

# EE4204 Computer Networks I (Part 1)

## Socket Programming Assignment

### Install Ubuntu on Oracle VirtualBox (Prepared by Amogh P.C., Ex-Graduate Assistant)

Lecturer : Assoc. Prof. Mohan Gurusamy, [elegm@nus.edu.sg](mailto:elegm@nus.edu.sg)

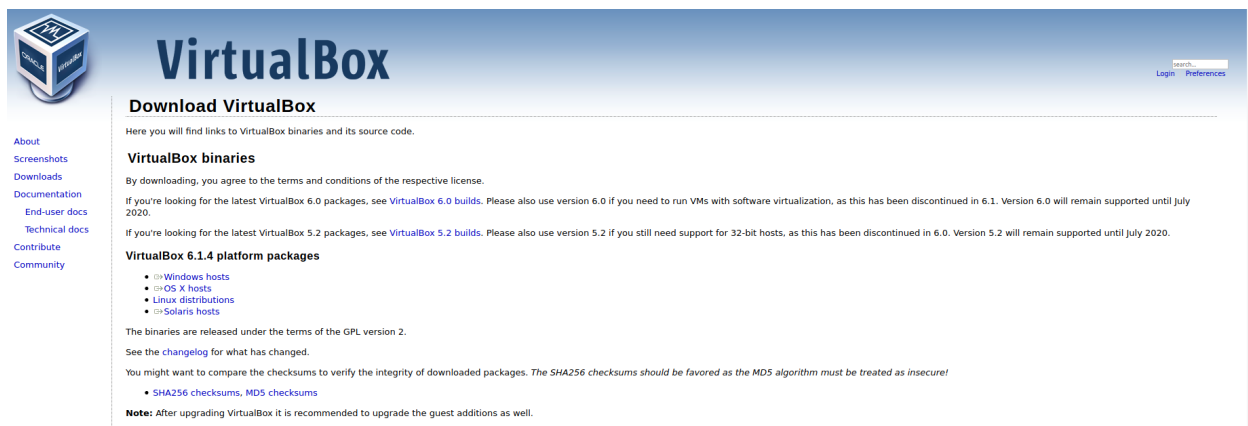
---

#### Install Ubuntu on Oracle VirtualBox

### Download oracle virtual box and ubuntu OS

#### Oracle VirtualBox

- 1) Go to <https://www.virtualbox.org/wiki/Downloads>
- 2) Download [VirtualBox](#) latest version (currently 6.1.4) platform packages for Windows or OS X (MAC users)
- 3) Run the executable file. Continue with the installation of VirtualBox with the defaults. This will open VirtualBox at the end of the installation.



#### Ubuntu Desktop

Download the latest version of Ubuntu from <https://ubuntu.com/download/desktop>

# Ubuntu 19.10

The latest version of the Ubuntu operating system for desktop PCs and laptops, Ubuntu 19.10 comes with nine months, until July 2020, of security and maintenance updates.

Recommended system requirements are the same as for Ubuntu 18.04.4 LTS.

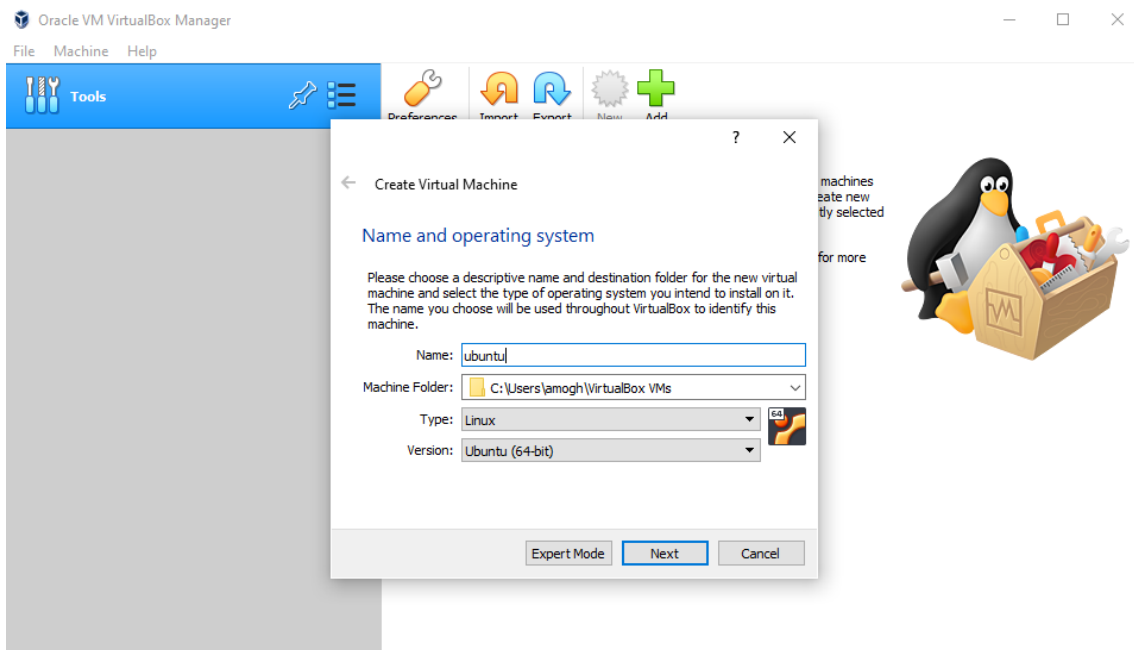
[Ubuntu 19.10 release notes](#)

Download

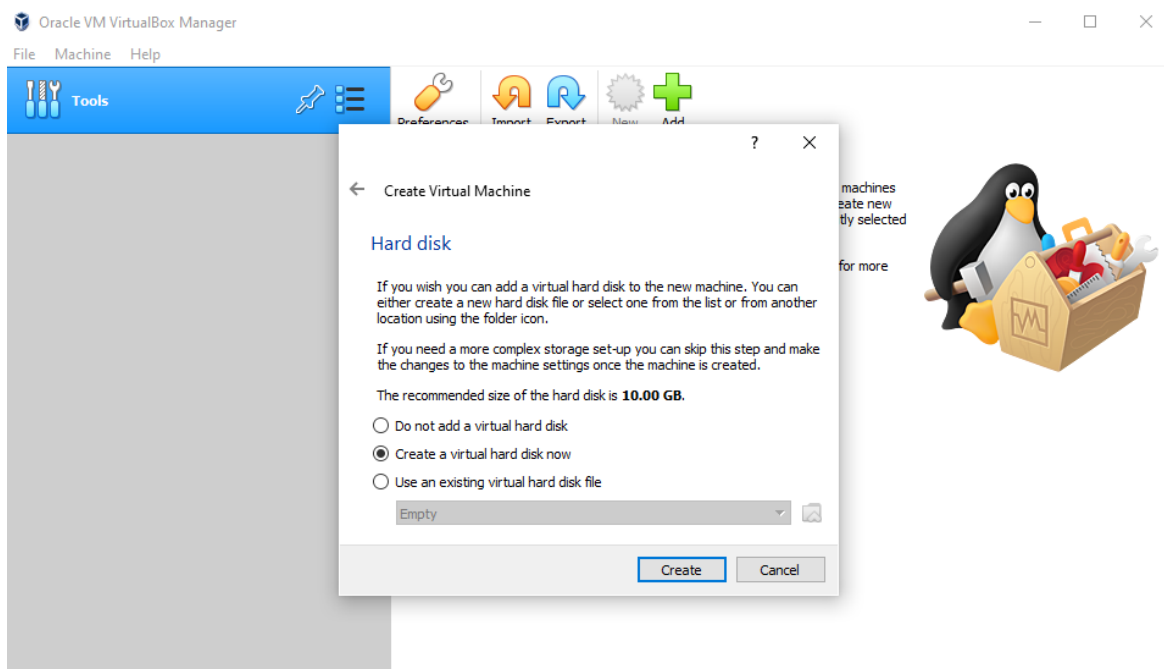
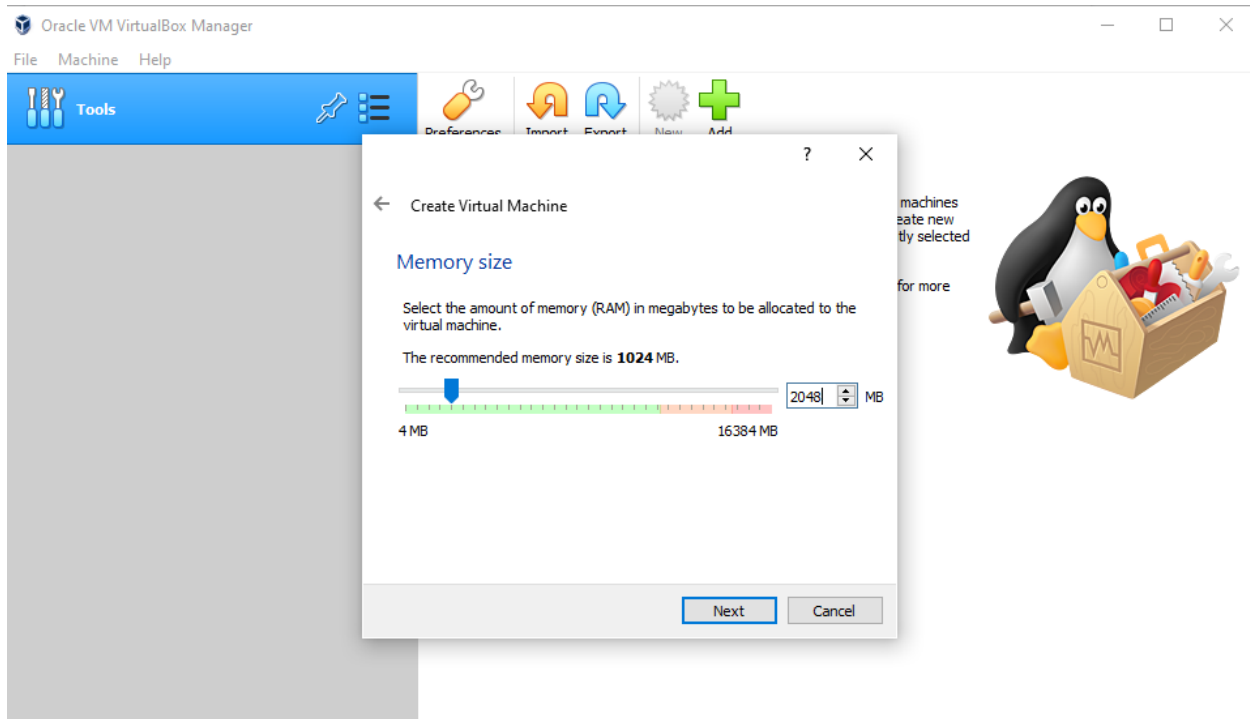
[Alternative downloads and torrents](#)

## Installation screenshots

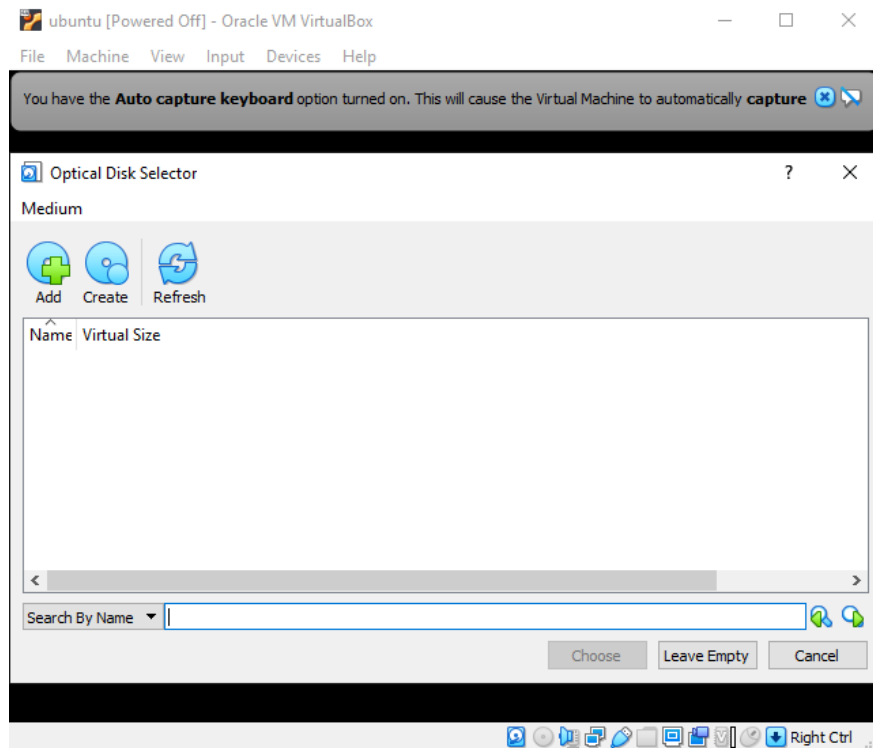
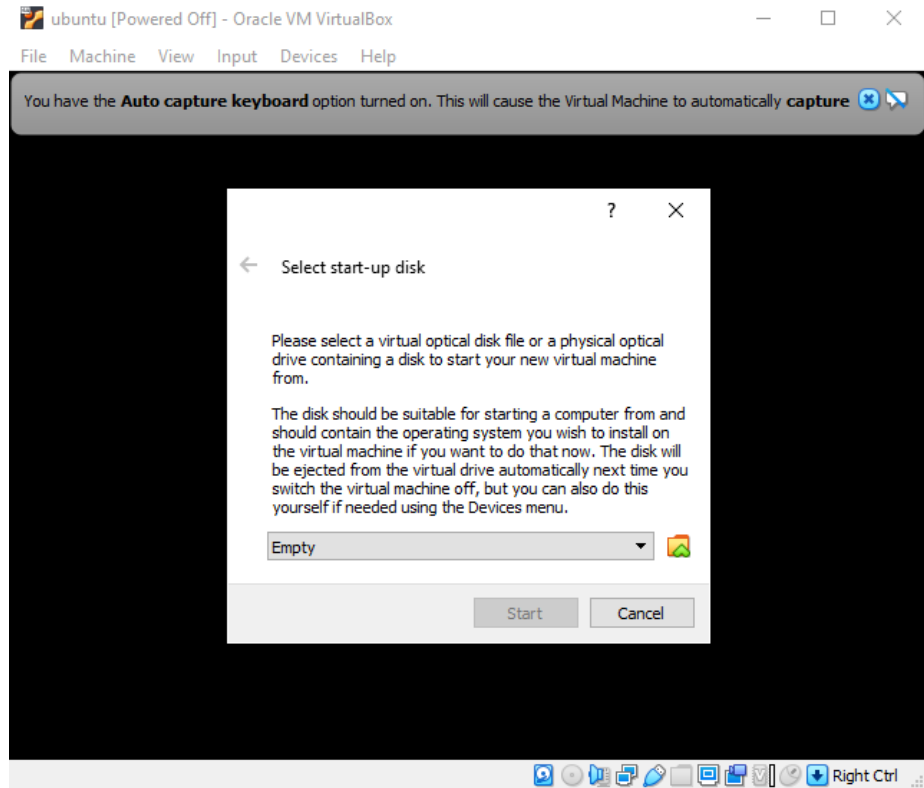
### Open Oracle VirtualBox



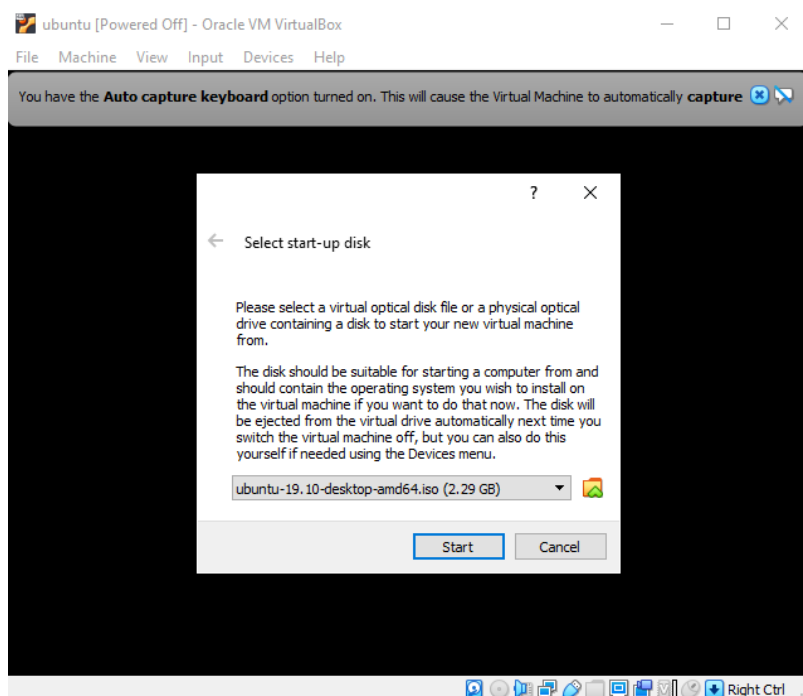
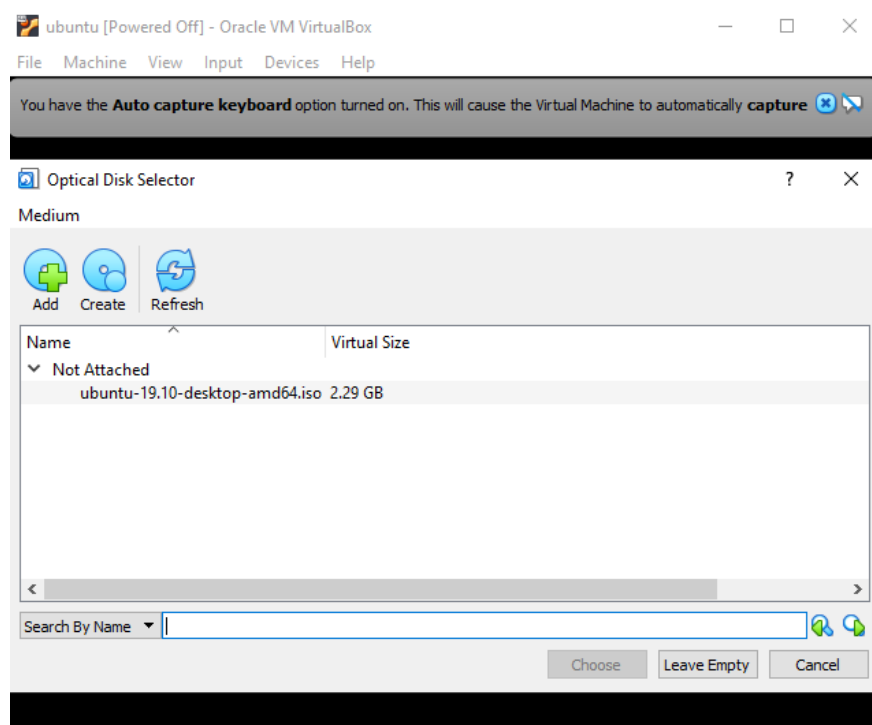
Keep memory around 4GB ~ 4096 (recommended)



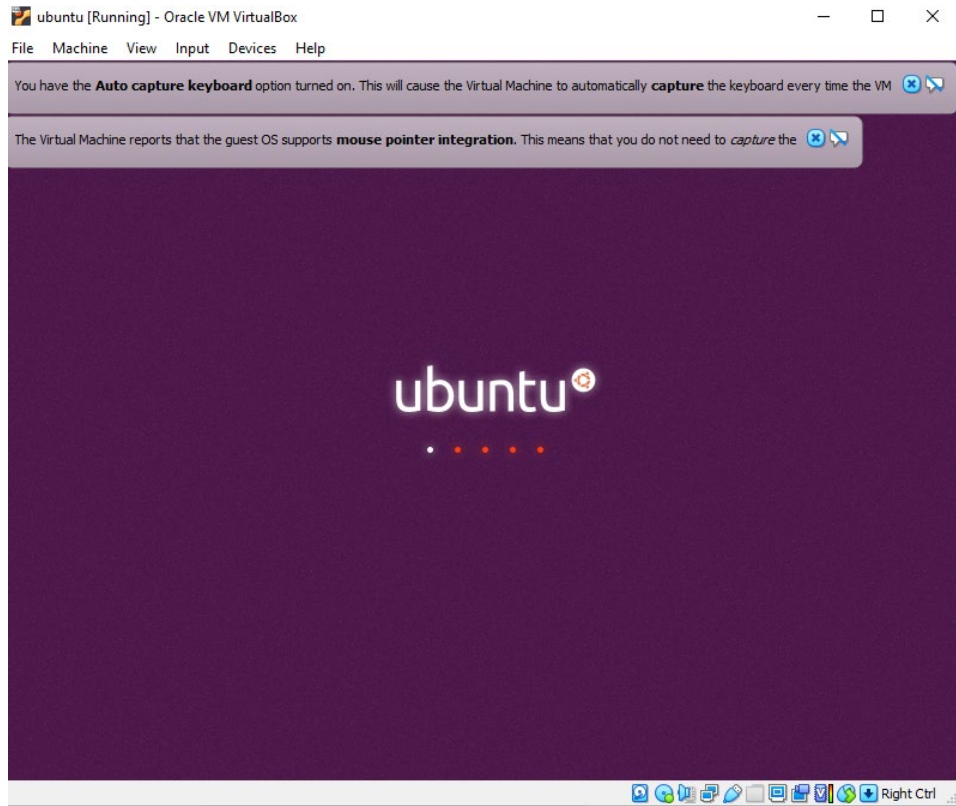
Select the ubuntu image



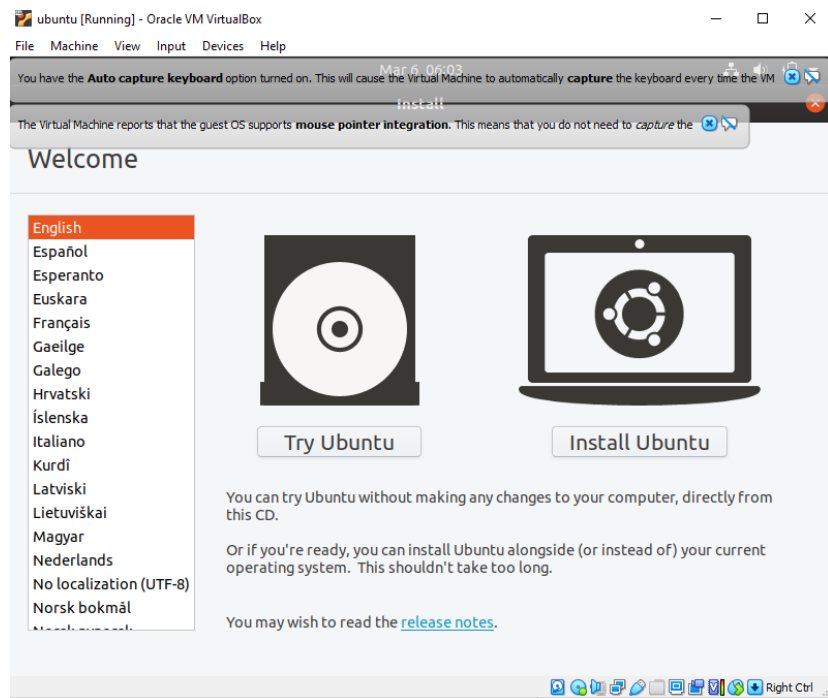
Click add and Choose the ubuntu .iso image downloaded



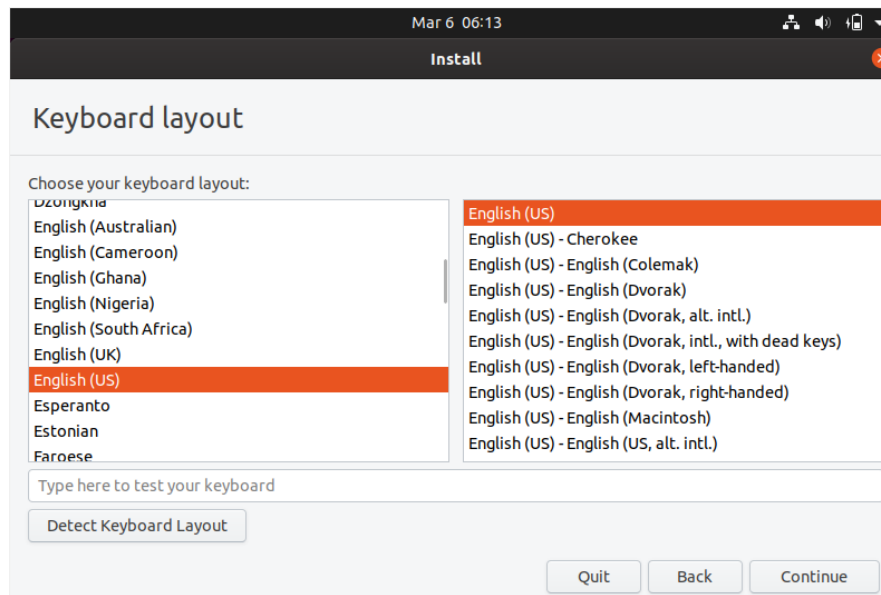
Click start installation of ubuntu starts from there



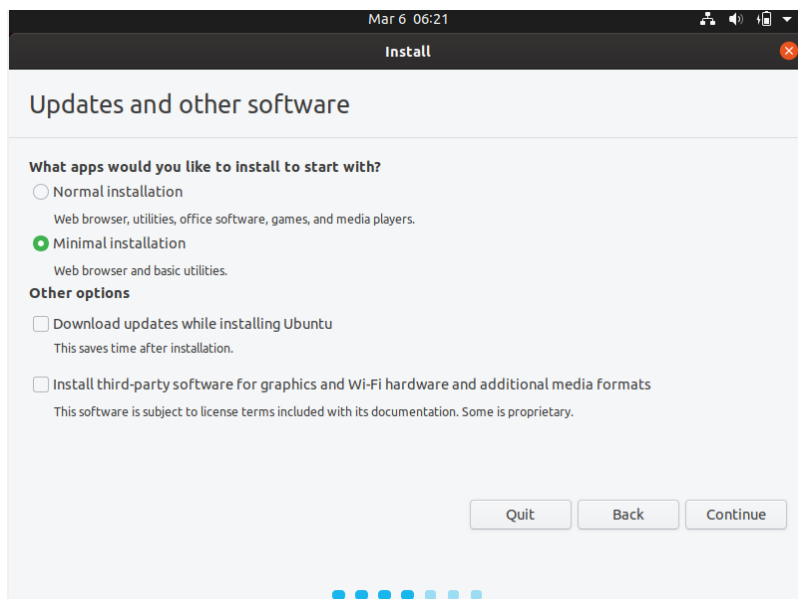
Choose install ubuntu

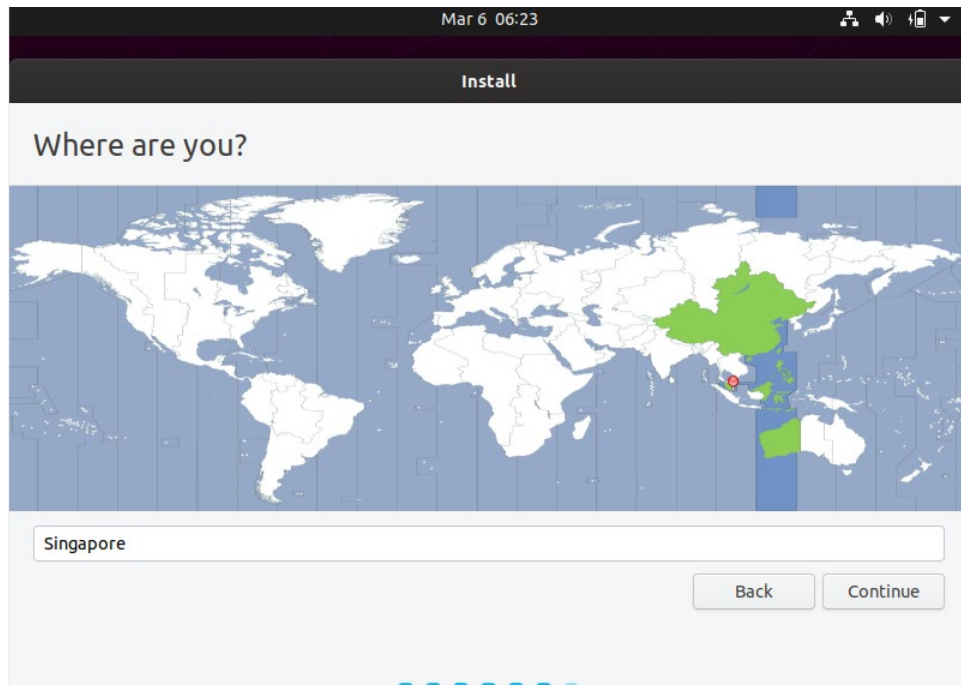
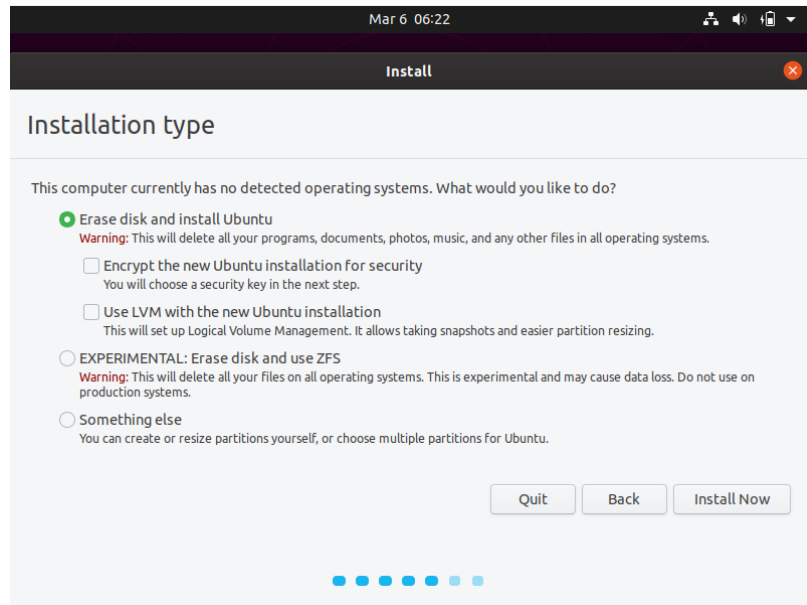


Use default keyboard settings



Choose minimal installation, We don't need any other default ubuntu softwares





Pick a username and password



Mar 6 14:24

Install

## Who are you?

Your name:  ✓

Your computer's name:  ✓  
The name it uses when it talks to other computers.

Pick a username:  ✓

Choose a password:  Fair password

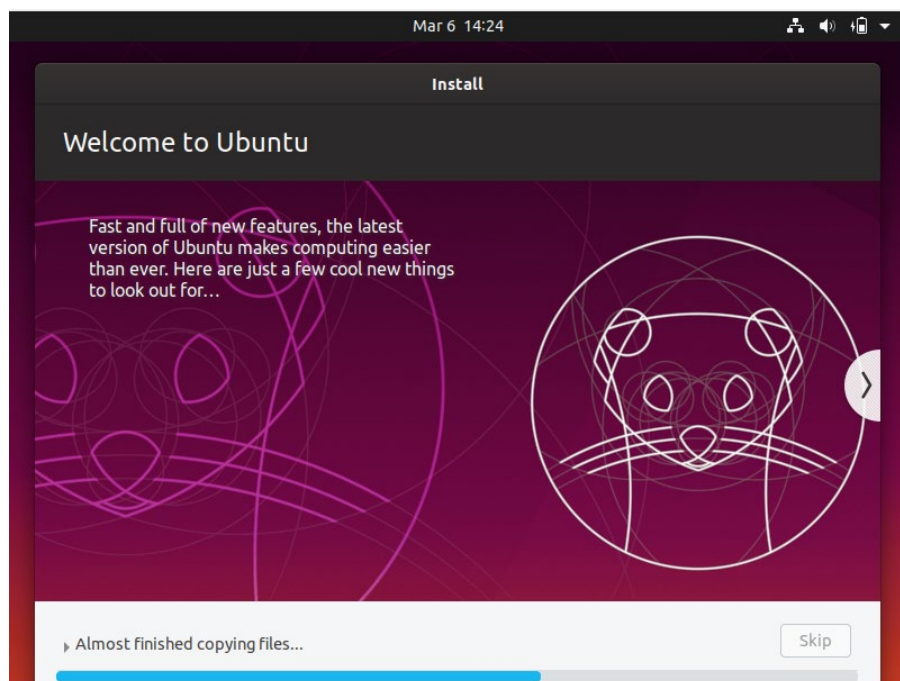
Confirm your password:  ✓

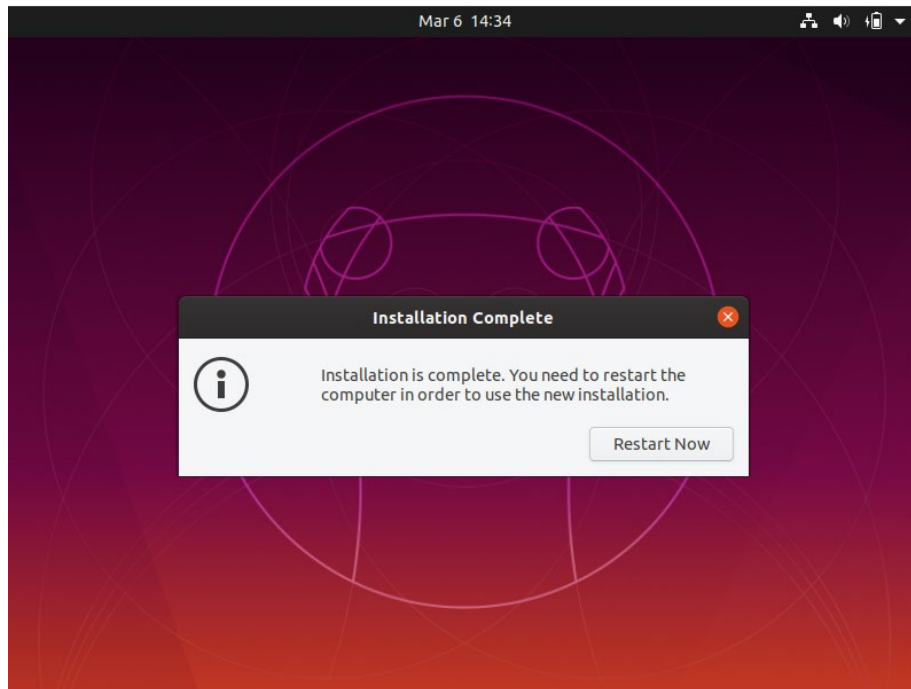
☐ Log in automatically

☒ Require my password to log in

Back Continue

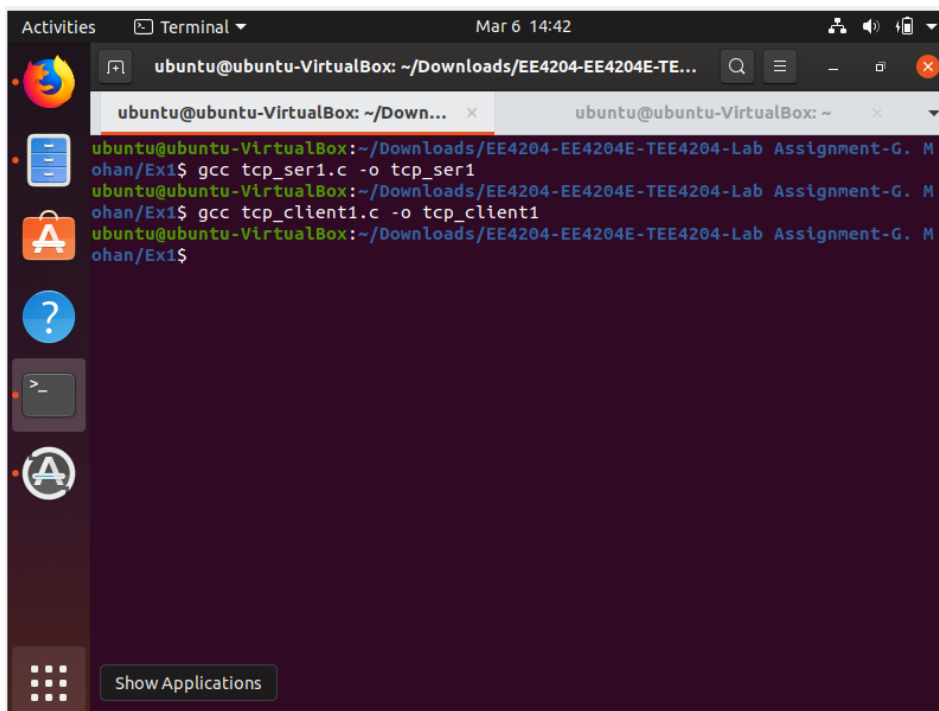
● ● ● ● ● ● ● ●



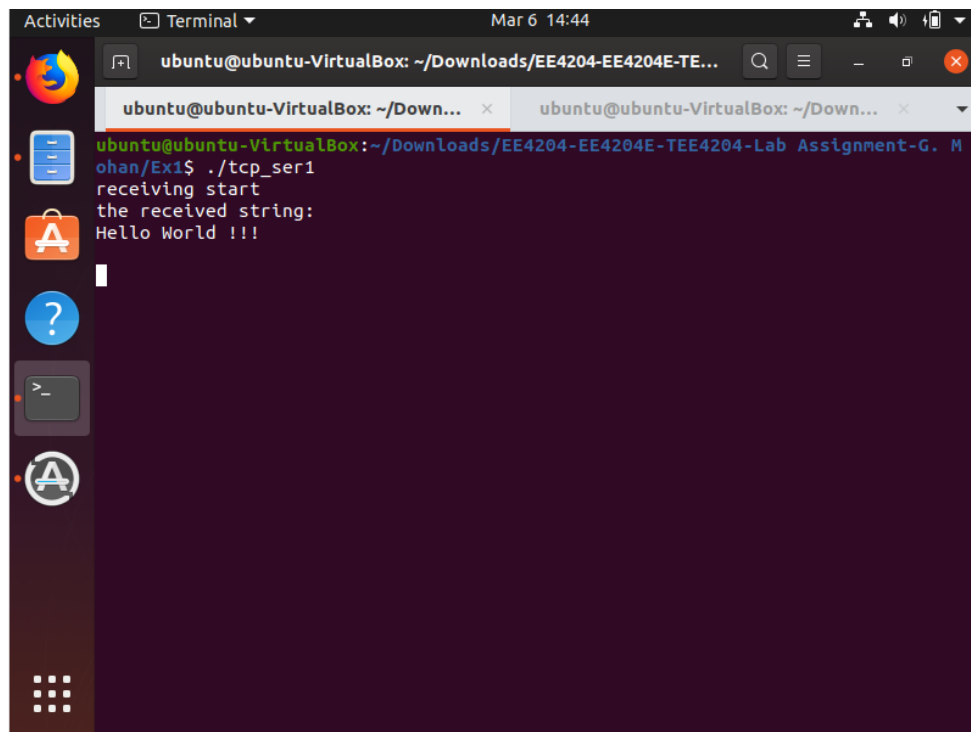


*Done with the installation of ubuntu in oracle virtual box*

Open the terminal and compile the both client and server programs



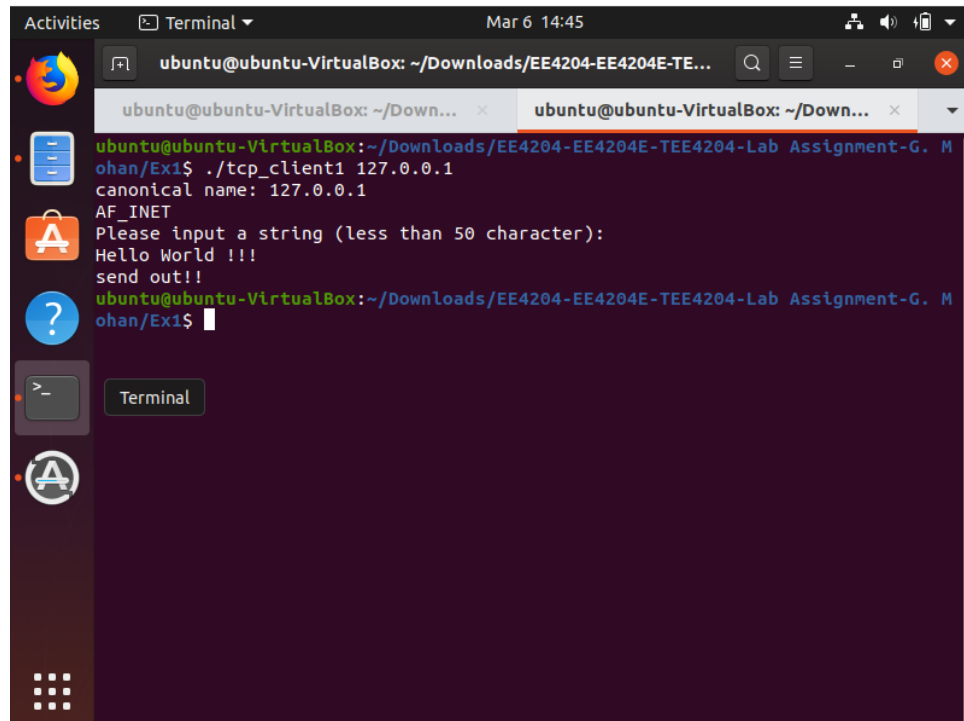
Run the server in Terminal 1



A screenshot of a terminal window titled 'Terminal' with a timestamp of 'Mar 6 14:44'. The terminal shows the user 'ubuntu@ubuntu-VirtualBox' in the directory '~/Downloads/EE4204-EE4204E-TEE4204-Lab Assignment-G. M'. The user has executed the command './tcp\_ser1', and the output is 'receiving start', 'the received string:', and 'Hello World !!!'.

```
ubuntu@ubuntu-VirtualBox: ~/Downloads/EE4204-EE4204E-TEE4204-Lab Assignment-G. M
ohan/Ex1$ ./tcp_ser1
receiving start
the received string:
Hello World !!!
```

Run the client in another terminal with an argument as server ip (127.0.0.1) in Terminal 2

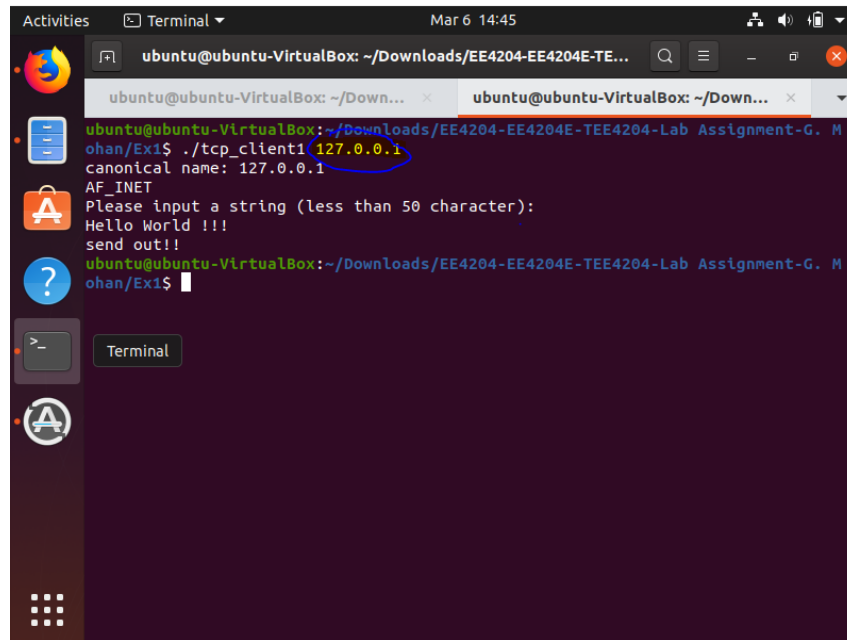


A screenshot of a terminal window titled 'Terminal' with a timestamp of 'Mar 6 14:45'. The terminal shows the user 'ubuntu@ubuntu-VirtualBox' in the directory '~/Downloads/EE4204-EE4204E-TEE4204-Lab Assignment-G. M'. The user has executed the command './tcp\_client1 127.0.0.1', and the output is 'canonical name: 127.0.0.1', 'AF\_INET', 'Please input a string (less than 50 character):', 'Hello World !!!', and 'send out!!'. The user has then entered 'Hello World !!!' and the terminal shows 'Hello World !!!'.

```
ubuntu@ubuntu-VirtualBox: ~/Downloads/EE4204-EE4204E-TEE4204-Lab Assignment-G. M
ohan/Ex1$ ./tcp_client1 127.0.0.1
canonical name: 127.0.0.1
AF_INET
Please input a string (less than 50 character):
Hello World !!!
send out!!
ubuntu@ubuntu-VirtualBox: ~/Downloads/EE4204-EE4204E-TEE4204-Lab Assignment-G. M
ohan/Ex1$
```

Please note as we are running both client and server in the same machine.

The IP address **127.0.0.1** a special-purpose IPv4 address called **localhost** or **loopback** address is used as servers IP



```
ubuntu@ubuntu-VirtualBox: ~/Downloads/EE4204-EE4204E-TEE4204-Lab Assignment-G. M
ohan/Ex1$ ./tcp_client1 127.0.0.1
canonical name: 127.0.0.1
AF_INET
Please input a string (less than 50 character):
Hello World !!!
send out!!
ubuntu@ubuntu-VirtualBox:~/Downloads/EE4204-EE4204E-TEE4204-Lab Assignment-G. M
ohan/Ex1$
```