Setting up Workspace for EECS 678 Labs

You will have to carry out the labs on a Linux OS. If you already use a Linux OS (like Ubuntu etc.) on your personal machine, you should be fine with that. Your source code and the compiled program should always be tested on the Cycle servers regardless of how you choose to perform the labs. You can perform the labs in any of the following ways:

1. Using a Virtual Machine:

   We will setup Ubuntu 20.04 on Virtual Box. Both the Virtual Box software and the Ubuntu 20.04 image are available for free. **You should make sure that you allocate at least 25 GB of hard disk space to Ubuntu during installation**. The steps for the setup are as follows:

   Part A (Installing Virtual Box):

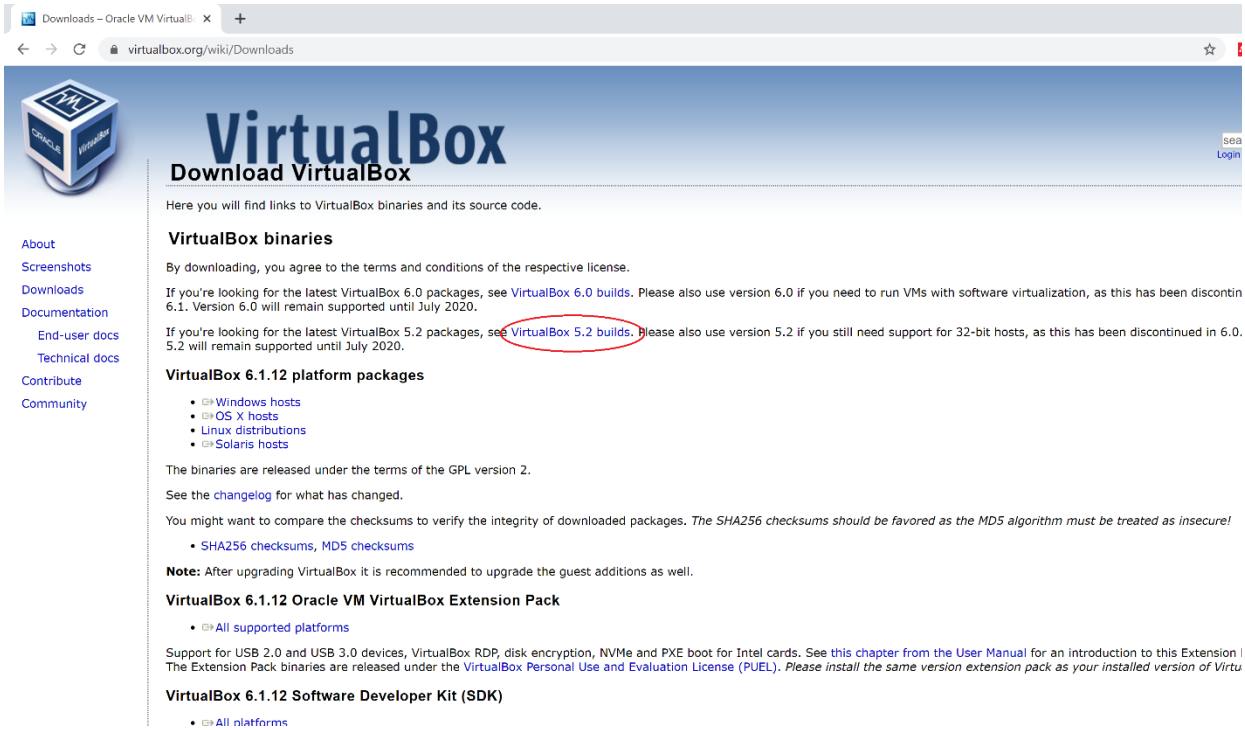
1 

1 Go to https://www.virtualbox.org

2

2 Click the "Downloads" button from the left navigation pane

3



3 Click the "VirtualBox 5.2 builds" button

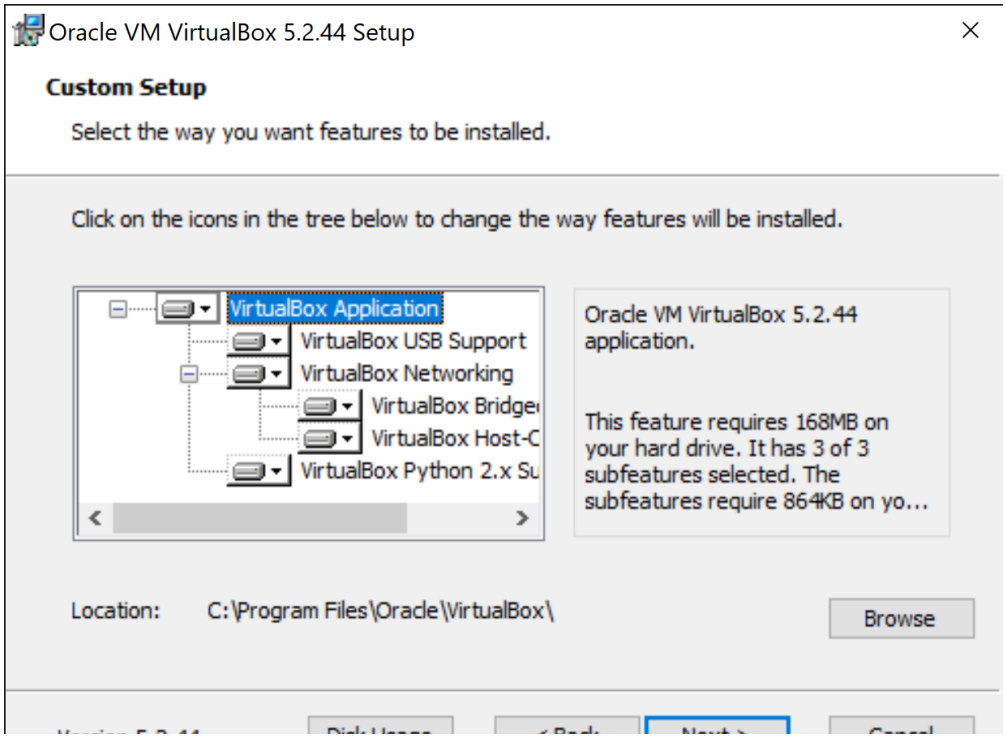
4

4 Download the appropriate installer according to your host OS (mine is Windows - so I select Windows)

5

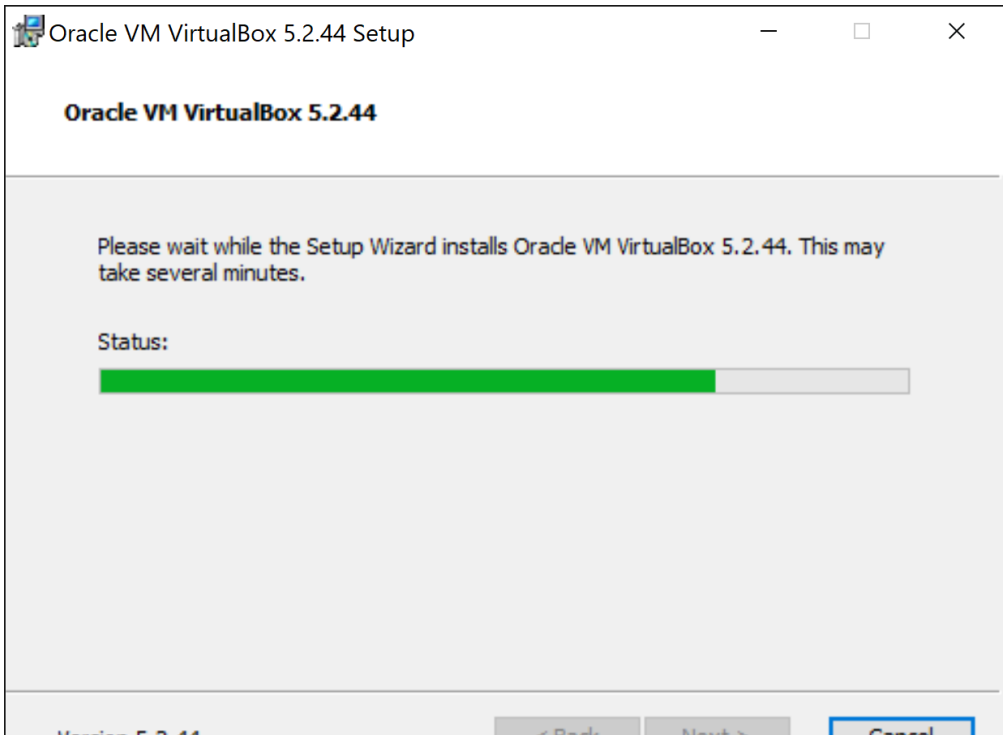
5 VirtualBox has started downloading

6



6 Start installing VirtualBox with default options

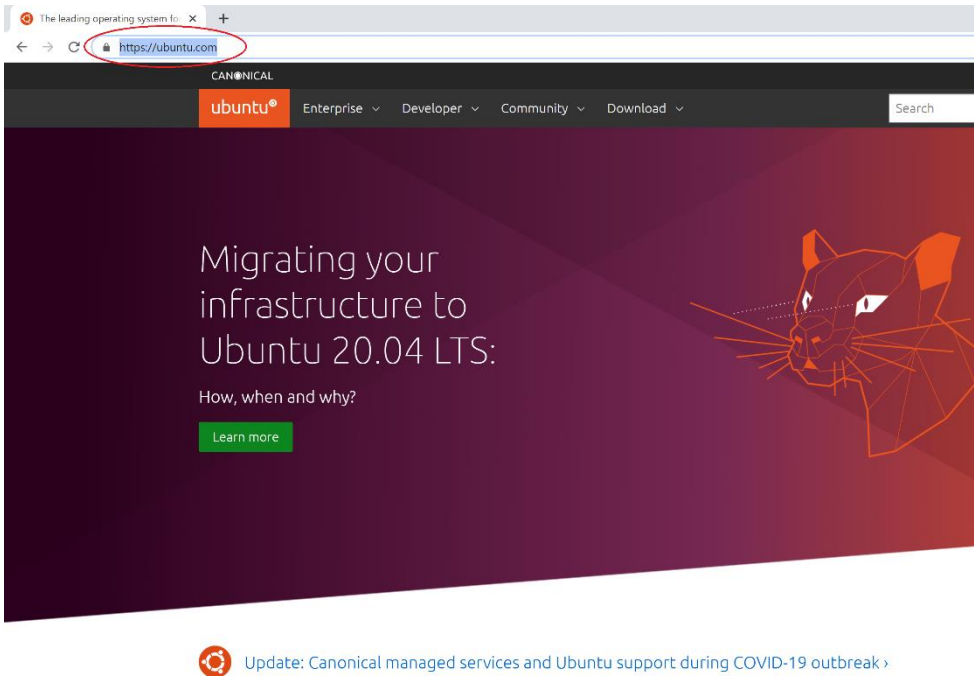
7



7 VirtualBox installation is in progress

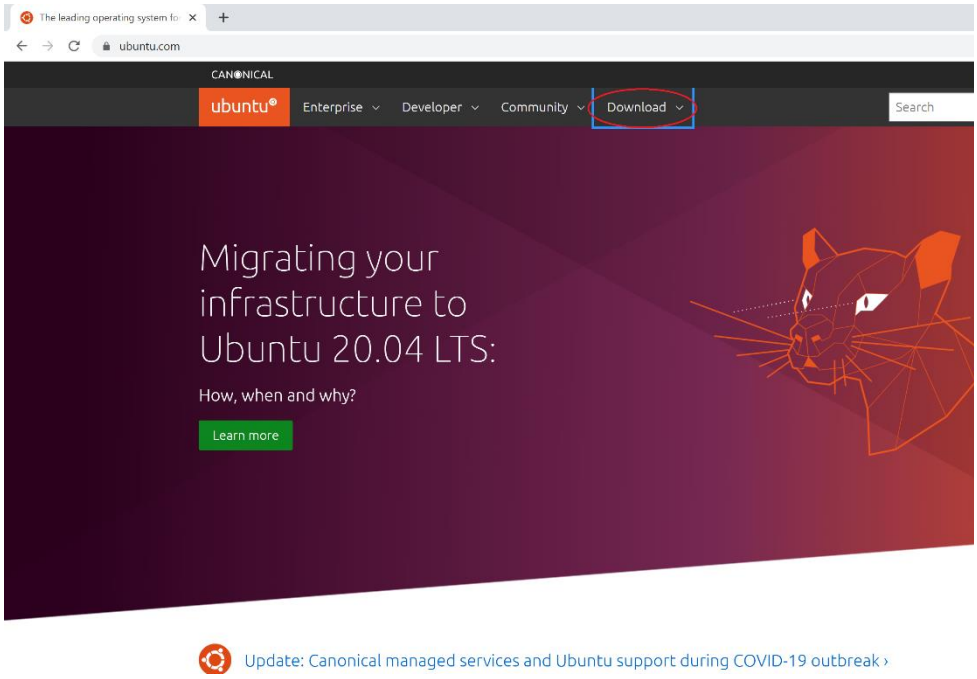
Part B (Installing Ubuntu in VirtualBox):

1



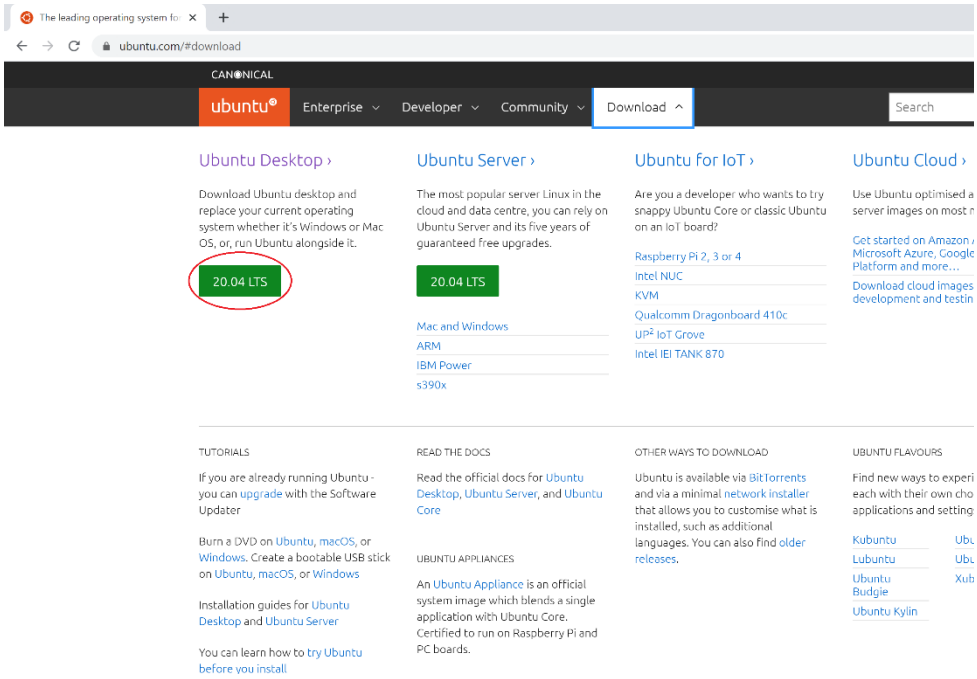
1 In the meantime, go to https://ubuntu.com

2



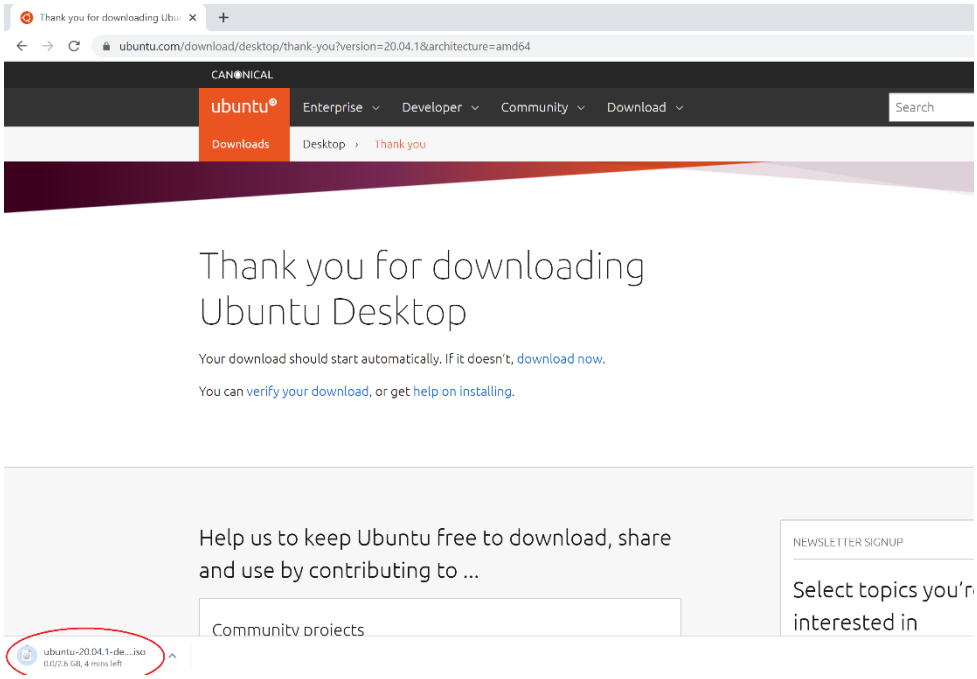
2 Click on Download

3



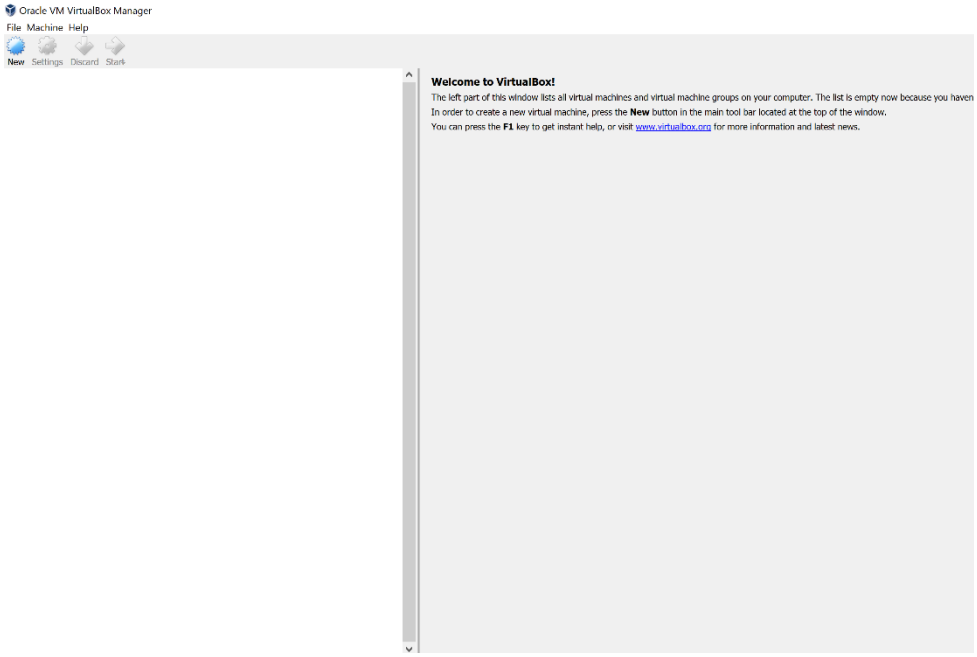
3 Download the 20.04 LTS version

4



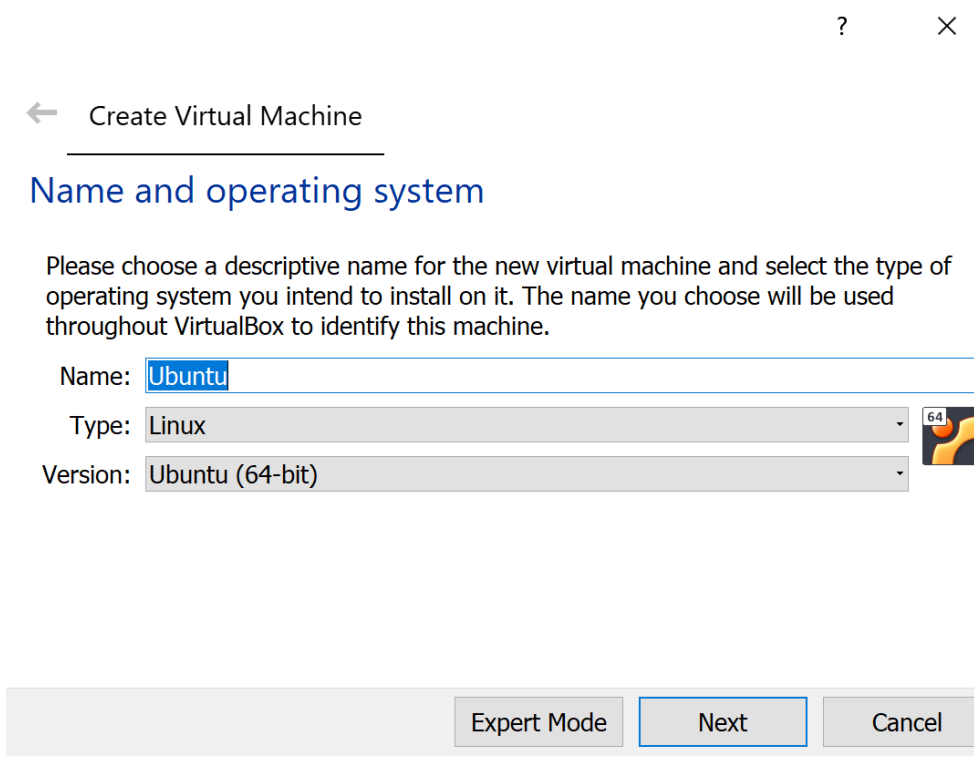
4 Ubuntu 20.04 iso image download is in progress

5



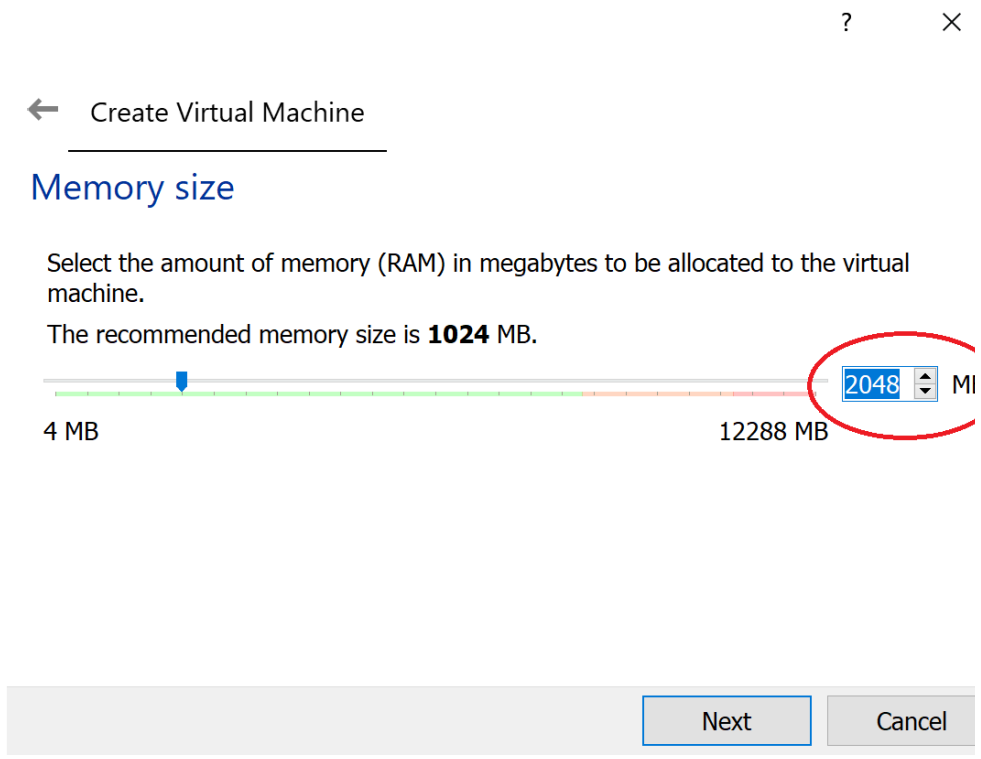
5 Open VirtualBox and click on New

6



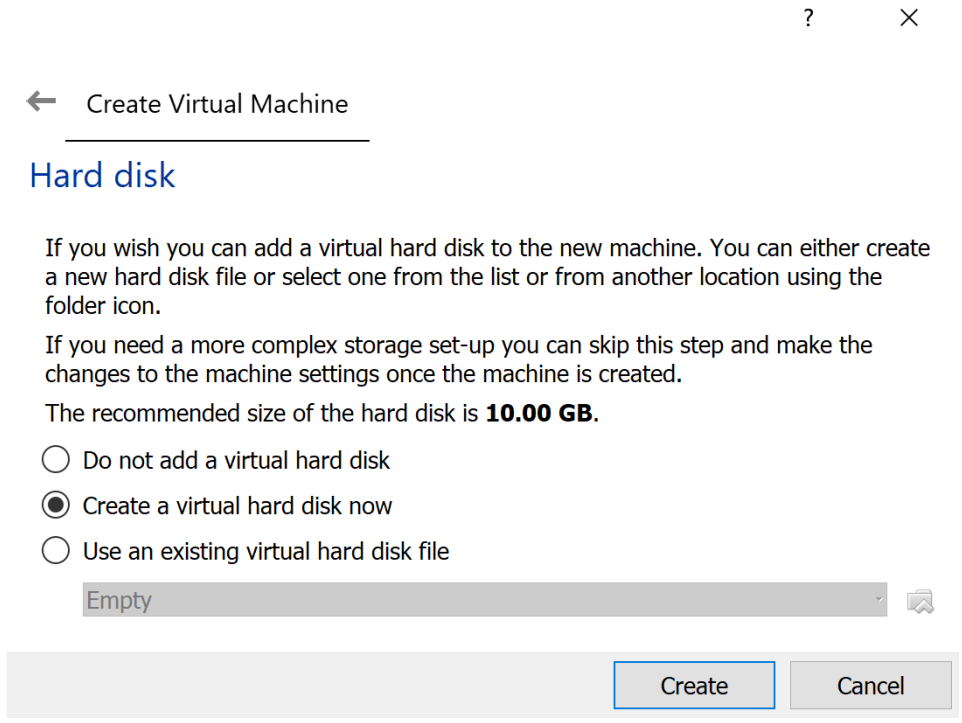
6 Name the Virtual Machine and click Next

7



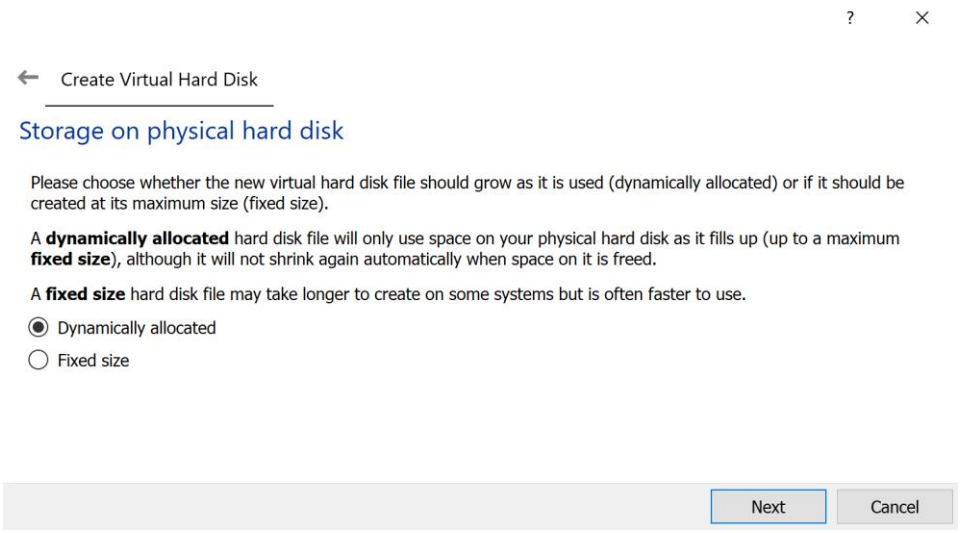
7 Set the memory size to be 2048 MB

8



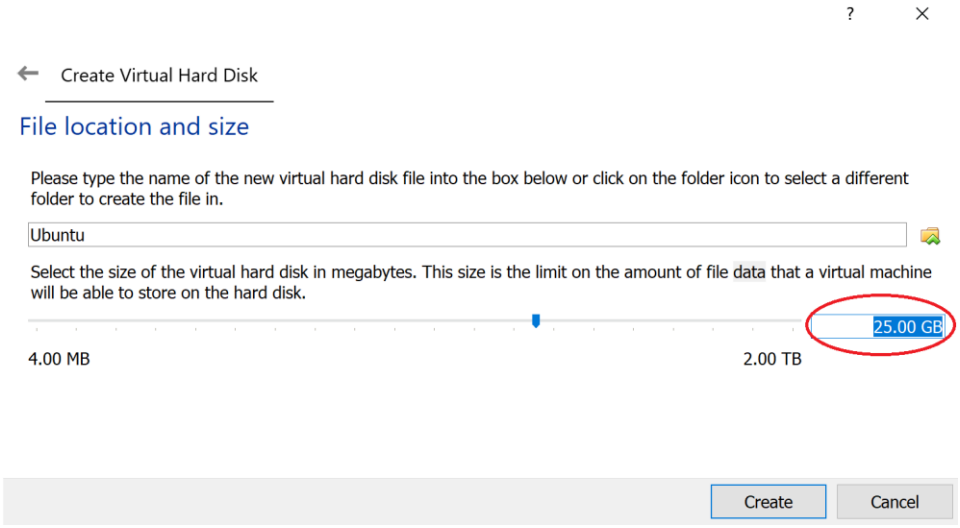
8 Select "Create a virtual hard disk now"

9



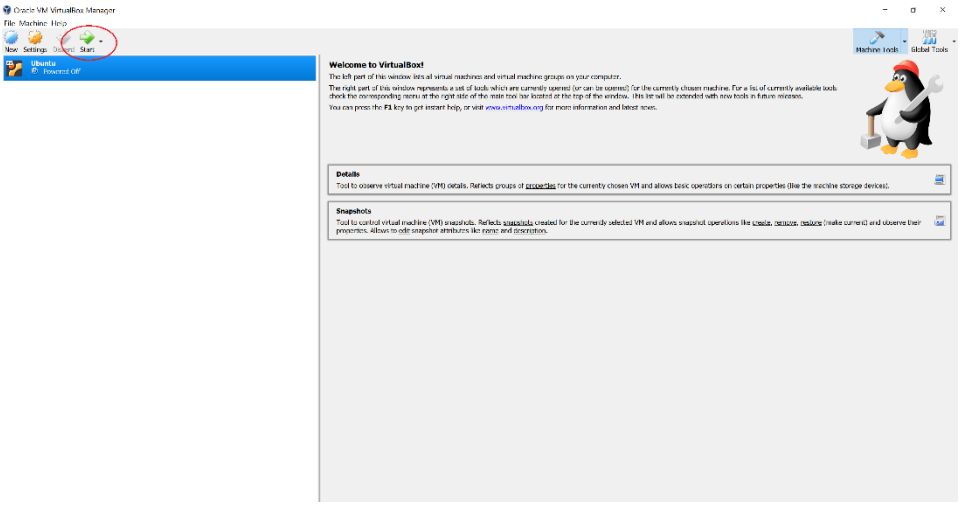
9 Select "Dynamically allocated"

10



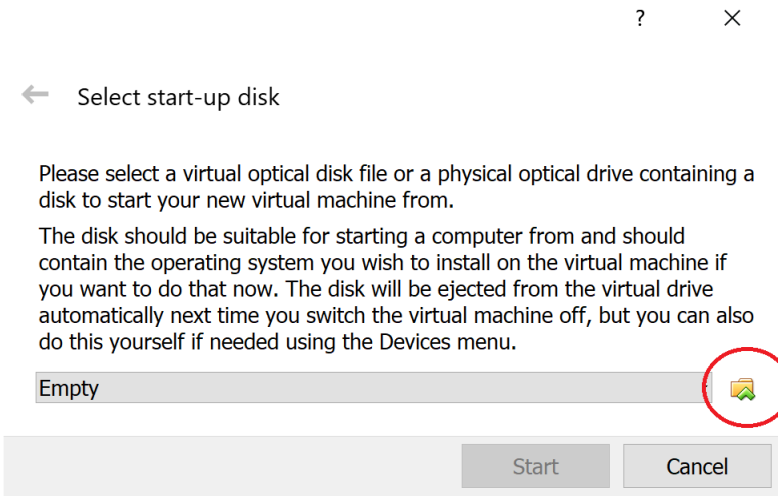
10 Please ensure that you are allocating at least 25 GB of hard disk space

11



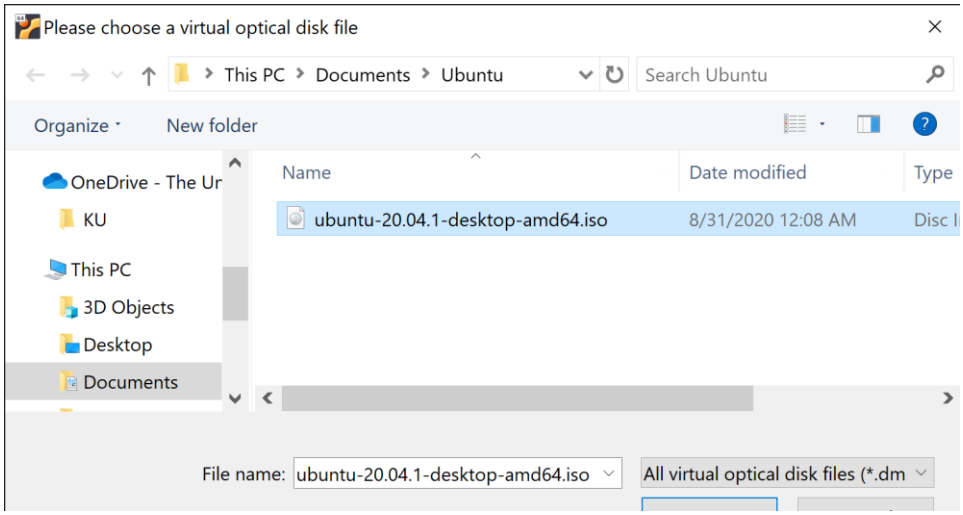
11 Once created, "start" the created virtual machine

12



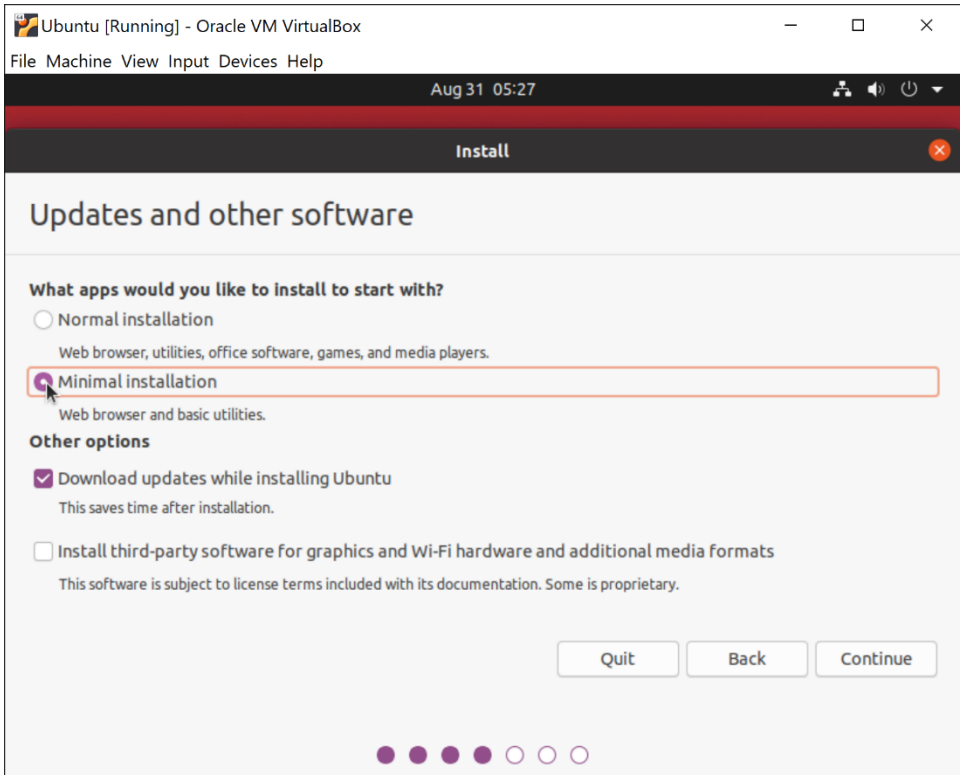
12 The newly created machine is asking for a disk. Select the "browse" button

13



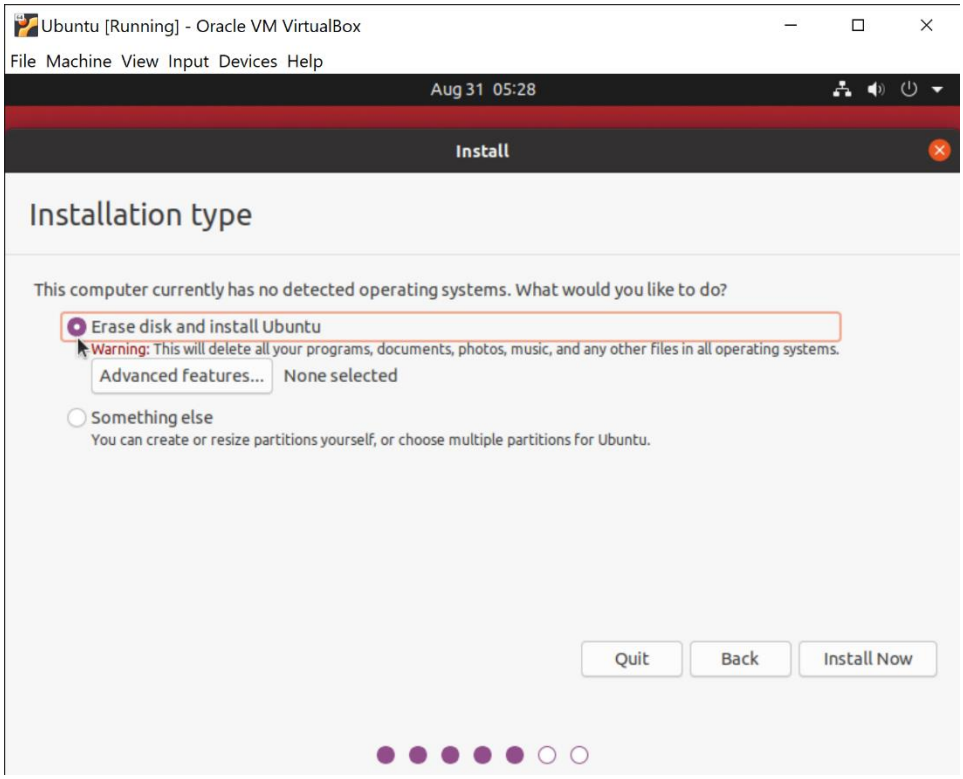
13 Select the downloaded Ubuntu 20.04 LTS image

14



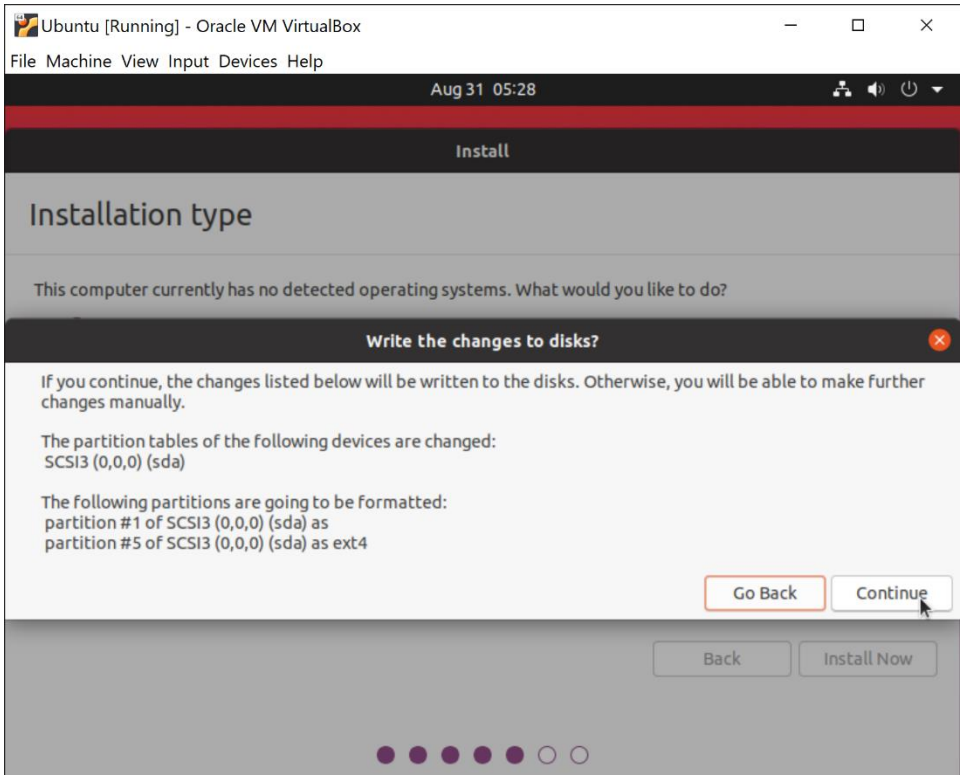
14 Start "installing" Ubuntu with "Minimal Installation"

15



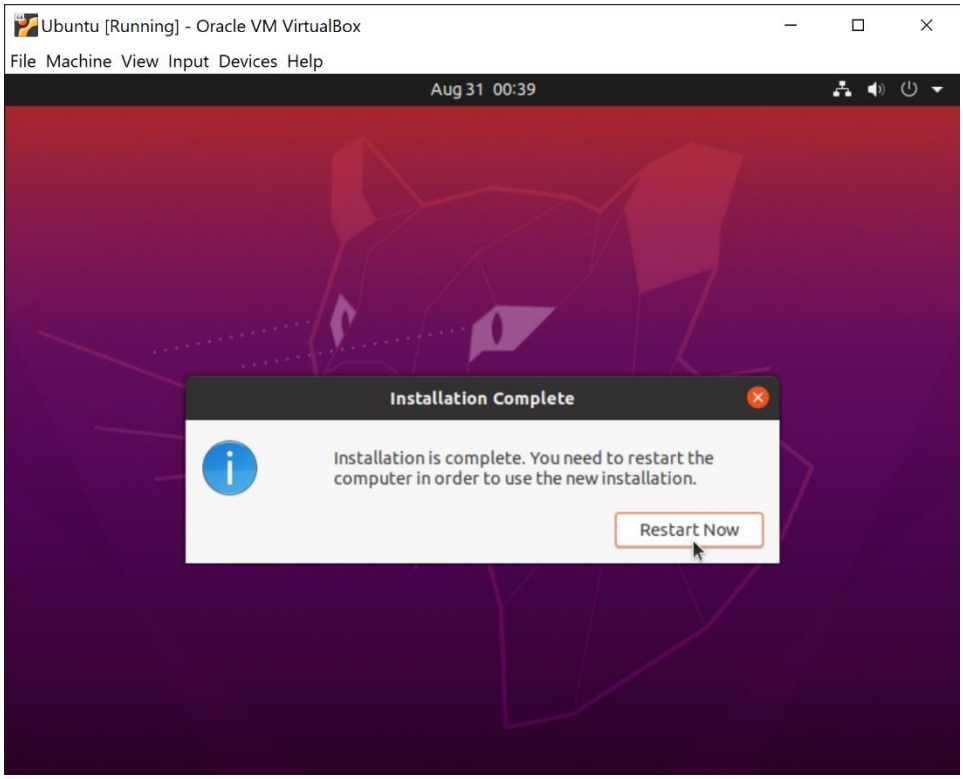
15 Select "Erase disk..." - This will essentially erase the virtual hard disk of the virtual machine that we have created

16



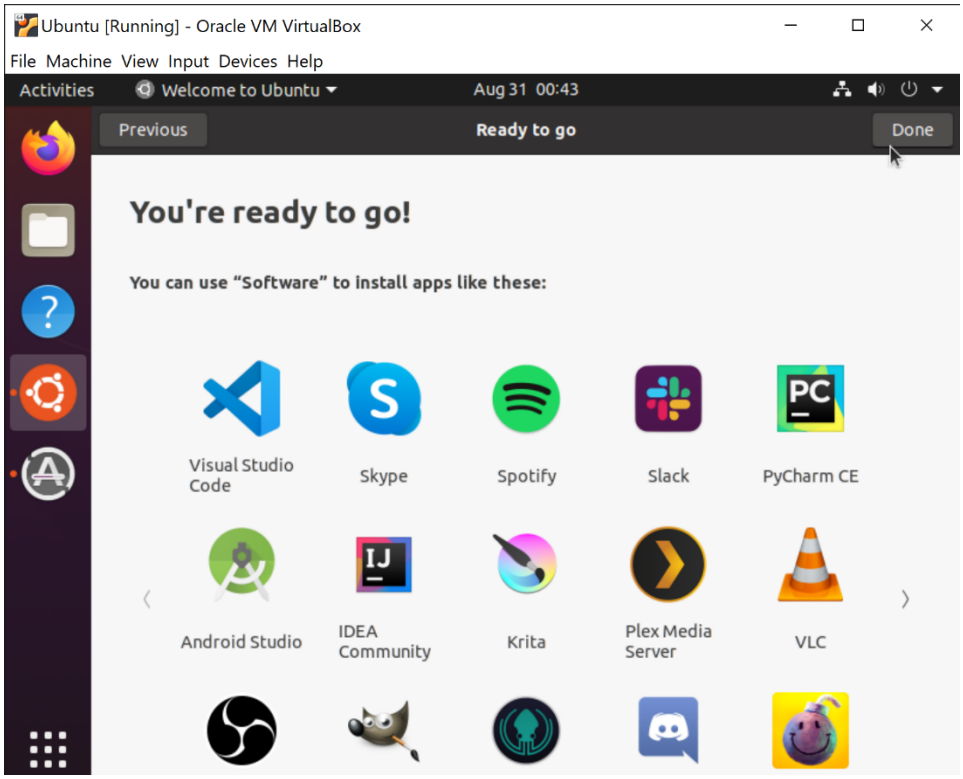
16 Click continue

17



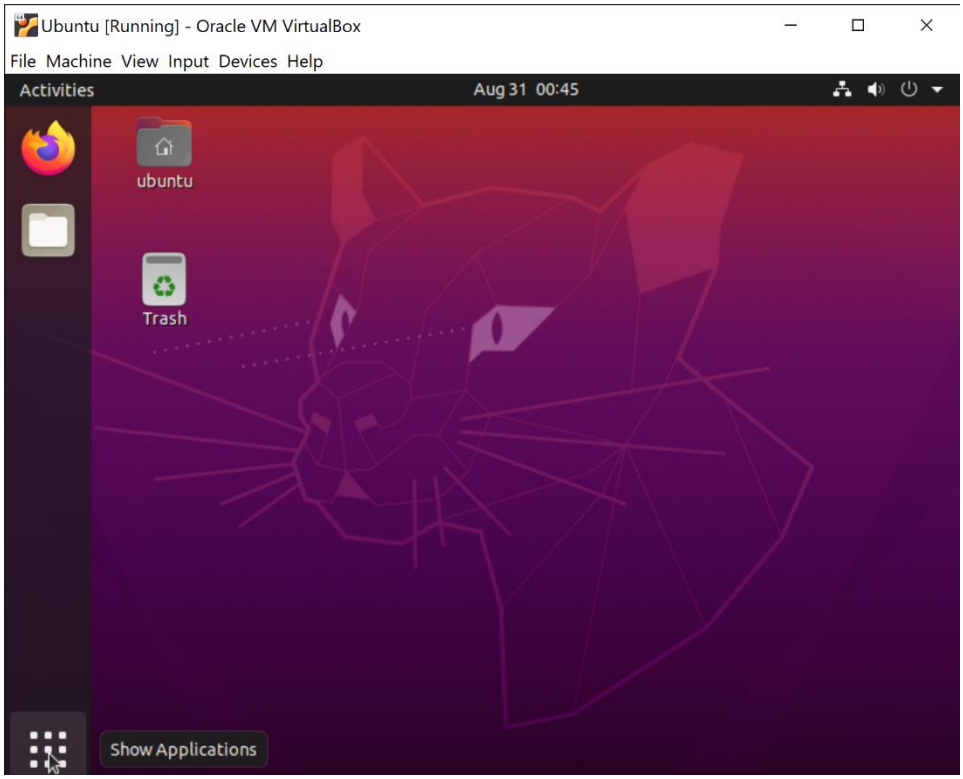
17 Restart now to complete installation

18



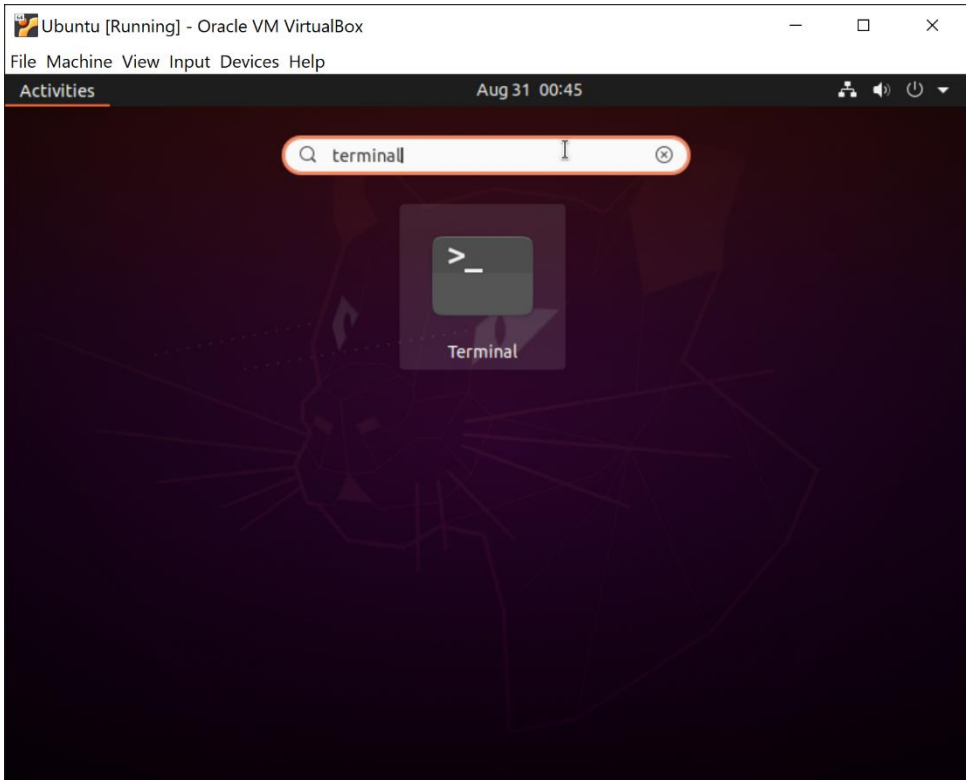
18 Please do not install any third party applications since we want to keep our OS as lightweight as possible

19



19 Click the "Show Applications" button symbolized as a dotted grid

20



20 Search for the terminal and open it

21 From the terminal, execute the following commands to install "'gcc" and "qemu"

i. sudo apt-get install gcc
ii. sudo apt-get install qemu

Now you can use this Virtual Linux machine on your personal computer to perform all the labs.

However, even if your lab solutions are working on your own machine, you should make sure that your code is giving the right output on the cycle servers as well. You can use the "scp" command in the terminal to copy your source code and compiled program from your virtual machine to the cycle servers. Then you can use the "ssh" command in the terminal to log in to the cycle servers from within the virtual machine. Once you have established an SSH connection with your cycle server space, you can use the terminal to execute commands (like compiling your source code or running your compiled program or making changes to your source code using "vim" editor) on the cycle server.

a. <u>SCP:</u>
   i. <u>Copying from your VM to the cycle server:</u>

scp <file(s)_on_vm> <your_online_id@cycle1.eecs.ku.edu:/home/your_online_id/your_dir>

ii. Copying from the cycle server to your VM:

scp <your_online_id@cycle1.eecs.ku.edu:/home/your_online_id/file(s)> <directory_on_vm>

b. SSH:

ssh -Y <your_online_id@cycle1.eecs.ku.edu>

2. Using PuTTY:

Alternatively, if you do not wish to install a virtual machine and prefer working remotely on the cycle servers then you can use the PuTTY software as an SSH client.

Download the software from the following page:
https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html

Install the software and open it.

In the hostname, write “cycle1.eecs.ku.edu”. Port should be default 22. Connection type should be SSH. Then click open. You should receive a terminal asking for your KU online id and password. Once you log into the cycle server, you can write code with “vim”, compile code with “gcc” and run your code.