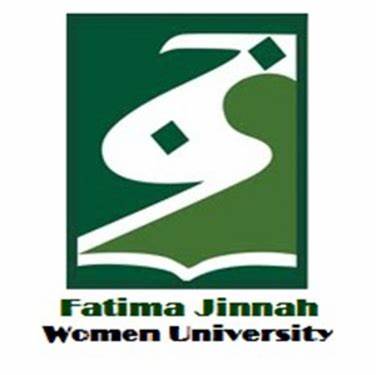
**CLOUD COMPUTING**

****

**SUBMITTED TO**  
SIR WAQAS SALEEM

**SUBMITTED BY**  
HAMNA MAHMOOD  
2023-BSE-025

BSE V-A

**Lab 5**

**Lab Title**

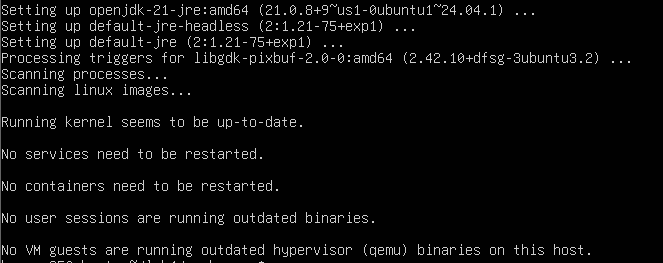
**Java, apt vs apt-get, snap, GUI, Vim on Ubuntu Server**

**Task 1 - Discover missing command & install Java using apt suggestion**

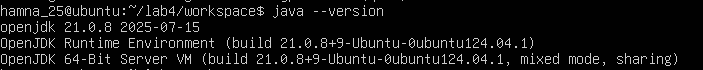
task1\_java\_suggestion.png



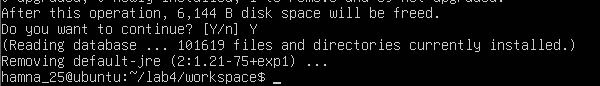
task1\_java\_install.png



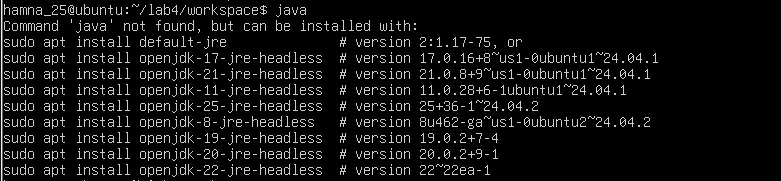
task1\_java\_version.png



task1\_java\_remove.png

****

task1\_java\_not\_found.png

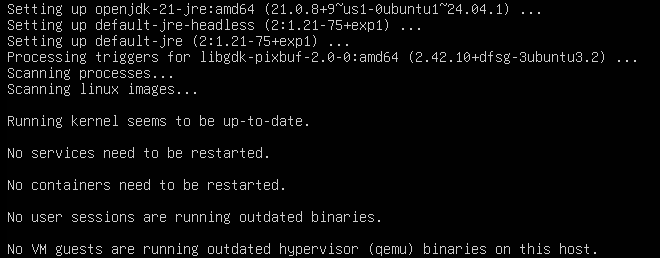
****

task1\_hash\_clear.png

****

**Task 2 - Install & remove Java using apt-get (explicitly)**

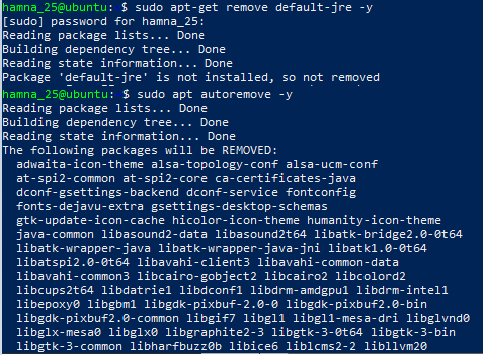
task2\_aptget\_install.png

****

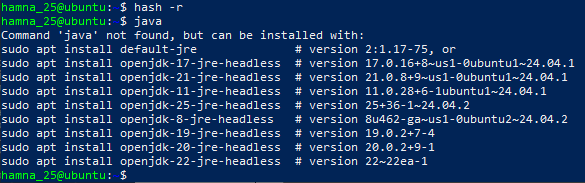
task2\_java\_version\_after\_aptget.png



task2\_aptget\_remove.png

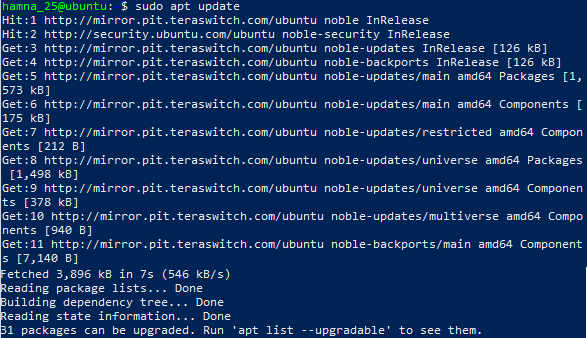


task2\_hash\_after\_remove.png

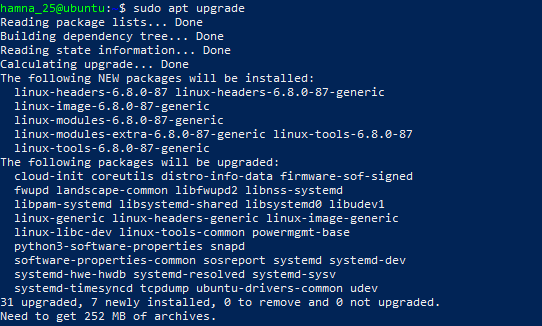


**Task 3 - apt update vs apt upgrade - run & explain**

task3\_apt\_update.png



task3\_apt\_upgrade.png



task3\_explanation.png



**Task 4 - Install Visual Studio Code via snap on CLI and verify (DO NOT remove Code)**

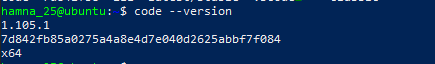
task4\_snap\_install.png



task4\_snap\_list.png



task4\_code\_version\_or\_info.png



task4\_snap\_bin\_location.png

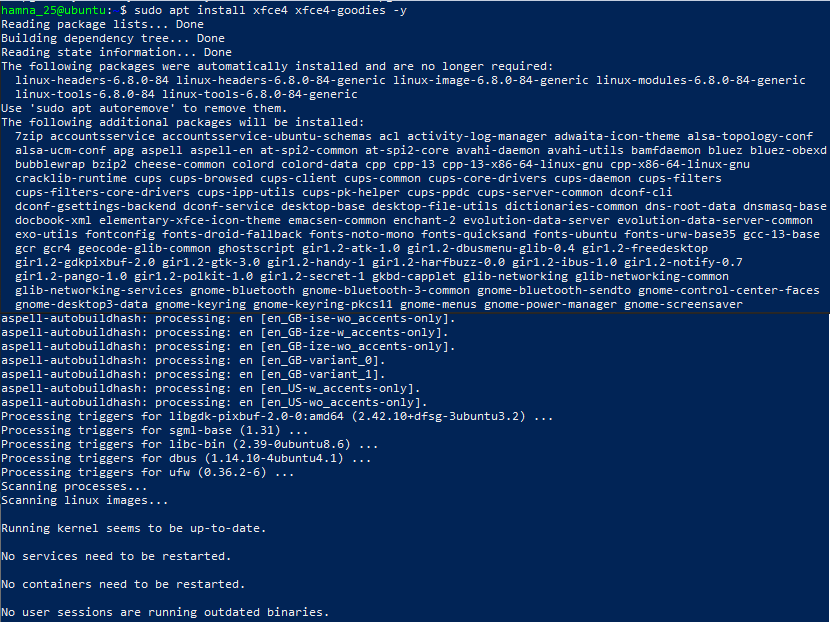


**Task 5 - Install XFCE GUI + XRDP - minimal desktop and remote access (GUI) and launch VS Code**

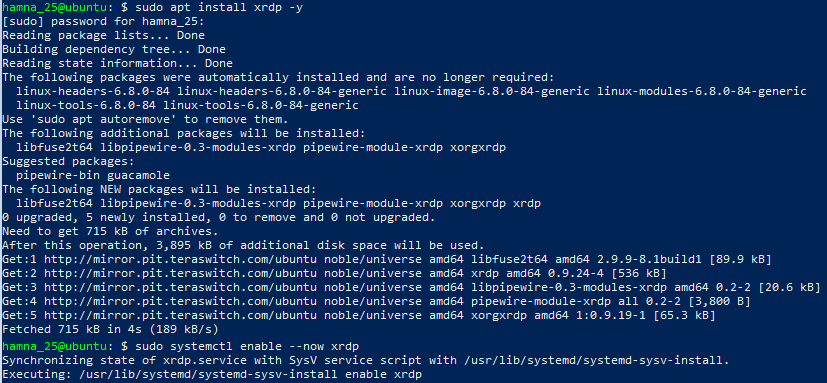
task5\_update.png



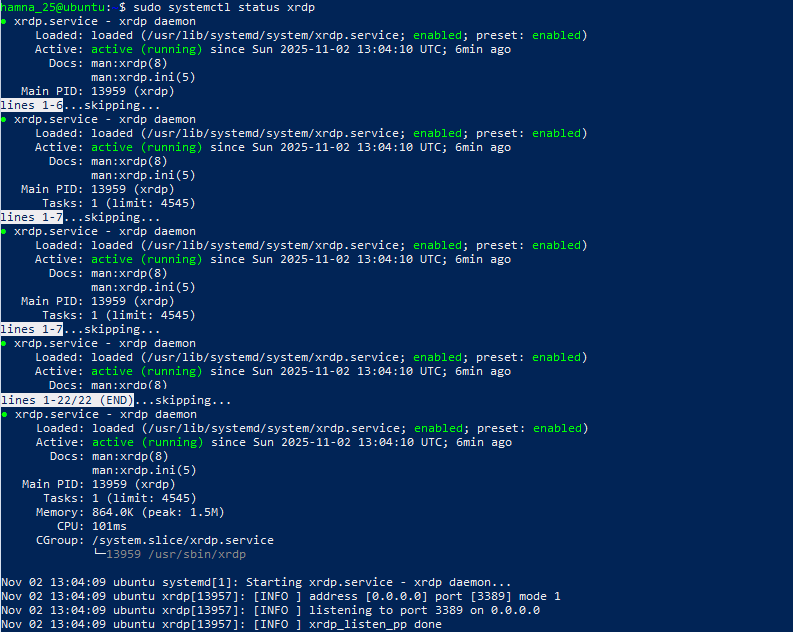
task5\_xfce\_install.png



task5\_xrdp\_enable.png



task5\_xrdp\_status.png



task5\_xsession.png



task5\_rdp\_connect.png

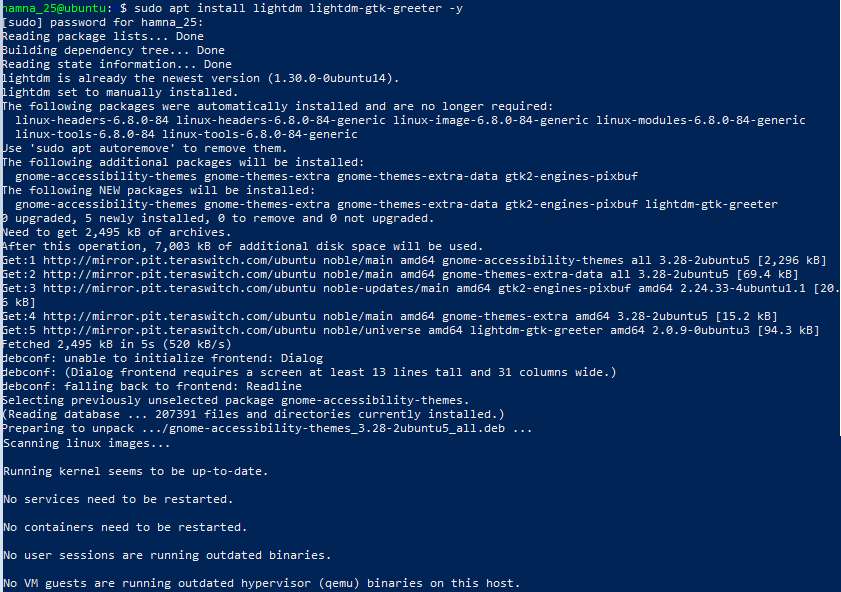


task5\_vscode\_launch.png

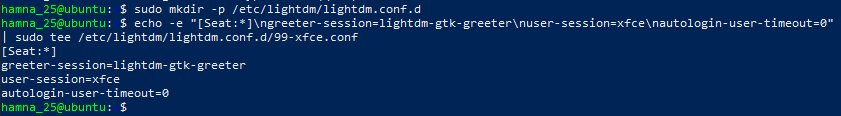


**Task 6 - Install lightdm-gtk-greeter and GUI verification - start GUI, open VS Code, take snapshot, then end (GUI)**

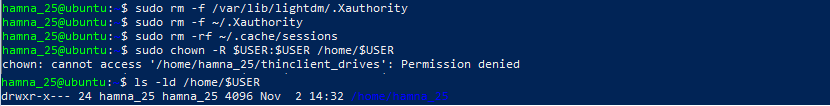
task6\_lightdm\_install.png



task6\_lightdm\_config.png



task6\_lightdm\_cleanup.png



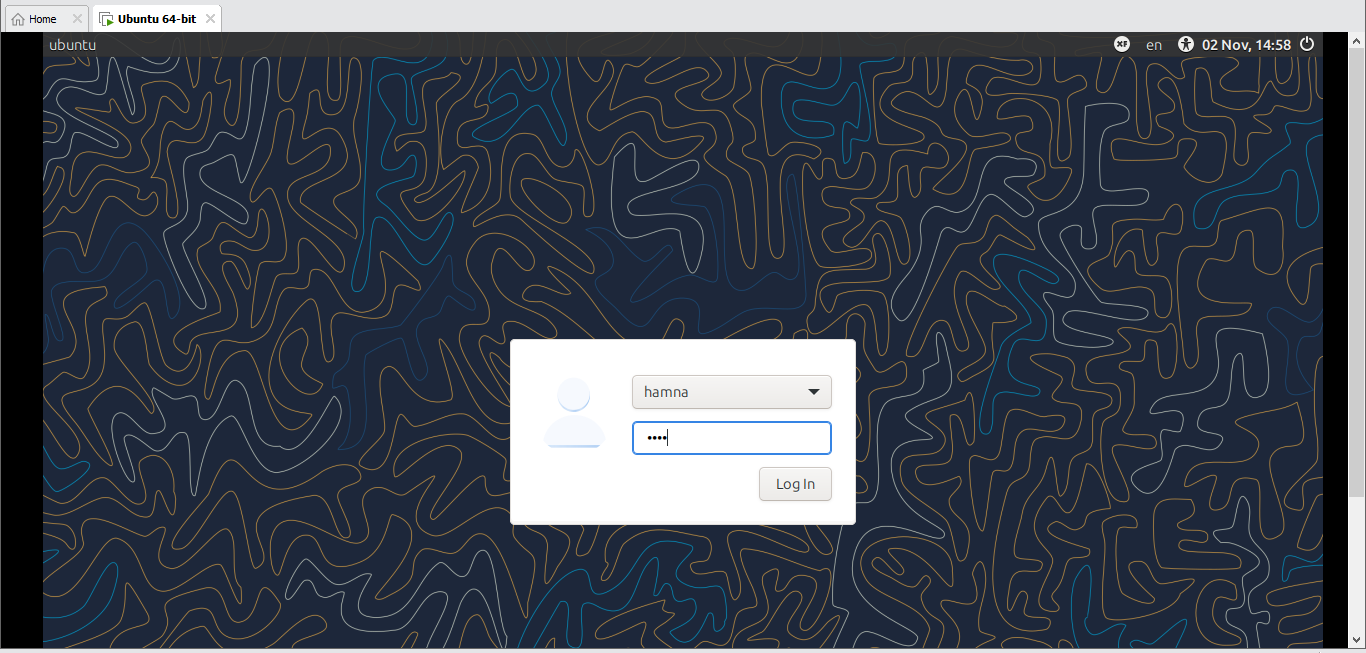
task6\_lightdm\_restart.png



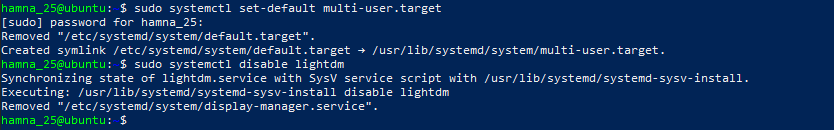
task6\_gui\_enable\_boot.png



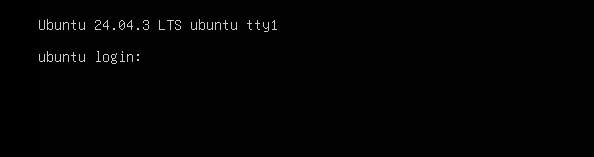
task6\_after\_reboot\_gui.png



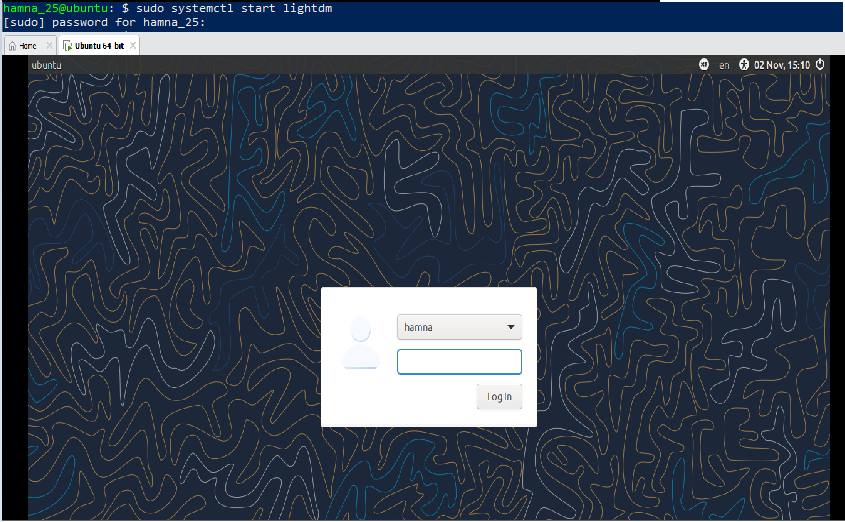
task6\_gui\_disable\_boot.png



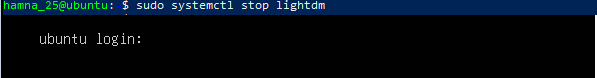
task6\_after\_reboot\_cli.png



task6\_gui\_start.png



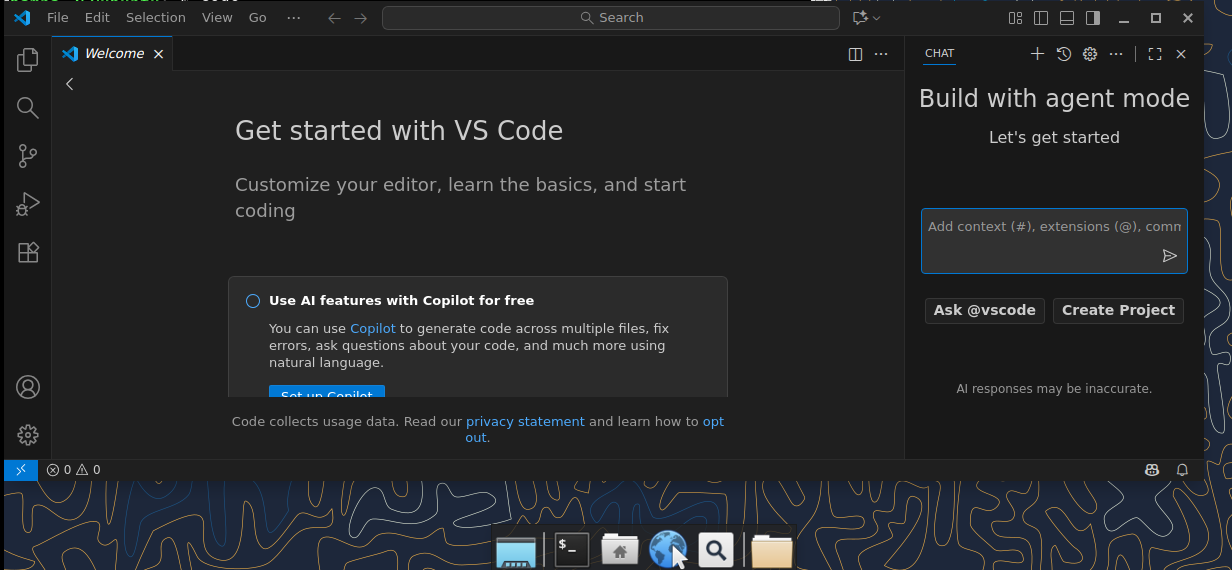
task6\_gui\_stop.png



task6\_gui\_start\_command.png

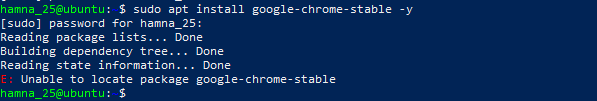


task6\_vscode\_launch.png

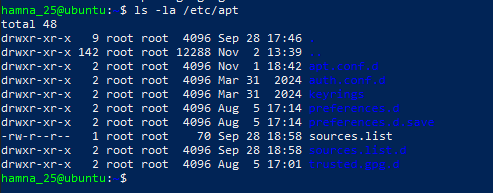


**Task 7 - Install Google Chrome by adding its apt source & key (Chrome)**

task7\_install\_chrome\_error.png



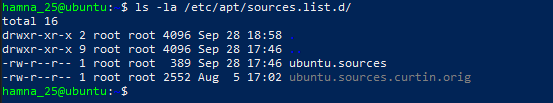
task7\_ls\_etc\_apt.png



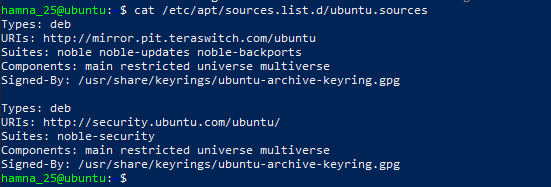
task7\_cat\_sources\_list.png



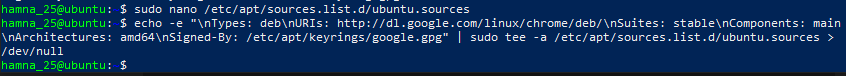
task7\_ls\_sources\_list\_d.png



task7\_cat\_ubuntu\_sources.png



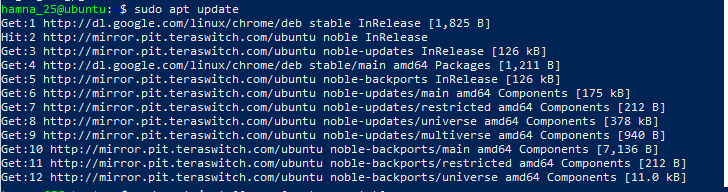
task7\_edit\_ubuntu\_sources.png



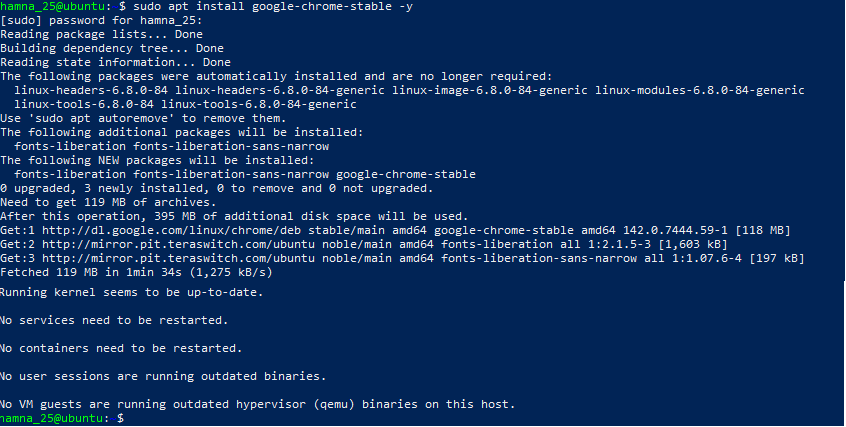
task7\_add\_key.png



task7\_apt\_update.png

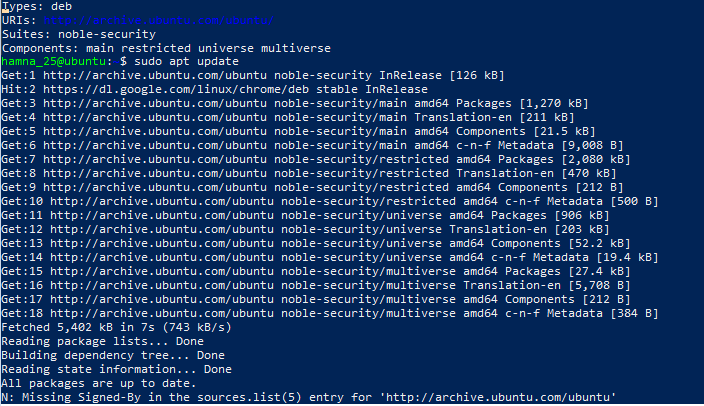


task7\_install\_chrome.png



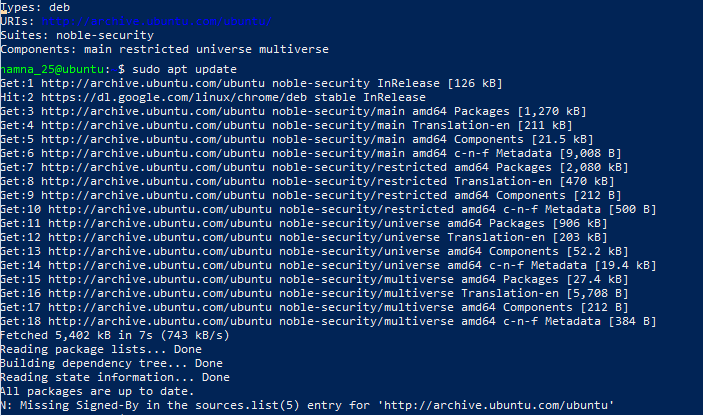
task7\_alternate\_remove.png

Here, in the file, links other than the official ubuntu link of http://archive.ubuntu.com/ubuntu/ was deleted.



task7\_alternate\_edit.png

Here, the link was edited from <http://security.ubuntu.com/ubuntu/> to <http://archive.ubuntu.com/ubuntu/>



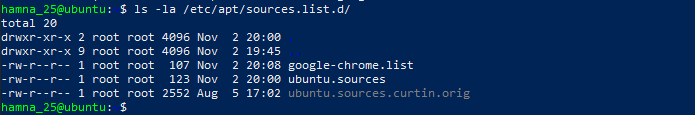
task7\_remove\_key.png



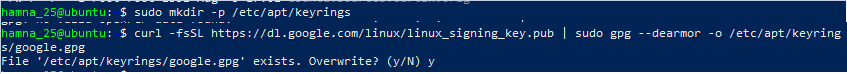
task7\_create\_google\_chrome\_list.png



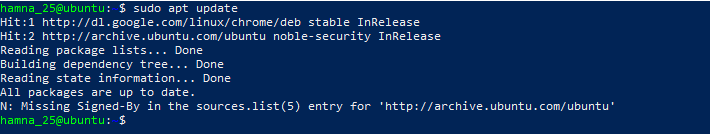
task7\_list\_sources\_after\_create.png



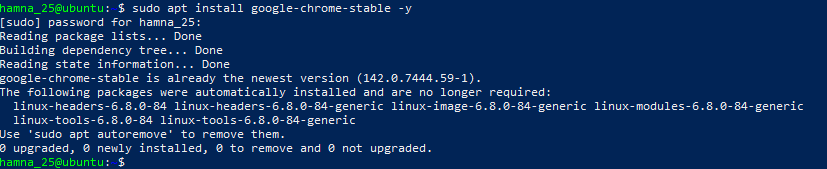
task7\_add\_key\_alt.png



task7\_apt\_update\_alt.png

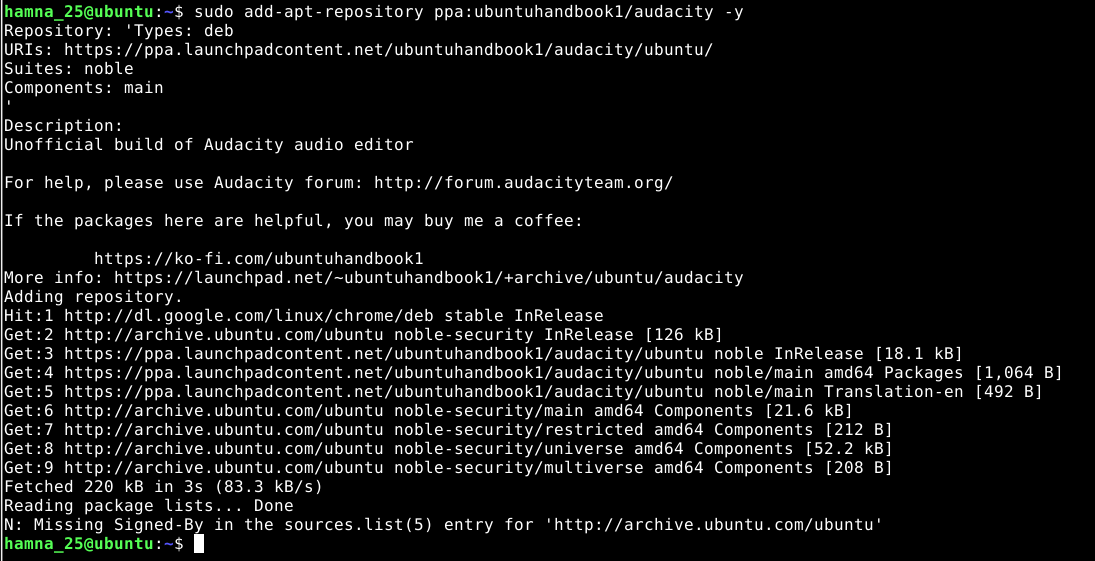


task7\_install\_chrome\_alt.png

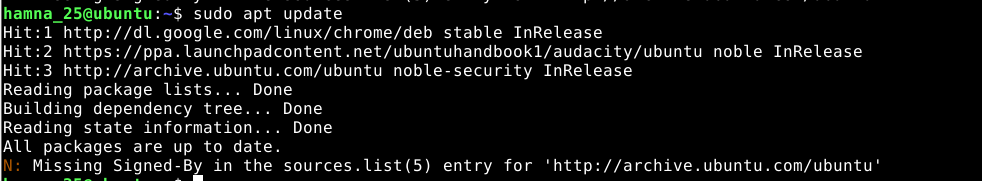


**Task 8 - Install applications via PPA (Audacity & OBS) and launch**

task8\_add\_ppa\_audacity.png (running within XFCE terminal)



task8\_apt\_update\_audacity.png

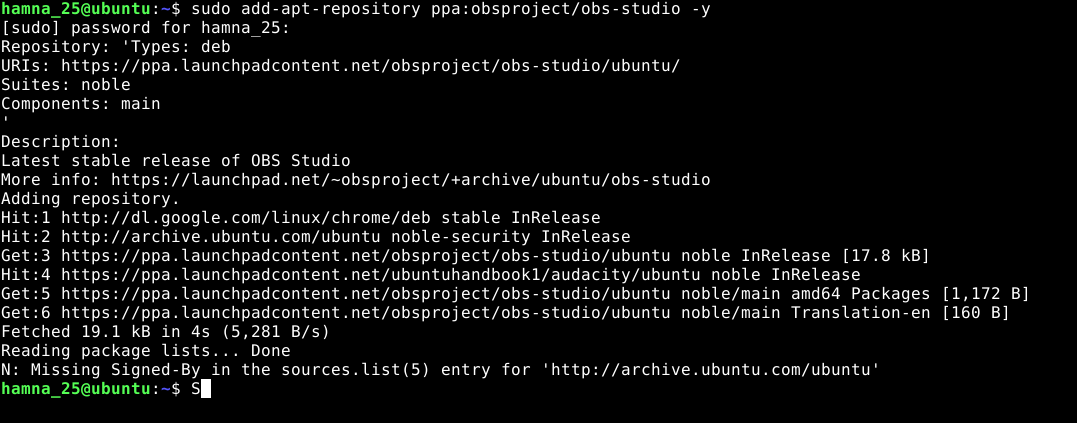
task8\_install\_audacity.png



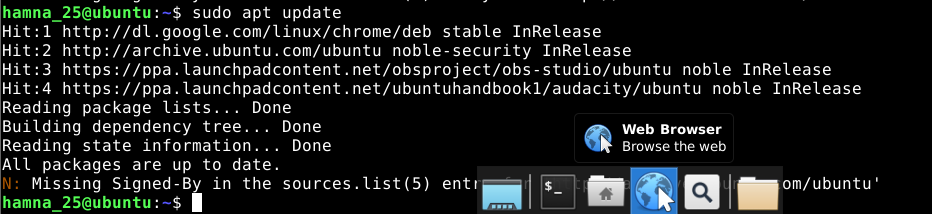
task8\_audacity\_launch.png (GUI launch screenshot if possible) or task8\_audacity\_version.png (CLI verification)



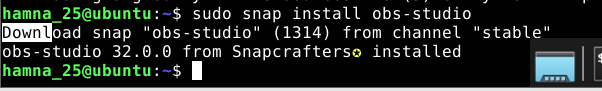
task8\_add\_ppa\_obs.png (output of add-apt-repository)



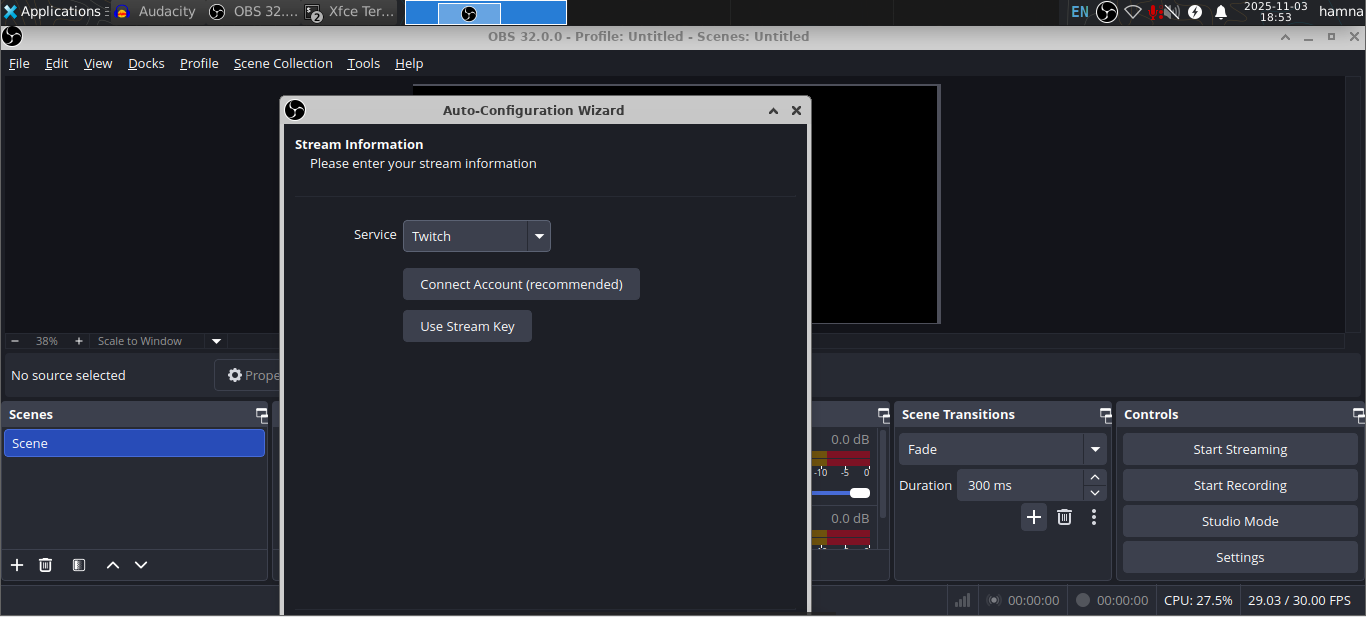
task8\_apt\_update\_obs.png (apt update after adding PPA)



task8\_install\_obs.png (apt install output)



task8\_obs\_launch.png (GUI launch screenshot if possible) or task8\_obs\_version.png (CLI verification)



**Task 9 - Create a Kubernetes sample YAML using vim**

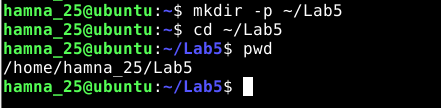
task9\_vim\_check.png



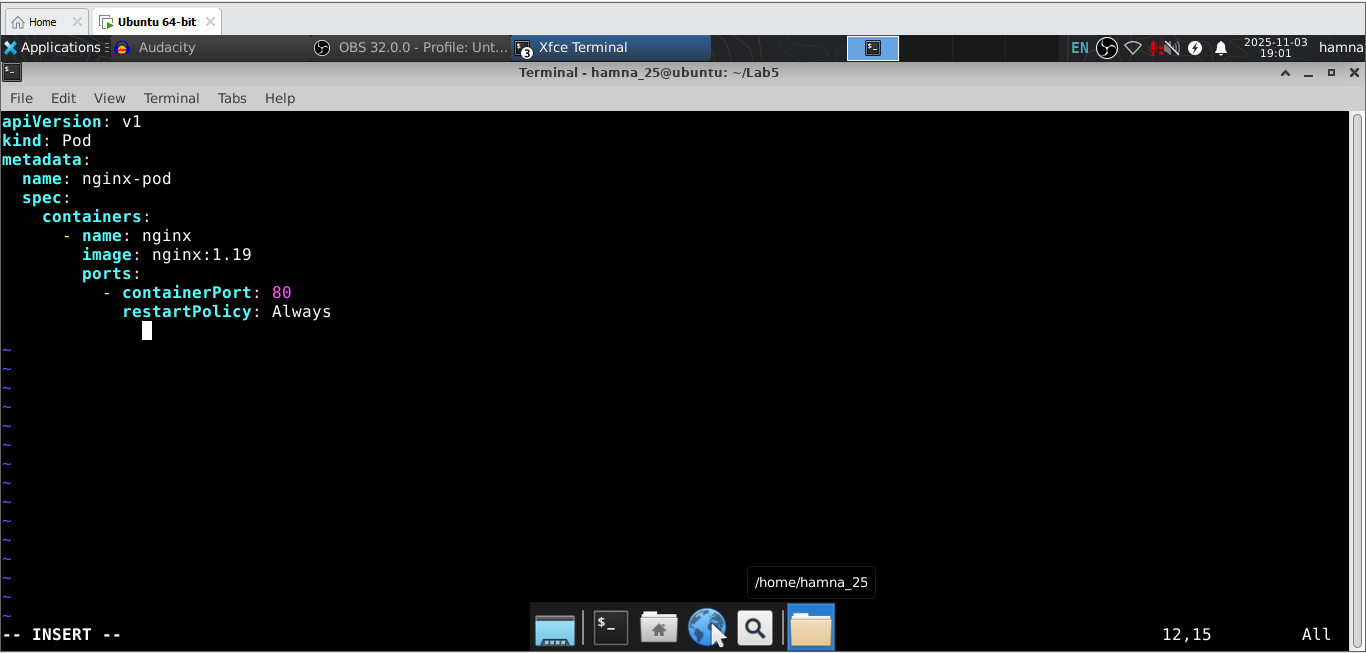
task9\_vim\_install.png (only if you installed it).

*Mine is already installed*

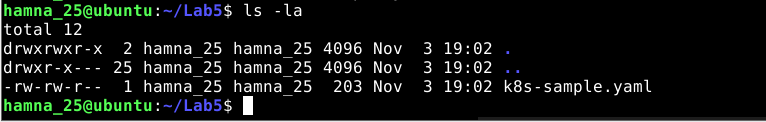
task9\_mkdir\_cd.png



task9\_vim\_edit.png



task9\_k8s\_saved.png

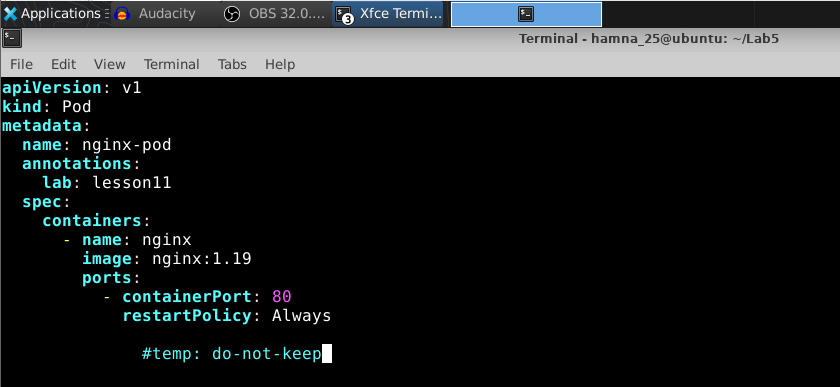


**Task 10 - Edit the Kubernetes YAML - add annotation, verify, then discard temporary change**

task10\_verify\_annotation.png



task10\_verify\_entering\_temp\_data.png

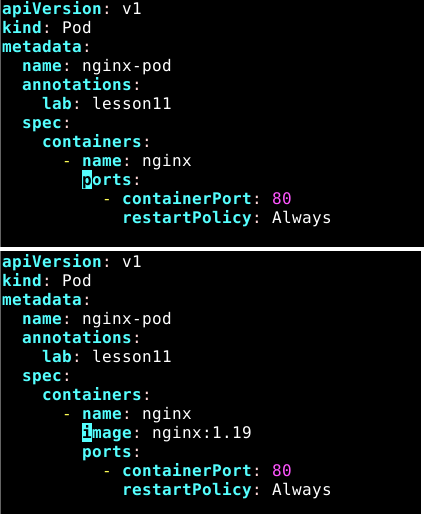


task10\_verify\_no\_temp\_comment.png



**Task 11 - Vim editing practice - delete, undo, numeric deletes, navigation**

task11\_dd\_delete\_and\_undo.png   
*Both images are shown together (before and after)*

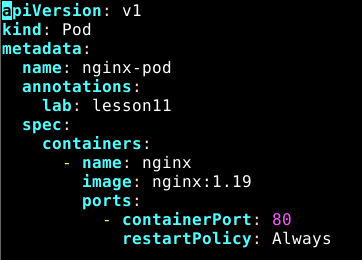


task11\_delete3\_and\_undo.png

*Both images are shown together (before and after)*



task11\_line1.png



task11\_navigation.png

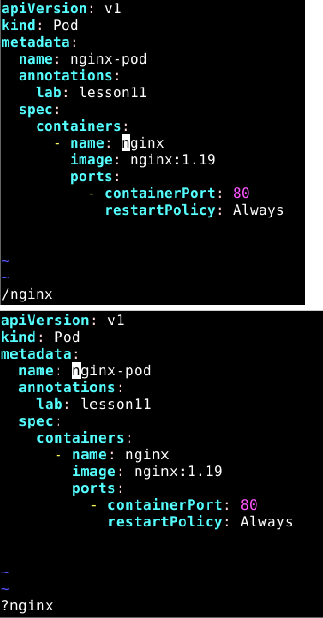


**Task 12 - Vim search, add matches, substitute, undo**

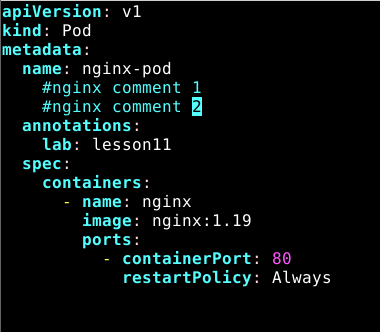
task12\_search\_nginx.png



task12\_n\_and\_N\_navigation.png



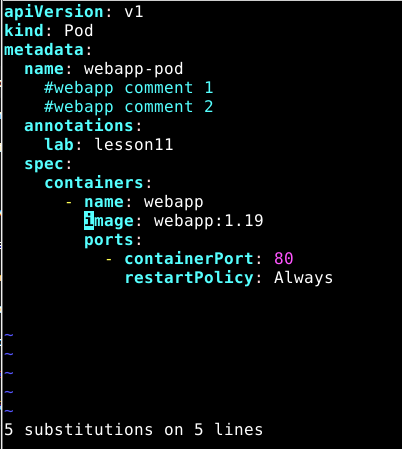
task12\_added\_occurrences.png



task12\_cycle\_matches.png



task12\_substitute\_result.png



task12\_undo\_and\_quit.png

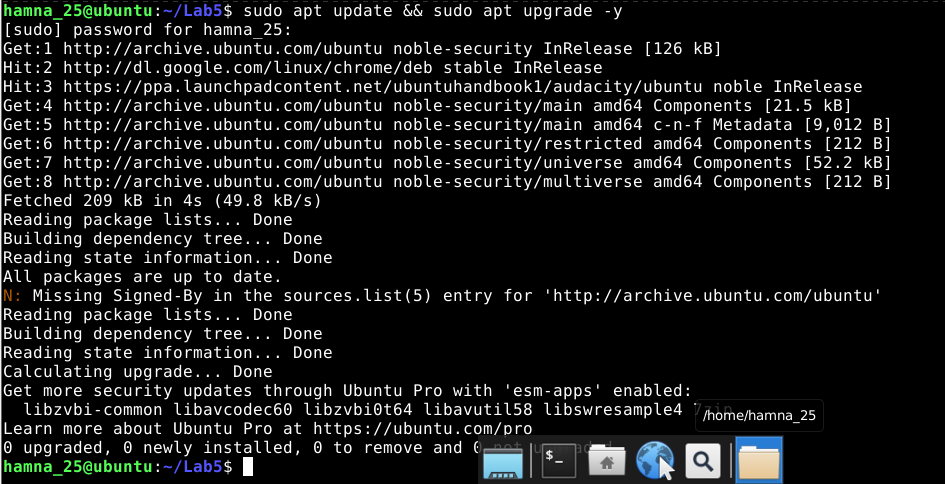


**Exam Evaluation Question**

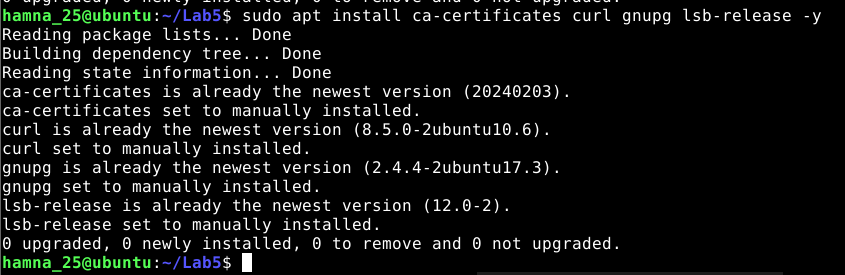
* **Install Docker Desktop on your VMWare Workstation Ubuntu Server. No commands or solutions are provided in this lab — treat this as an evaluation/exam question.**

**SOLUTION**

First, updating system,



Installing prerequisites,



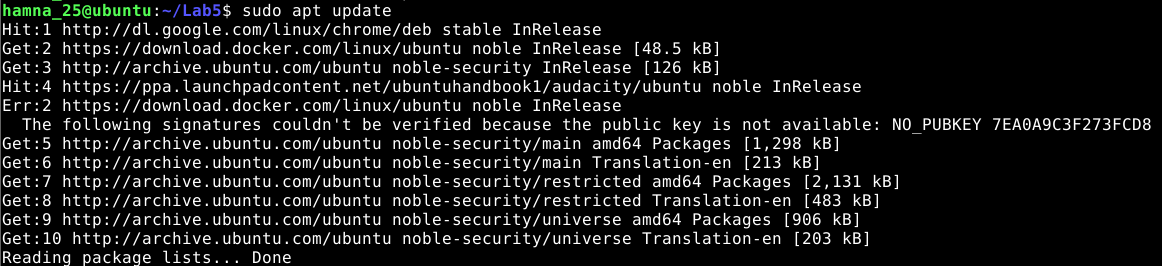
Adding Docker’s official GPG key,



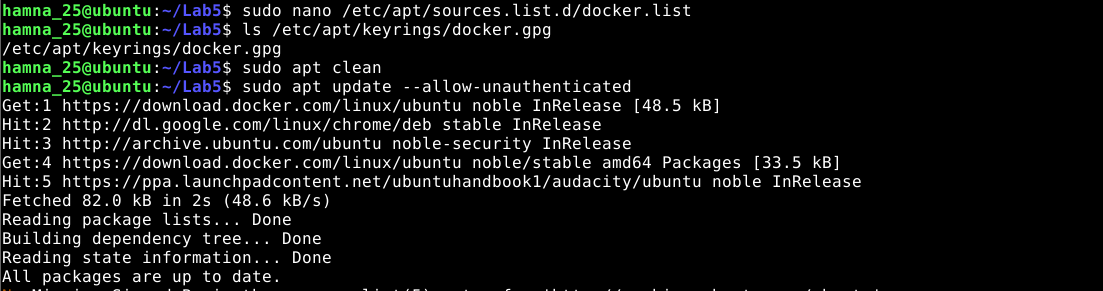
Adding the Docker repository,

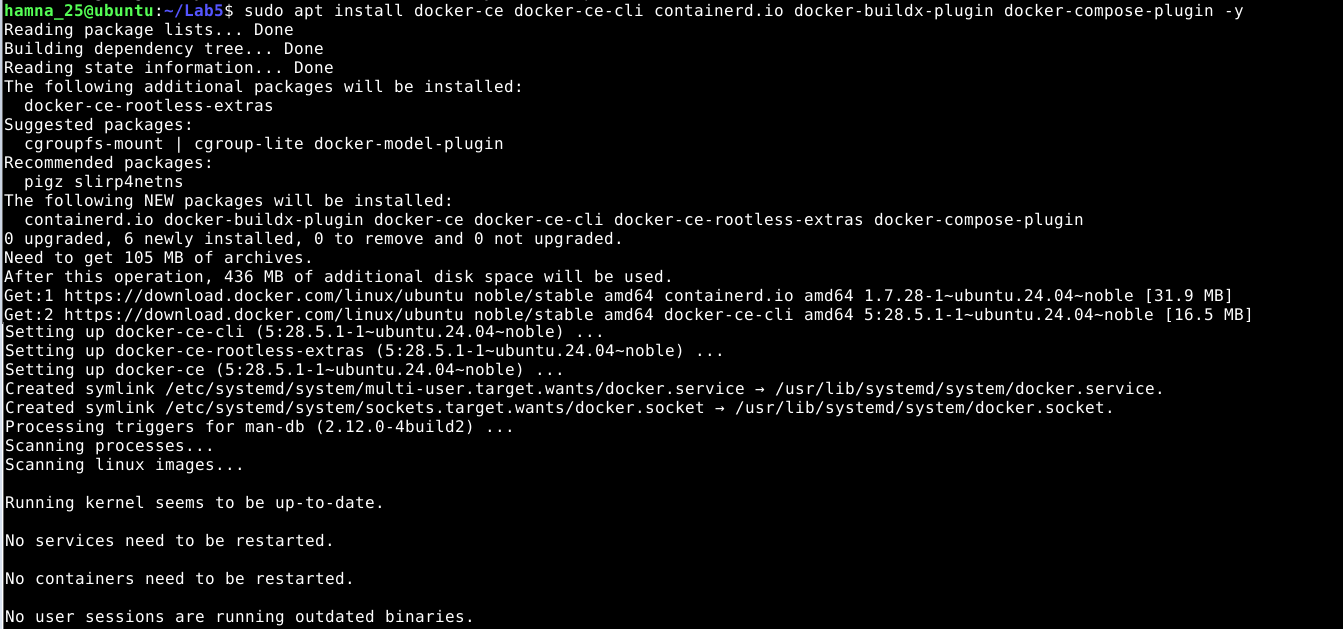


Updating apt again,

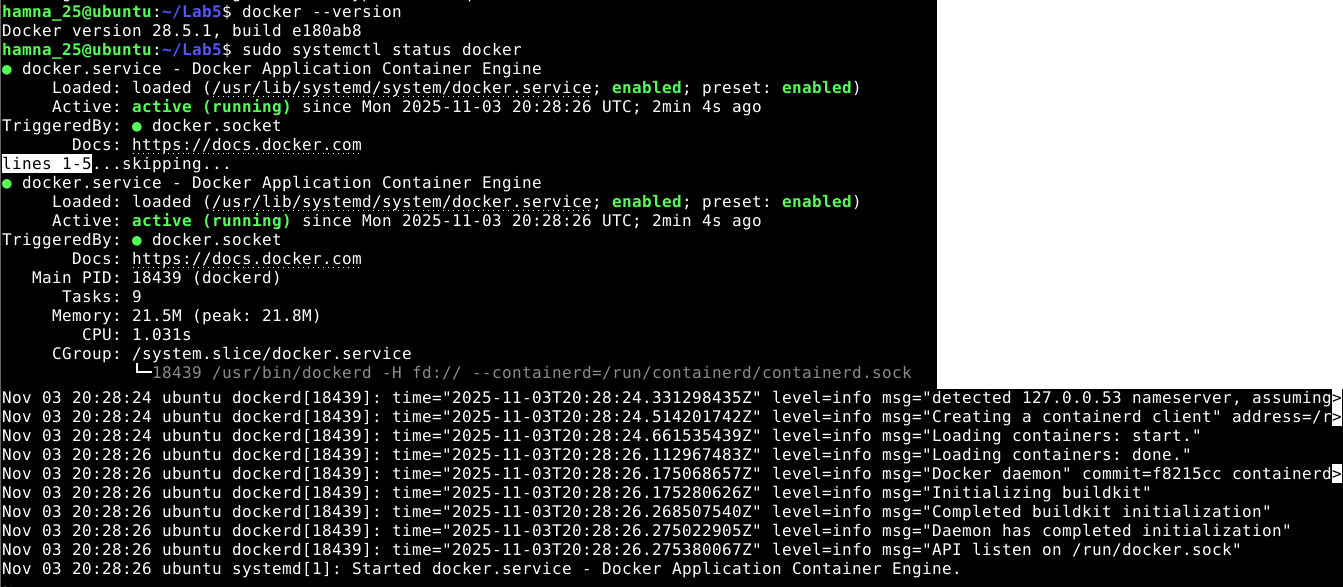


Installing Docker Desktop,





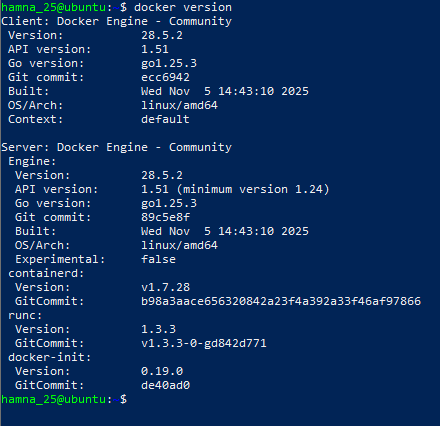
Verify if installed or not,



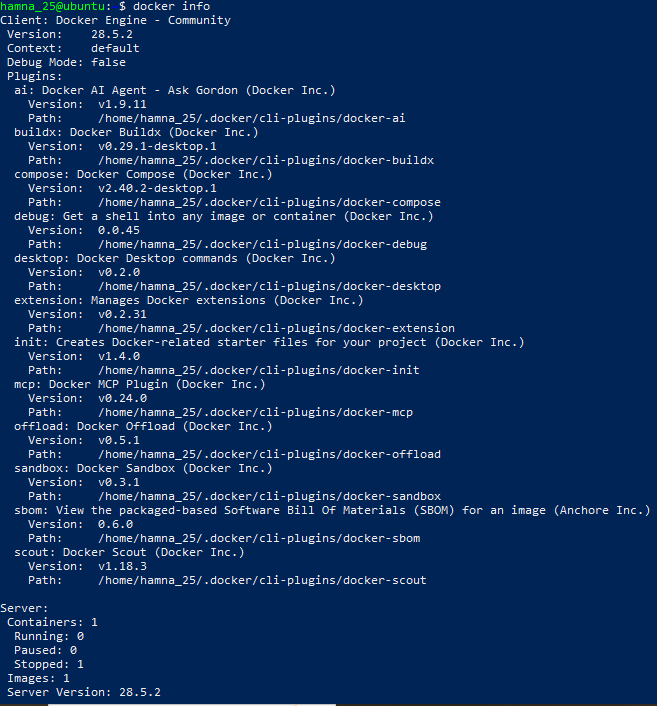
* **Verify Docker Desktop is installed by launching the Docker Desktop application and confirming it runs.**

Verified that Docker Engine was running with:

docker version

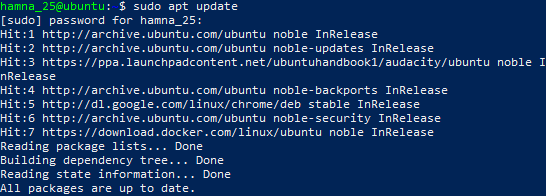
****

docker info

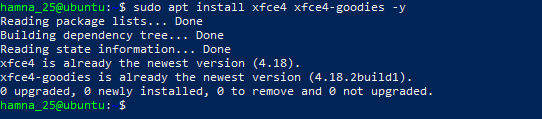
****

Installing GUI (XFCE) Environment

Run this in your Ubuntu VM terminal: sudo apt update

****

sudo apt install xfce4 xfce4-goodies -y

****

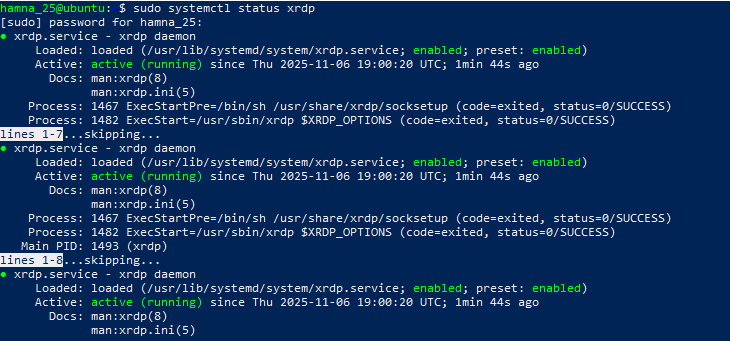
This installs the XFCE desktop and some useful components (lightweight, works well in VMware).  
It may take a few minutes.

Verify or (Re)Enable XRDP for Remote GUI Access

Now let’s ensure you can actually open and *see* the XFCE desktop GUI through VMware (or RDP if needed). Run this command next: sudo systemctl enable --now xrdp

****

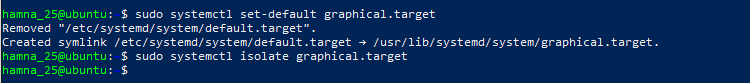
Then check XRDP status: sudo systemctl status xrdp



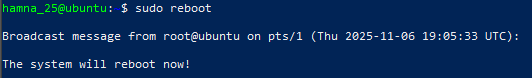
Switch to GUI mode

Run this command in your terminal: sudo systemctl set-default graphical.target

sudo systemctl isolate graphical.target



Then, wait a few seconds — your screen should change to a **login window** (the XFCE GUI login).  
If it doesn’t, you can reboot manually: sudo reboot

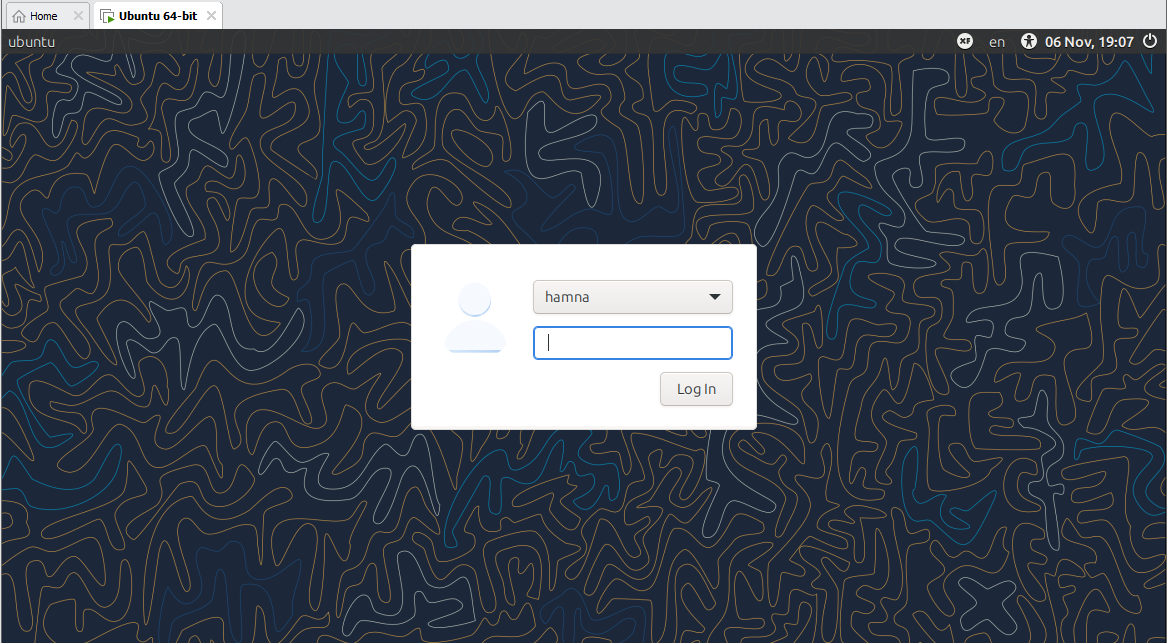


**Started the GUI session manually when in CLI mode:**

sudo systemctl start lightdm

After this:

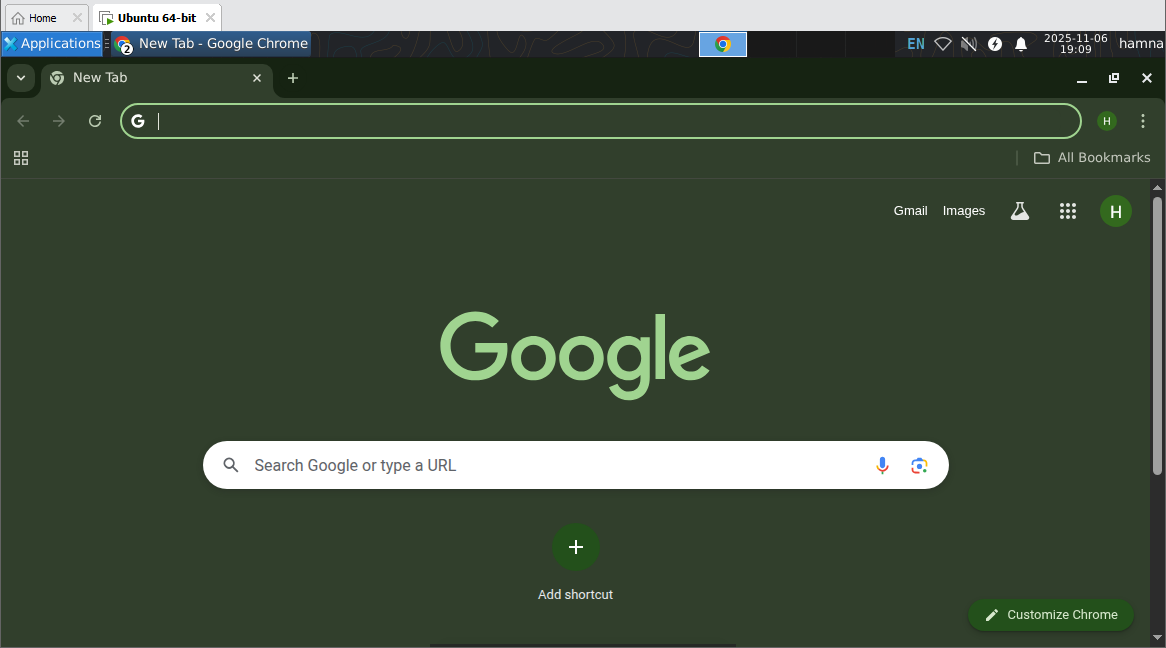
In VMware, your VM will show a **login screen** (username/password prompt).



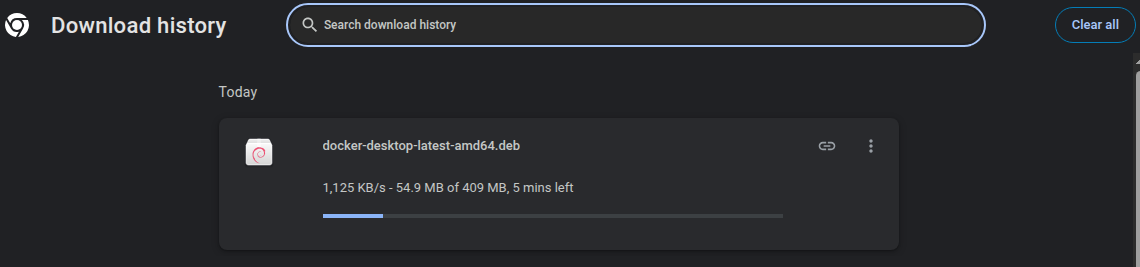
First login.

**Download the Docker Desktop .deb package**

Now that you’re inside XFCE: Click the **blue globe icon** (that’s your web browser).



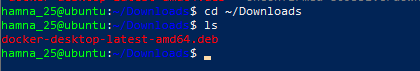
In the browser, go to given link and this automatically download the file:  
[**https://desktop.docker.com/linux/main/amd64/docker-desktop-amd64.deb**](https://desktop.docker.com/linux/main/amd64/docker-desktop-amd64.deb)



**Install Docker Desktop**

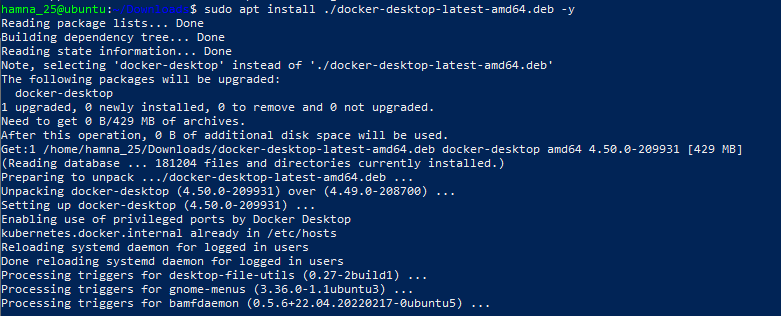
Run the following commands one by one **in your terminal** (you should still be in your home directory ~):

cd ~/Downloads

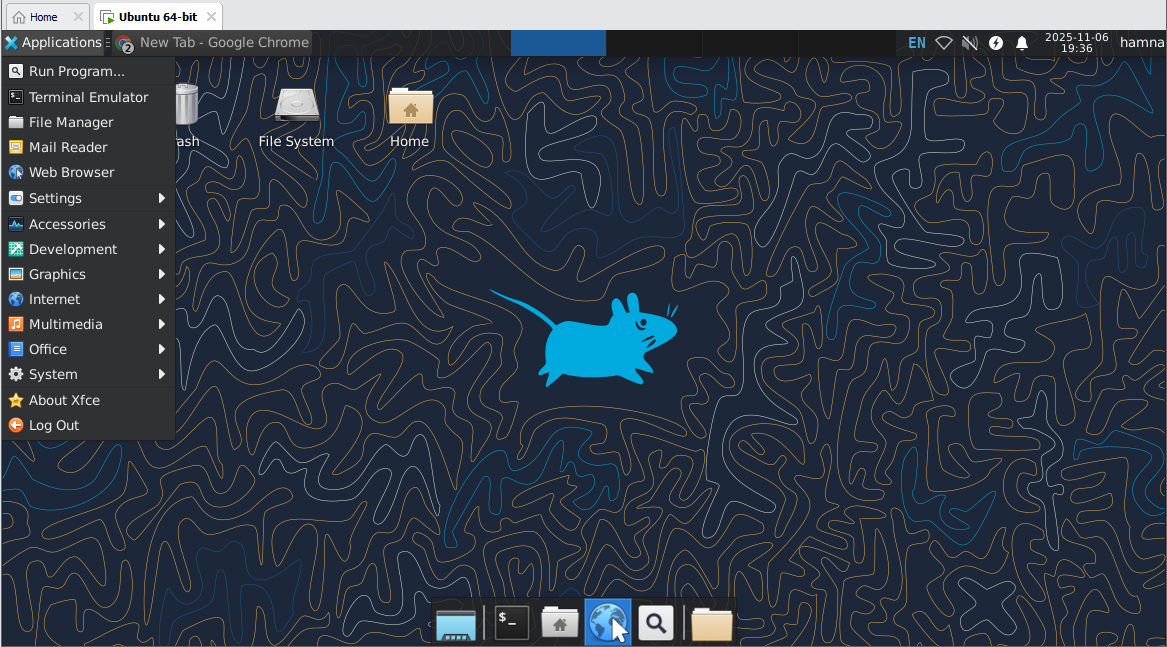


Then install it using:

sudo apt install ./docker-desktop-amd64.deb -y

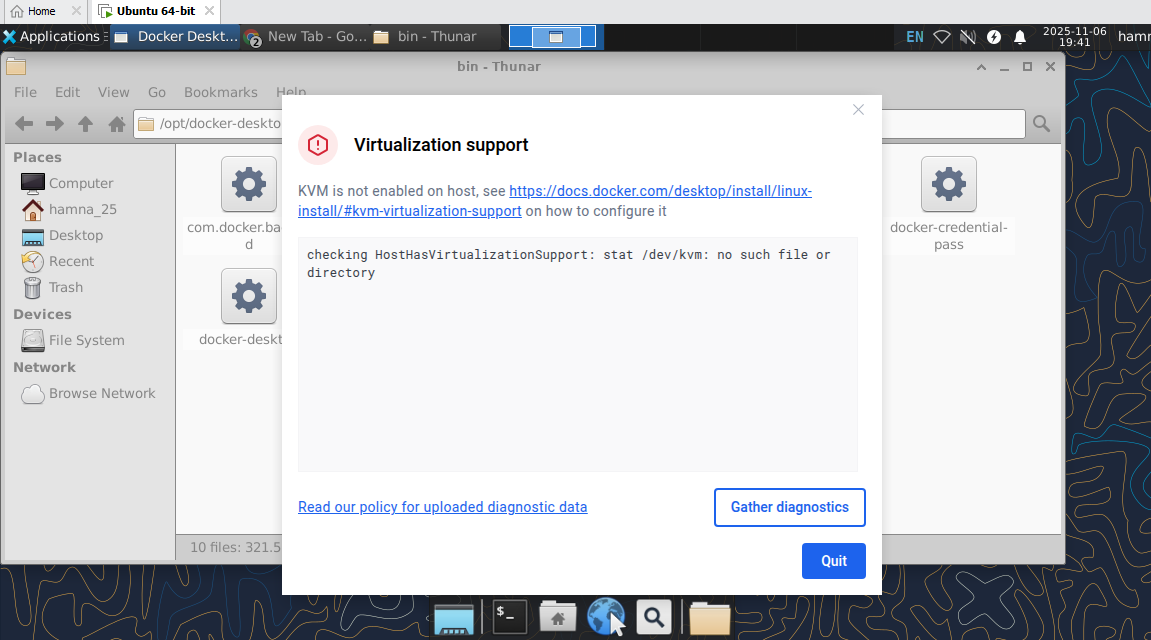


In your **Ubuntu GUI** (XFCE desktop), click the **Applications menu** (usually at the top-left or bottom-left corner).

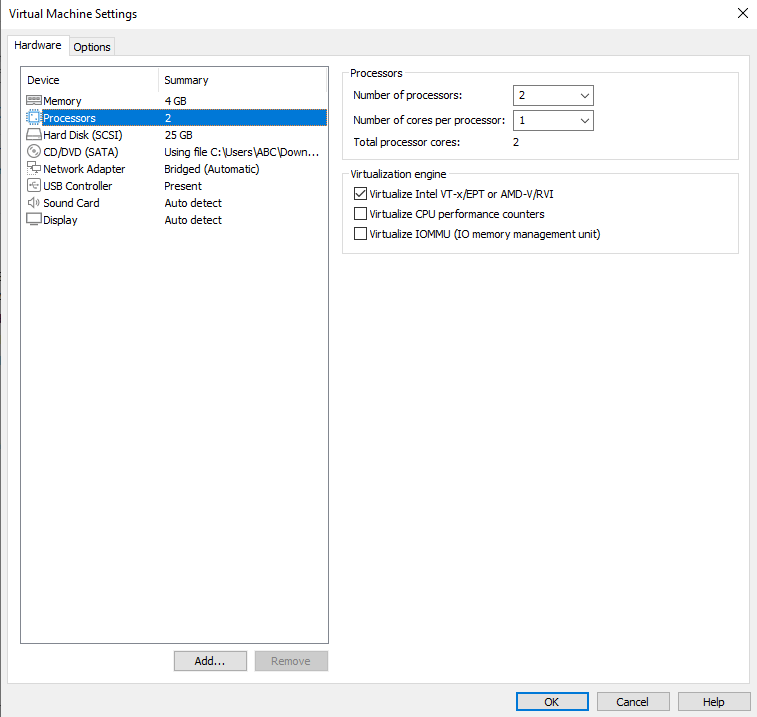


Type **Docker Desktop** in the search bar.

Click on **Docker Desktop** to launch it.

 Virtualization Error.

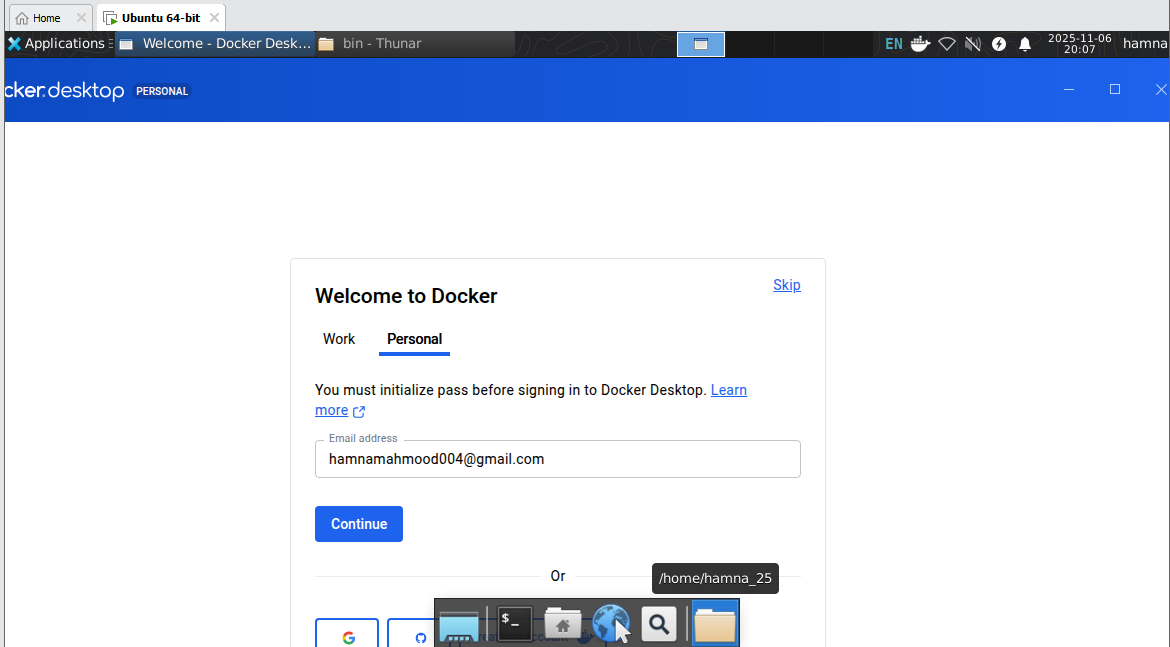
**Solution:**





Then wait a bit while Docker Desktop starts up (it might take 30–60 seconds).

Once you see the Docker whale 🐳 icon or the main Docker Desktop window, that means it’s running.



* **Capture a screenshot of Docker Desktop running (or other clear evidence that Docker Desktop is installed and started) and save it as: exam\_evaluation\_docker\_desktop.png**

