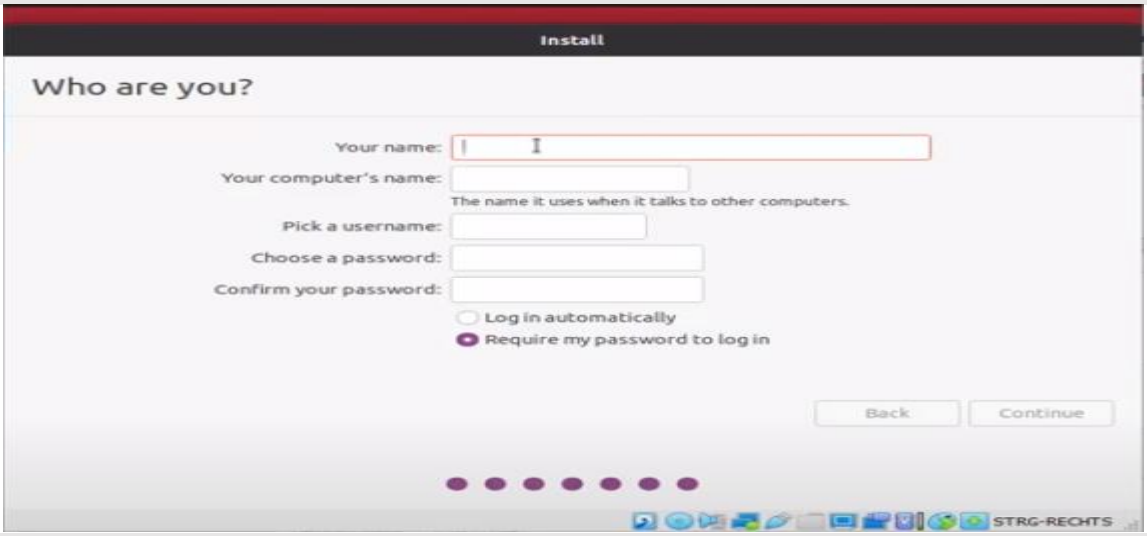


Select Erase disk option and then next

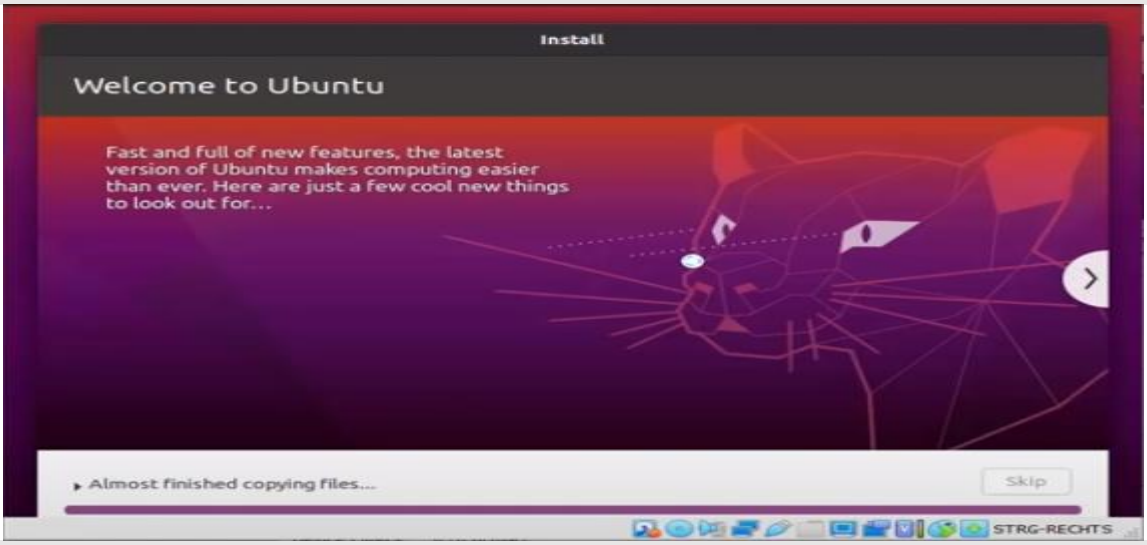
Choose continue



Select your location in our case it would be Karachi



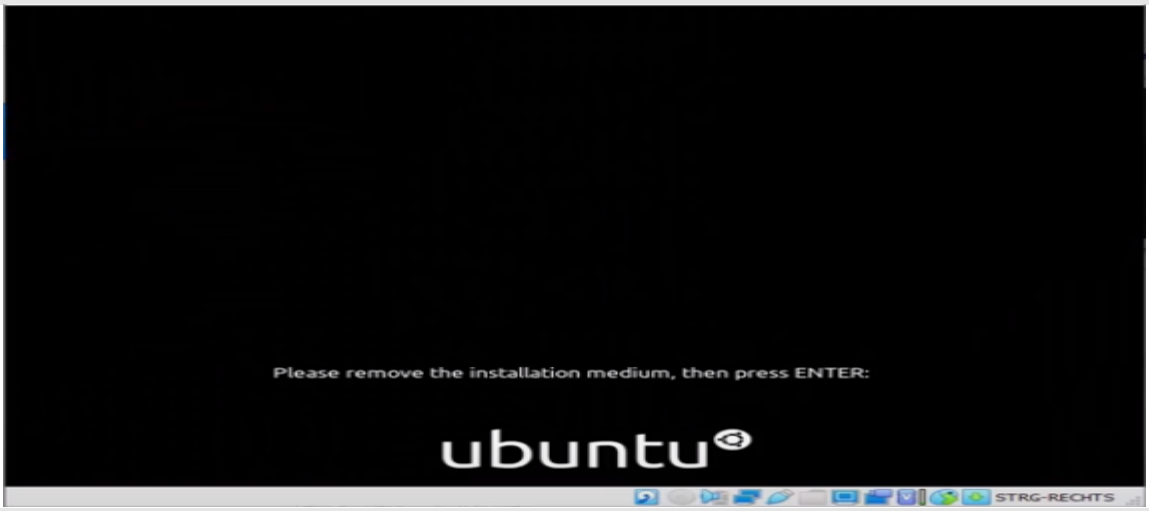
Fill in these sections as per your need or liking , select continue option



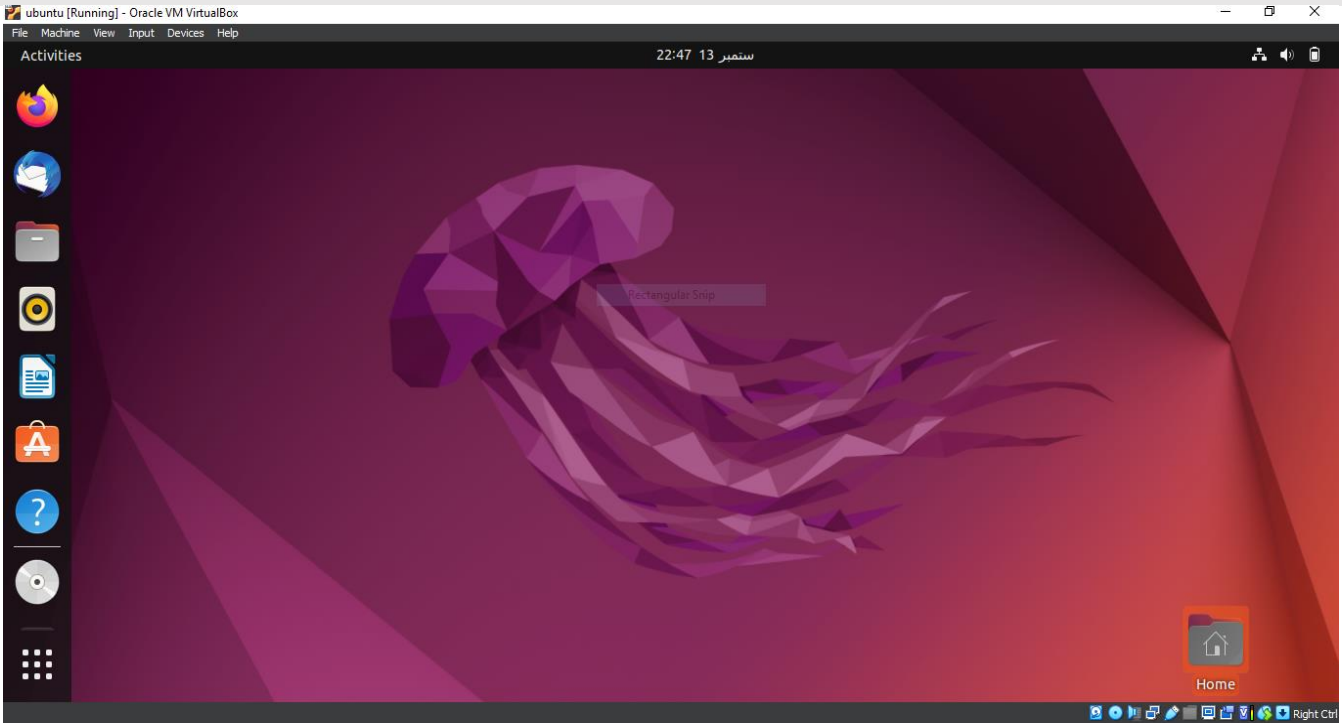
Wait until the setup installation is completed

During this installation process you may find some extra windows or any dialog box, don't panic read out the instruction and keep selecting Next or Continue option

Select Reboot Now option



Just press ENTER key , when you restart the Ubuntu or complete virtual box , and when the Ubuntu is powered On again you will see the following Screen

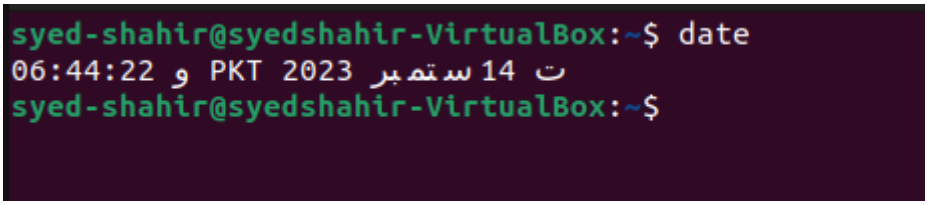


Task # 02;

Basic Commands of Linux:

These commands will be typed in terminal window of Ubuntu. In the Linux operating system, The Linux Terminal is a program where users put Linux commands and Terminal gives it to the operating system to process it, after processing output is shown on the terminal window. In simple words, Linux Terminal is an interface in which you can type and execute text-based commands.

date command will show you the current date

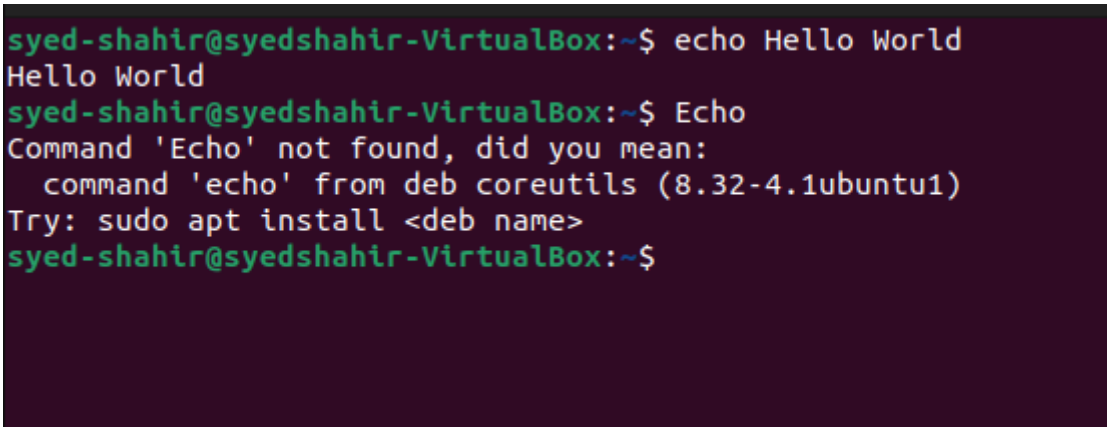


Ctrl + D can be used to exit or logout of the terminal

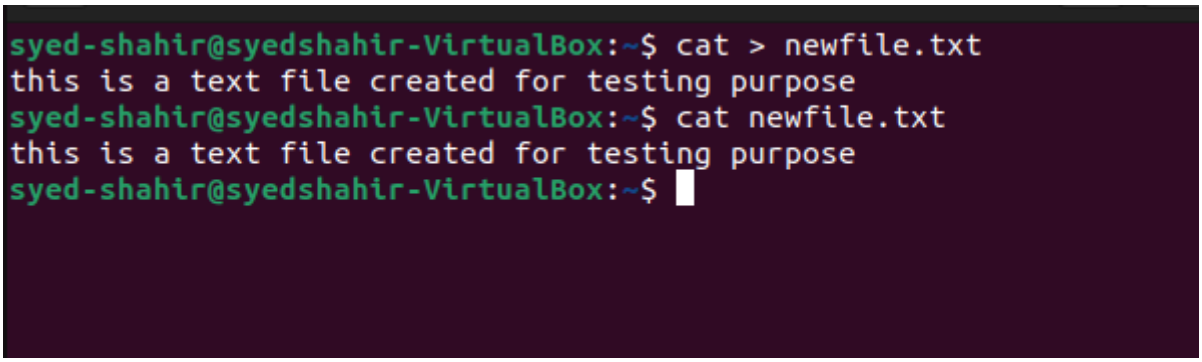
Ctrl + L to clear the terminal

echo command is used to display line of text or string passed as arguments on command line

commands are case sensitive as you can see that typing **Echo** instead of echo gave us an error



cat(concatenate) command is very frequently used in Linux. It reads data from the file and gives its content as output. It helps us to create, view, and concatenate files



With first command text file was created using cat command then in next command it also printed its content

When you are done with writing content in your file you can use Ctrl + D to save and exit

```
syed-shahir@syedshahir-VirtualBox:~$ cat > shopping_list
cucumber
bread
yoghurts
fish fingers
syed-shahir@syedshahir-VirtualBox:~$ cat shopping_list
cucumber
bread
yoghurts
fish fingers
```

To remove or delete any file **rm** command can be used

```
syed-shahir@syedshahir-VirtualBox:~$ cat shopping_list
cucumber
bread
yoghurts
fish fingers
syed-shahir@syedshahir-VirtualBox:~$ rm shopping_list
syed-shahir@syedshahir-VirtualBox:~$ cat shopping_list
cat: shopping_list: No such file or directory
syed-shahir@syedshahir-VirtualBox:~$
```

The **ls** command can be used to view all files

```
syed-shahir@syedshahir-VirtualBox:~$ ls
Desktop    Downloads  newfile.txt  Public  Templates
Documents  Music      Pictures     snap    Videos
syed-shahir@syedshahir-VirtualBox:~$
```

cp command can be used to copy the content of one file into other

```
syed-shahir@syedshahir-VirtualBox:~$ cat > file1.txt
this is the content of file 1
syed-shahir@syedshahir-VirtualBox:~$ cat > file2.txt
syed-shahir@syedshahir-VirtualBox:~$ cp file1.txt file2.txt
syed-shahir@syedshahir-VirtualBox:~$ cat file2.txt
this is the content of file 1
syed-shahir@syedshahir-VirtualBox:~$
```

mv (move) command can be used to rename the file names

```
syed-shahir@syedshahir-VirtualBox:~$ mv file2.txt new_file2.txt
syed-shahir@syedshahir-VirtualBox:~$ cat new_file2.txt
this is the content of file 1
syed-shahir@syedshahir-VirtualBox:~$ cat file2.txt
cat: file2.txt: No such file or directory
syed-shahir@syedshahir-VirtualBox:~$
```