

# Fatima Jinnah Women University

## Subject: Cloud Computing



Name:

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Registration number:

2023-BSE-064

Submitted To:

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## LAB 5

### Task 1:

```
tehreem064@tehreem:~$ java
Command 'java' not found, but can be installed with:
sudo apt install openjdk-17-jre-headless # version 17.0.16+8~us1-0ubuntu1~24.04
.1, or
sudo apt install openjdk-21-jre-headless # version 21.0.8+9~us1-0ubuntu1~24.04.
1
sudo apt install default-jre # version 2:1.17-75
sudo apt install openjdk-11-jre-headless # version 11.0.28+6-1ubuntu1~24.04.1
sudo apt install openjdk-25-jre-headless # version 25+36-1~24.04.2
sudo apt install openjdk-8-jre-headless # version 8u462-ga~us1-0ubuntu2~24.04.
2
sudo apt install openjdk-19-jre-headless # version 19.0.2+7-4
sudo apt install openjdk-20-jre-headless # version 20.0.2+9-1
sudo apt install openjdk-22-jre-headless # version 22~22ea-1
tehreem064@tehreem:~$
```

```
tehreem064@tehreem:~$ sudo apt install default-jre
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  adwaita-icon-theme alsa-topology-conf alsa-ucm-conf
  at-spi2-common at-spi2-core ca-certificates-java
  dconf-gsettings-backend dconf-service default-jre-headless
  fontconfig fonts-dejavu-extra gsettings-desktop-schemas
  gtk-update-icon-cache hicolor-icon-theme humanity-icon-theme
  java-common libasound2-data libasound2t64
  libatk-bridge2.0-0t64 libatk-wrapper-java
  libatk-wrapper-java-gtk libatk1.0-0t64 libatspi2.0-0t64
  libdconf1 libfontconfig1 libgdk-pixbuf2.0-0t64 libglib2.0-0t64
  libgtk-3-0t64 libgtk-4-0t64 libidn2-0t64 libjpeg-turbo8t64
  libpango-1.0-0t64 libpangocairo-1.0-0t64 libpangoft2-1.0-0t64
  libsecret-0t64 libx11-xcb1 libxkbcommon0t64 libxshmfence1t64
  libzstd1t64
```

```
tehreem064@tehreem:~$ java --version
openjdk 21.0.8 2025-07-15
```

```

tehreem064@tehreem:~$ sudo apt remove openjdk-21-jre
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  adwaita-icon-theme alsa-topology-conf alsa-ucm-conf at-spi2-common
  at-spi2-core ca-certificates-java dconf-gsettings-backend dconf-service
  default-jre-headless fontconfig fonts-dejavu-extra gsettings-desktop-schemas
  gtk-update-icon-cache hicolor-icon-theme humanity-icon-theme java-common
  libasound2-data libasound2t64 libatk-bridge2.0-0t64 libatk-wrapper-java
  libatk-wrapper-java-jni libatk1.0-0t64 libatspi2.0-0t64 libavahi-client3
  libavahi-common-data libavahi-common3 libcairo-gobject2 libcairo2 libcolord2
  libcups2t64 libdatrie1 libdconf1 libdrm-amdgpu libdrm-intel1 libepoxy0
  libgbm1 libgdk-pixbuf-2.0-0 libgdk-pixbuf2.0-bin libgdk-pixbuf2.0-common
  libgif7 libgl1 libgl1-mesa-dri libglvnd0 libglx-mesa0 libglx0 libgraphite2-3
  libgtk-3-0t64 libgtk-3-bin libgtk-3-common libharfbuzz0b libice6 liblcms2-2
  libllvm20 libpango-1.0-0 libpangocairo-1.0-0 libpangoft2-1.0-0 libpciaccess0
  libpcsc-lite1 libpixman-1-0 librsvg2-2 librsvg2-common libsm6 libthai-data
  libthai0 libvulkan1 libwayland-client0 libwayland-cursor0 libwayland-egl1
  libwayland-server0 libx11-xcb1 libxaw7 libxcb-dri3-0 libxcb-glx0
  libxcb-present0 libxcb-randr0 libxcb-render0 libxcb-shape0 libxcb-shm0
  libxcb-sync1 libxcb-xfixes0 libxcomposite1 libxcursor1 libxdamage1 libxfixes3
  libxft2 libxi6 libxinerama1 libxkbfile1 libxmu6 libxrandr2 libxrender1
  libxshmfence1 libxt6t64 libxtst6 libxv1 libxxf86dga1 libxxf86vm1
  mesa-libgallium mesa-vulkan-drivers openjdk-21-jre-headless session-migration
  ubuntu-mono x11-common x11-utils
Use 'sudo apt autoremove' to remove them.
The following packages will be REMOVED:
  default-jre openjdk-21-jre
0 upgraded, 0 newly installed, 2 to remove and 35 not upgraded.
After this operation, 737 kB disk space will be freed.
Do you want to continue? [Y/n] y
(Reading database ... 139571 files and directories currently installed.)
Removing default-jre (2:1.21-75+exp1) ...
Removing openjdk-21-jre:amd64 (21.0.8+9~us1-0ubuntu1~24.04.1) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...

```

```

tehreem064@tehreem:~$ java
Usage: java [options] <mainclass> [args...]
        (to execute a class)
    or  java [options] -jar <jarfile> [args...]
        (to execute a jar file)
    or  java [options] -m <module>[/<mainclass>] [args...]
        java [options] --module <module>[/<mainclass>] [args...]
        (to execute the main class in a module)
    or  java [options] <sourcefile> [args]
        (to execute a single source-file program)

```

```

tehreem064@tehreem:~$ hash -r
tehreem064@tehreem:~$ java
Usage: java [options] <mainclass> [args...]
        (to execute a class)
    or  java [options] -jar <jarfile> [args...]
        (to execute a jar file)
    or  java [options] -m <module>[/<mainclass>] [args...]
        java [options] --module <module>[/<mainclass>] [args...]
        (to execute the main class in a module)
    or  java [options] <sourcefile> [args]
        (to execute a single source-file program)

Arguments following the main class, source file, -jar <jarfile>,
-m or --module <module>/<mainclass> are passed as the arguments to

```

## Task 2:

```

tehreem064@tehreem:~$ sudo apt-get update
sudo apt-get install default-jre -y
Hit:1 http://pk.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://pk.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://pk.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:5 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:6 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Ign:7 http://pk.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata
Ign:8 http://pk.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 c-n-f Metadata
Ign:9 http://pk.archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata
Ign:10 http://pk.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 c-n-f Metadata
Get:7 http://pk.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [13.5 kB]
Err:7 http://pk.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata
  File has unexpected size (7768 != 13516). Mirror sync in progress? [IP: 103.151.111.245 80]
Hashes of expected file:
- Filesize:13516 [weak]
- SHA256:e4af0b43336b0c1b84ce9a77f16233e413891311ea16701ea539fc62261a7eb9
- SHA1:0a3e70d0ffb191f813a5f83897a414ba674e5e1c [weak]
- MD5Sum:e6a74150963935bdbf5a3ccc873915a8 [weak]

```

```

tehreem064@tehreem:~$ java --version
openjdk 21.0.8 2025-07-15

```

```

tehreem064@tehreem:~$ sudo apt-get remove default-jre -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  adwaita-icon-theme alsa-topology-conf alsa-ucm-conf at-spi2-common
  at-spi2-core ca-certificates-java dconf-gsettings-backend dconf-service
  default-jre-headless fontconfig fonts-dejavu-extra gsettings-desktop-schemas
  gtk-update-icon-cache hicolor-icon-theme humanity-icon-theme java-common
  libasound2-data libasound2t64 libatk-bridge2.0-0t64 libatk-wrapper-java
  libatk-wrapper-java-jni libatk1.0-0t64 libatspi2.0-0t64 libavahi-client3
  libavahi-common-data libavahi-common3 libcairo-gobject2 libcairo2 libcolord2
  libcups2t64 libdatrie1 libdconf1 libdrm-amdgpu1 libdrm-intel1 libepoxy0
  libgbm1 libgdk-pixbuf-2.0-0 libgdk-pixbuf2.0-bin libgdk-pixbuf2.0-common
  libgif7 libgl1 libgl1-mesa-dri libglvnd0 libglx-mesa0 libglx0 libgraphite2-3
  libgtk-3-0t64 libgtk-3-bin libgtk-3-common libharfbuzz0b libice6 liblcms2-2
  libllvmlt0 libpango-1.0-0 libpangocairo-1.0-0 libpangoft2-1.0-0 libpciaccess0
  libpcsc-lite libpixman-1-0 librsvg2-2 librsvg2-common libsm6 libthai-data
  libthai0 libvulkan1 libwayland-client0 libwayland-cursor0 libwayland-egl1

```

```

tehreem064@tehreem:~$ hash -r
java
Usage: java [options] <mainclass> [args...]
        (to execute a class)
  or  java [options] -jar <jarfile> [args...]
        (to execute a jar file)
  or  java [options] -m <module>[/<mainclass>] [args...]
      java [options] --module <module>[/<mainclass>] [args...]
        (to execute the main class in a module)
  or  java [options] <sourcefile> [args]
        (to execute a single source-file program)

Arguments following the main class, source file, -jar <jarfile>,
-m or --module <module>/<mainclass> are passed as the arguments to
main class.

```

### Task 3:

```
tehreem064@tehreem:~$ sudo apt update
Hit:1 http://pk.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://pk.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://pk.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:5 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:6 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Ign:7 http://pk.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata
Ign:8 http://pk.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 c-n-f Metadata
Ign:9 http://pk.archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata
Ign:10 http://pk.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 c-n-f Metadata
```

```
tehreem064@tehreem:~$ sudo apt upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following packages were automatically installed and are no longer required:
  adwaita-icon-theme alsa-topology-conf alsa-ucm-conf at-spi2-common
  at-spi2-core ca-certificates-java dconf-gsettings-backend dconf-service
  default-jre-headless fontconfig fonts-dejavu-extra gsettings-desktop-schemas
  gtk-update-icon-cache hicolor-icon-theme humanity-icon-theme java-common
  libasound2-data libasound2t64 libatk-bridge2.0-0t64 libatk-wrapper-java
  libatk-wrapper-java-jni libatk1.0-0t64 libatspi2.0-0t64 libavahi-client3
  libavahi-common-data libavahi-common3 libcairo-gobject2 libcairo2 libcolord2
  libcups2t64 libdatrie1 libdconf1 libdrm-amdgpu1 libdrm-intel1 libepoxy0
  libgbm1 libgdk-pixbuf-2.0-0 libgdk-pixbuf2.0-bin libgdk-pixbuf2.0-common
  libgif7 libgl1 libgl1-mesa-dri libglvnd0 libglx-mesa0 libglx0 libgraphite2-3
  libgtk-3-0t64 libgtk-3-bin libgtk-3-common libharfbuzz0b libice6 liblcms2-2
  libllvm20 libnls-1.0-0 libnls-common-1.0-0 libnls-gtk2-1.0-0 libnls-sound0
```

```
GNU nano 7.2 /home/tehreem064/apt update vs upgrade.md *
apt update refreshes the local package index - it does not change installed packages.
apt upgrade looks at the updated index and installs newer versions of already-installed packages.
Without apt update, apt upgrade would use outdated package lists and might not find the newest updates.
```

### Task 4:

```
tehreem064@tehreem:~$ sudo snap install --classic code
[sudo] password for tehreem064:
snap "code" is already installed, see 'snap help refresh'
tehreem064@tehreem:~$
```

```
tehreem064@tehreem:~$ snap list code
Name Version Rev Tracking Publisher Notes
code 7d842fb8 211 latest/stable vscode✓ classic
```

```
tehreem064@tehreem:~$ code --version
1.105.1
7d842fb85a0275a4a8e4d7e040d2625abbf7f084
x64
tehreem064@tehreem:~$
```

```
tehreem064@tehreem:~$ ls -l /snap/bin | grep code
lrwxrwxrwx 1 root root 13 Oct 25 10:58 code -> /usr/bin/snap
lrwxrwxrwx 1 root root 13 Oct 25 10:58 code.url-handler -> /usr/bin/snap
tehreem064@tehreem:~$
```

## Task 5:

```
tehreem064@tehreem:~$ sudo apt update && sudo apt upgrade -y
[sudo] password for tehreem064:
Hit:1 http://pk.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://pk.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://pk.archive.ubuntu.com/ubuntu noble-backports InRelease
Ign:4 http://pk.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata
Ign:5 http://pk.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 c-n-f Metadata
Ign:6 http://pk.archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata
Ign:7 http://pk.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 c-n-f Metadata
Get:4 http://pk.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [13.5 kB]
Err:4 http://pk.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata
  File has unexpected size (7768 != 13516). Mirror sync in progress? [IP: 103.151.111.245 80]
Hashes of expected file:
 - Filesize:13516 [weak]
```



```

aspell-autobuildhash: processing: en [en_GB-ise-w_accents-only].
aspell-autobuildhash: processing: en [en_GB-ise-wo_accents-only].
aspell-autobuildhash: processing: en [en_GB-ize-w_accents-only].
aspell-autobuildhash: processing: en [en_GB-ize-wo_accents-only].
aspell-autobuildhash: processing: en [en_GB-variant_0].
aspell-autobuildhash: processing: en [en_GB-variant_1].
aspell-autobuildhash: processing: en [en_US-w_accents-only].
aspell-autobuildhash: processing: en [en_US-wo_accents-only].
Processing triggers for sgml-base (1.31) ...
Processing triggers for libc-bin (2.39-0ubuntu8.6) ...
Scanning processes...
Scanning candidates...
Scanning linux images...

Pending kernel upgrade!
Running kernel version:
  6.8.0-86-generic
Diagnostics:
  The currently running kernel version is not the expected kernel version 6.8.0-87-generic.

Restarting the system to load the new kernel will not be handled automatically, so you should consider rebo
Restarting services...

Service restarts being deferred:
/etc/needrestart/restart.d/dbus.service
systemctl restart systemd-logind.service
systemctl restart unattended-upgrades.service

No containers need to be restarted.

User sessions running outdated binaries:
tehreem064 @ session #1: login[919]
tehreem064 @ user manager service: systemd[1399]

No VM guests are running outdated hypervisor (qemu) binaries on this host.
tehreem064@tehreem:~$

```

```

tehreem064@tehreem:~$ sudo systemctl enable --now xrdp
Synchronizing state of xrdp.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable xrdp
tehreem064@tehreem:~$

```

```

tehreem064@tehreem:~$ sudo systemctl status xrdp
• xrdp.service - xrdp daemon
   Loaded: loaded (/usr/lib/systemd/system/xrdp.service; enabled; preset: enabled)
   Active: active (running) since Thu 2025-10-30 14:17:02 UTC; 2min 19s ago
     Docs: man:xrdp(8)
           man:xrdp.ini(5)
  Main PID: 28407 (xrdp)
    Tasks: 1 (limit: 4548)
   Memory: 876.0K (peak: 1.5M)
      CPU: 57ms
   CGroup: /system.slice/xrdp.service
           └─28407 /usr/sbin/xrdp

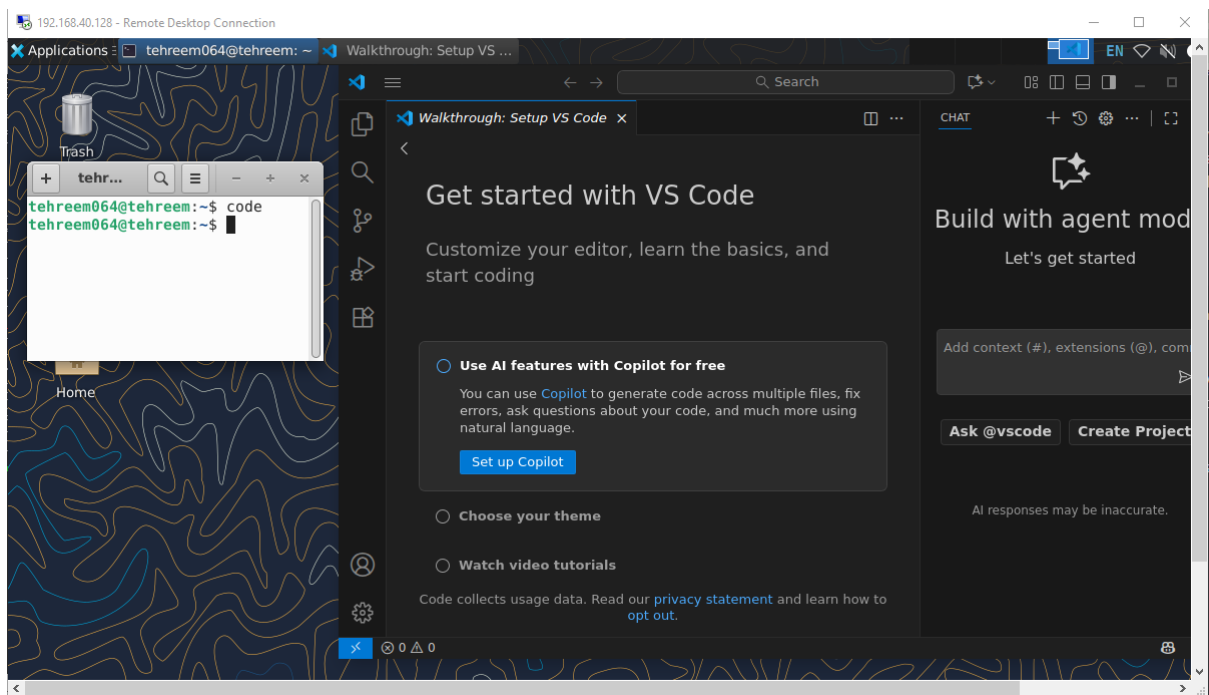
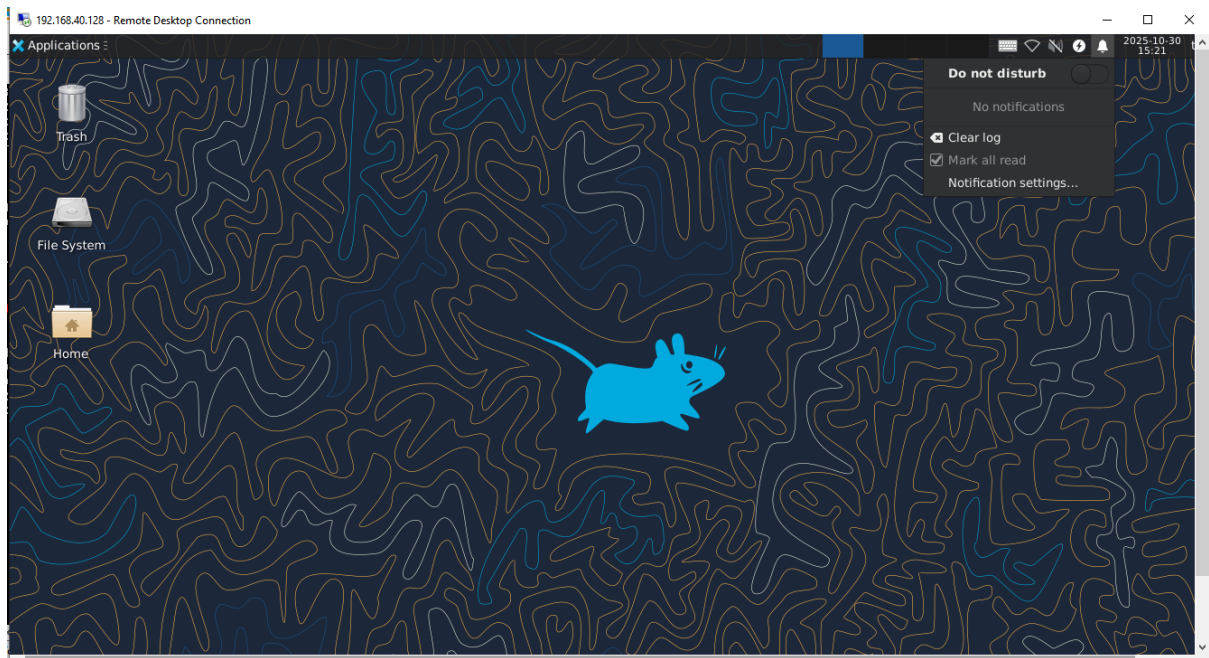
Oct 30 14:17:01 tehreem systemd[1]: Starting xrdp.service - xrdp daemon...
Oct 30 14:17:01 tehreem xrdp[28405]: [INFO ] address [0.0.0.0] port [3389] mode 1
Oct 30 14:17:01 tehreem xrdp[28405]: [INFO ] listening to port 3389 on 0.0.0.0
Oct 30 14:17:01 tehreem xrdp[28405]: [INFO ] xrdp_listen_pp done
Oct 30 14:17:01 tehreem systemd[1]: xrdp.service: Can't open PID file /run/xrdp/xrdp.pid (yet?) after start
Oct 30 14:17:02 tehreem systemd[1]: Started xrdp.service - xrdp daemon.
Oct 30 14:17:03 tehreem xrdp[28407]: [INFO ] starting xrdp with pid 28407
Oct 30 14:17:03 tehreem xrdp[28407]: [INFO ] address [0.0.0.0] port [3389] mode 1
Oct 30 14:17:03 tehreem xrdp[28407]: [INFO ] listening to port 3389 on 0.0.0.0
Oct 30 14:17:03 tehreem xrdp[28407]: [INFO ] xrdp_listen_pp done
tehreem064@tehreem:~$

```

```

tehreem064@tehreem:~$ echo xfce4-session > /home/tehreem064/.xsession
tehreem064@tehreem:~$ sudo systemctl restrat xrdp

```



## Task 6:

```
tehreem064@tehreem:~$ sudo apt install lightdm lightdm-gtk-greeter -y
[sudo] password for tehreem064:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
lightdm is already the newest version (1.30.0-0ubuntu14).
lightdm set to manually installed.
```



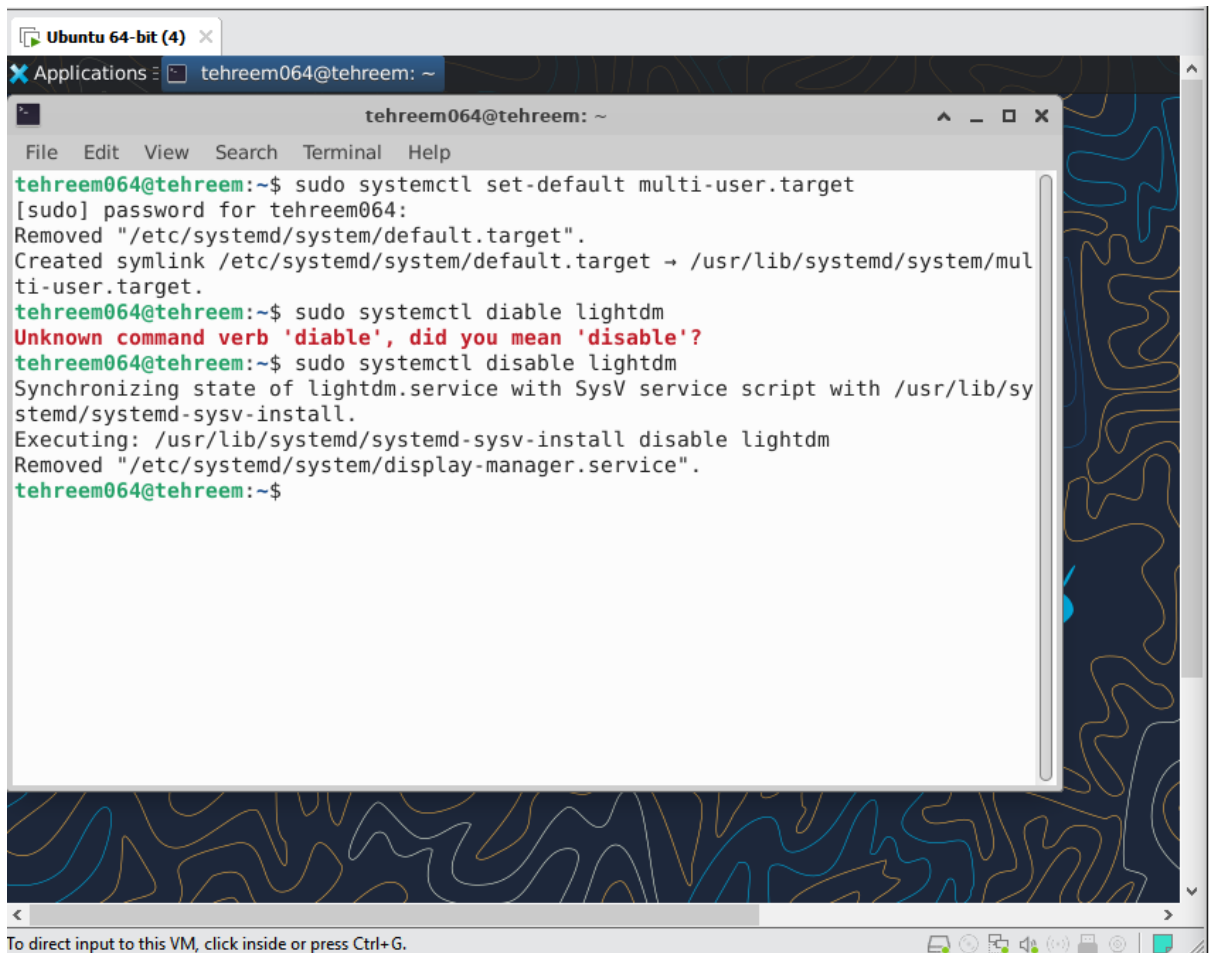
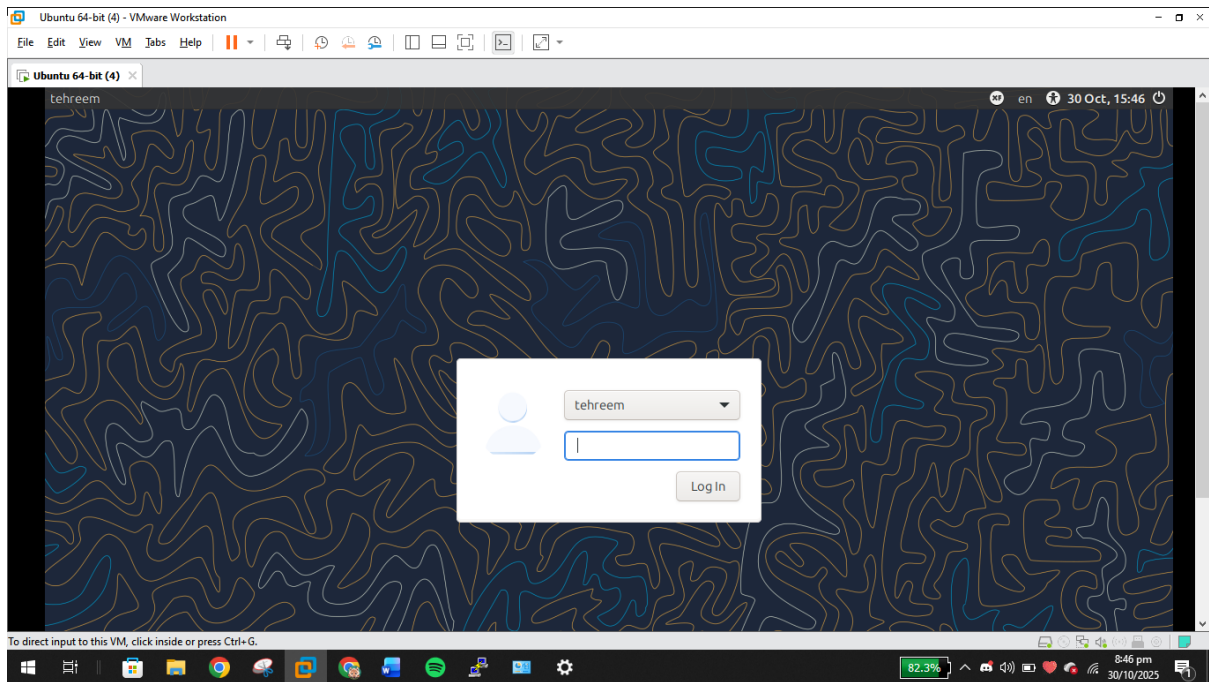
```
tehreem064@tehreem:~$ sudo mkdir -p /etc/lightdm/lightdm.conf.d
echo -e "[Seat:*]\ngreeter-session=lightdm-gtk-greeter\nuser-session=xfce\nautologin-user-timeout=0" | sudo tee /etc/lightdm/lightdm.conf.d/99-xfce.conf
[Seat:*]
greeter-session=lightdm-gtk-greeter
user-session=xfce
autologin-user-timeout=0
tehreem064@tehreem:~$
```

```
tehreem064@tehreem:~$ sudo rm -f /var/lib/lightdm/.Xauthority
tehreem064@tehreem:~$ sudo rm -f ~/.Xauthority
tehreem064@tehreem:~$ sudo rm -rf ~/.cache/sessions
tehreem064@tehreem:~$ sudo chown -R tehreem064:tehreem064 /home/tehreem064
chown: cannot access '/home/tehreem064/thinclient_drives': Permission denied
tehreem064@tehreem:~$
```

```
tehreem064@tehreem:~$ sudo systemctl restart lightdm
tehreem064@tehreem:~$
```

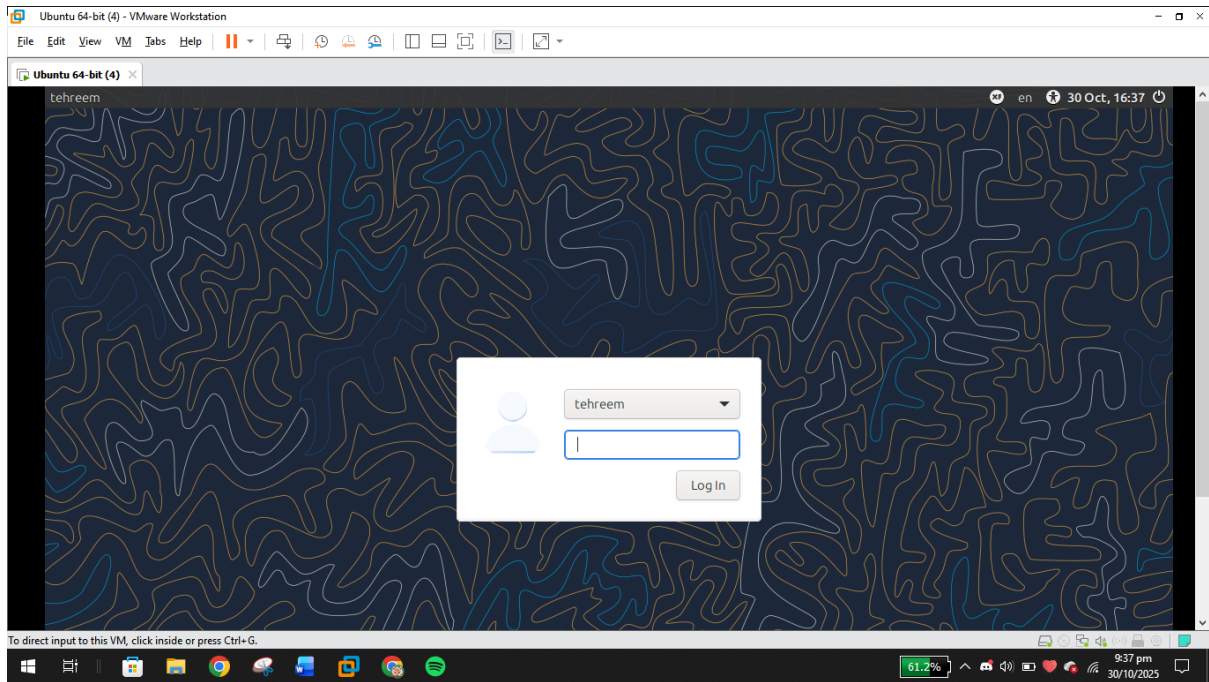
```
tehreem064@tehreem:~$ sudo systemctl enable lightdm
Synchronizing state of lightdm.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable lightdm
The unit files have no installation config (WantedBy=, RequiredBy=, UpheldBy=, Also=, or Alias= settings in the [Install] section, and DefaultInstance= for template units). This means they are not meant to be enabled or disabled using systemctl.

Possible reasons for having these kinds of units are:
• A unit may be statically enabled by being symlinked from another unit's .wants/, .requires/, or .upholds/ directory.
• A unit's purpose may be to act as a helper for some other unit which has a requirement dependency on it.
• A unit may be started when needed via activation (socket, path, timer, D-Bus, udev, scripted systemctl call, ...).
• In case of template units, the unit is meant to be enabled with some instance name specified.
tehreem064@tehreem:~$ sudo systemctl set-default graphical.target
Created symlink /etc/systemd/system/default.target → /usr/lib/systemd/system/graphical.target.
tehreem064@tehreem:~$
```



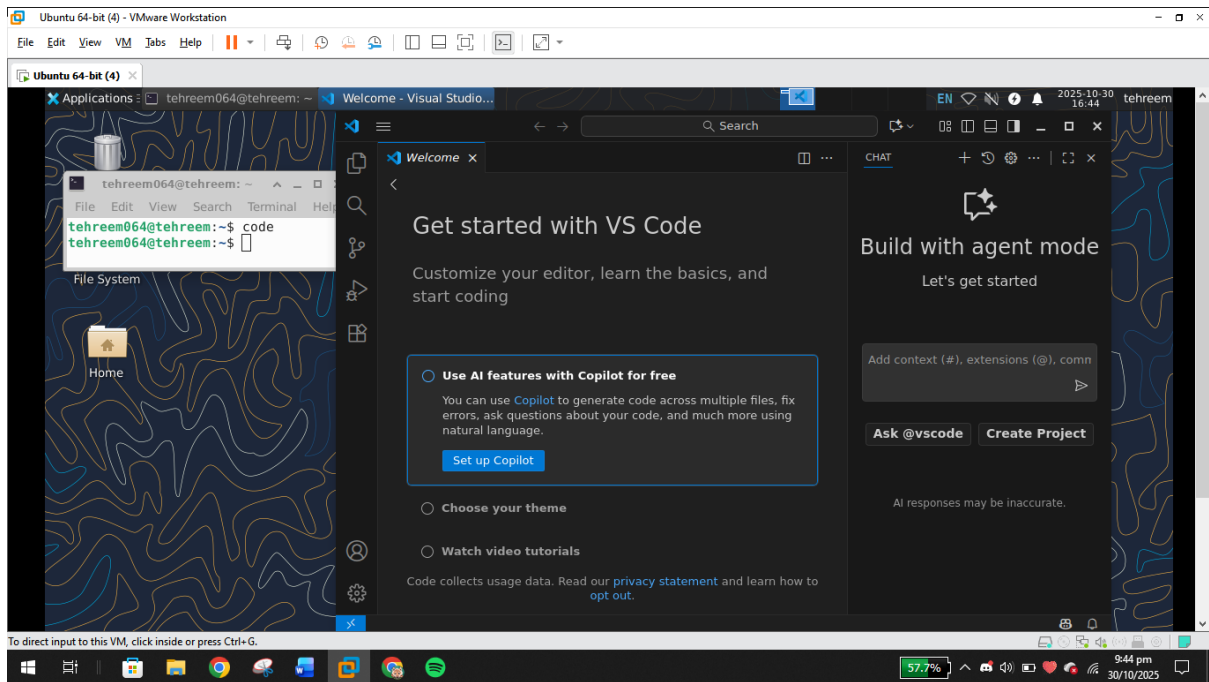
```
Ubuntu 24.04.3 LTS tehreem tty1
tehreem login: _
```

```
tehreem064@tehreem:~$ sudo systemctl start lightdm
```

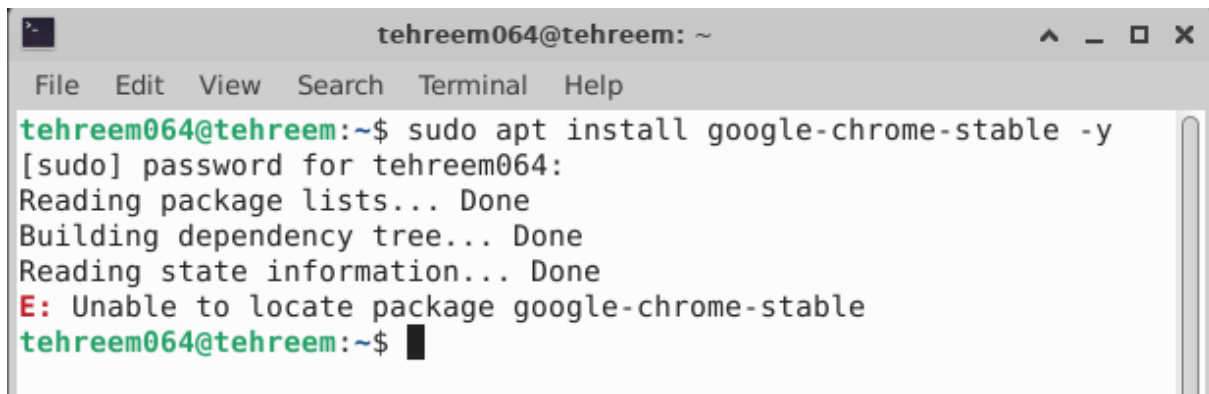


```
tehreem064@tehreem:~$ sudo systemctl stop lightdm
[sudo] password for tehreem064:
tehreem064@tehreem:~$
```

```
tehreem064@tehreem:~$ sudo systemctl start lightdm
```



## Task 7:



```
tehreem064@tehreem:~$ ls -la /etc/apt
total 48
drwxr-xr-x  9 root root  4096 Oct 30 15:06 .
drwxr-xr-x 142 root root 12288 Oct 30 15:14 ..
drwxr-xr-x  2 root root  4096 Oct 30 13:43 apt.conf.d
drwxr-xr-x  2 root root  4096 Mar 31 2024 auth.conf.d
drwxr-xr-x  2 root root  4096 Mar 31 2024 keyrings
drwxr-xr-x  2 root root  4096 Aug  5 17:14 preferences.d
drwxr-xr-x  2 root root  4096 Aug  5 17:14 preferences.d.save
-rw-r--r--  1 root root   347 Oct 30 13:05 sources.list
drwxr-xr-x  2 root root  4096 Oct 23 19:19 sources.list.d
drwxr-xr-x  2 root root  4096 Aug  5 17:01 trusted.gpg.d
```

```
tehreem064@tehreem:~$ cat /etc/apt/sources.list
```

```
deb http://archive.ubuntu.com/ubuntu noble main restricted universe multiverse
deb http://archive.ubuntu.com/ubuntu noble-updates main restricted universe multiverse
deb http://archive.ubuntu.com/ubuntu noble-backports main restricted universe multiverse
deb http://security.ubuntu.com/ubuntu noble-security main restricted universe multiverse
```

```
tehreem064@tehreem:~$ ls -la /etc/apt/sources.list.d/
total 16
drwxr-xr-x 2 root root 4096 Oct 23 19:19 .
drwxr-xr-x 9 root root 4096 Oct 30 15:06 ..
-rw-r--r-- 1 root root  386 Oct  2 11:17 ubuntu.sources
-rw-r--r-- 1 root root 2552 Aug  5 17:02 ubuntu.sources.curtin.orig
tehreem064@tehreem:~$
```

```
tehreem064@tehreem:~$ cat /etc/apt/sources.list.d/ubuntu.sources
```

```
Types: deb
URIs: http://pk.archive.ubuntu.com/ubuntu/
Suites: noble noble-updates noble-backports
Components: main restricted universe multiverse
Signed-By: /usr/share/keyrings/ubuntu-archive-keyring.gpg
```

```
Types: deb
URIs: http://security.ubuntu.com/ubuntu/
Suites: noble-security
Components: main restricted universe multiverse
Signed-By: /usr/share/keyrings/ubuntu-archive-keyring.gpg
tehreem064@tehreem:~$
```

```
tehreem064@tehreem: ~  
File Edit View Search Terminal Help  
GNU nano 7.2 /etc/apt/sources.list.d/ubuntu.sources  
Types: deb  
URIs: http://pk.archive.ubuntu.com/ubuntu/  
Suites: noble noble-updates noble-backports  
Components: main restricted universe multiverse  
Signed-By: /usr/share/keyrings/ubuntu-archive-keyring.gpg  
  
Types: deb  
URIs: http://security.ubuntu.com/ubuntu/  
Suites: noble-security  
Components: main restricted universe multiverse  
Signed-By: /usr/share/keyrings/ubuntu-archive-keyring.gpg  
  
Types: deb  
URIs: http://dl.google.com/linux/chrome/deb/  
Suites: stable  
Components: main  
Architecture: amd64  
Signed-By: /etc/apt/keyrings/google.gpg
```

```
tehreem064@tehreem:~$ curl -fsSL https://dl.google.com/linux/linux_signing_key.pub | sudo gpg --dearmor -  
o /etc/apt/keyrings/google.gpg
```

```
tehreem064@tehreem:~$ sudo apt update  
Hit:1 http://pk.archive.ubuntu.com/ubuntu noble InRelease  
Hit:2 http://archive.ubuntu.com/ubuntu noble InRelease  
Hit:3 http://pk.archive.ubuntu.com/ubuntu noble-updates InRelease  
Hit:4 http://pk.archive.ubuntu.com/ubuntu noble-backports InRelease  
Get:5 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
```

```
tehreem064@tehreem:~$ sudo apt install google-chrome-stable -y  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following packages were automatically installed and are no longer required:  
  ca-certificates-java default-jre-headless fonts-dejavu-extra java-common  
  libatk-wrapper-java libatk-wrapper-java-jni libgif7 linux-headers-6.8.0-71  
  linux-headers-6.8.0-71-generic linux-image-6.8.0-71-generic  
  linux-modules-6.8.0-71-generic linux-modules-extra-6.8.0-71-generic  
  linux-tools-6.8.0-71 linux-tools-6.8.0-71-generic openjdk-21-jre  
  openjdk-21-jre-headless  
Use 'sudo apt autoremove' to remove them.
```

```
tehreem064@tehreem:~$ sudo rm -rf google-chrome-stable
```

```
tehreem064@tehreem:~$ sudo nano /etc/apt/sources.list.d/ubuntu.sources
```

```
tehreem064@tehreem:~$ sudo rm -f /etc/apt/keyrings/google.gpg  
tehreem064@tehreem:~$
```

```
tehreem064@tehreem:~$ echo "deb [arch=amd64 signed-by=/etc/apt/keyrings/google.gpg] http://dl.google.com/linux/chromr/deb stable main" | sudo tee /etc/apt/sources.  
list.d/google-chrome.list > /dev/null  
tehreem064@tehreem:~$
```



```
tehreem064@tehreem:~$ ls -la /etc/apt/sources.list.d/
total 24
drwxr-xr-x 2 root root 4096 Oct 30 17:50 .
drwxr-xr-x 9 root root 4096 Oct 30 15:06 ..
-rw-r--r-- 1 root root 107 Oct 30 17:34 google-chrome.list
-rw-r--r-- 1 root root 106 Oct 30 17:55 google-chrome.list
-rw-r--r-- 1 root root 541 Oct 30 17:50 ubuntu.sources
-rw-r--r-- 1 root root 2552 Aug  5 17:02 ubuntu.sources.curtin.orig
tehreem064@tehreem:~$
```

```
tehreem064@tehreem:~$ sudo mkdir -p /etc/apt/keyrings
tehreem064@tehreem:~$ curl -fsSL https://dl.google.com/linux/linux_signing_key.p
ub | sudo gpg --dearmor -o /etc/apt/keyrings/google.gpg
tehreem064@tehreem:~$
```

```
tehreem064@tehreem:~$ sudo apt update
Hit:1 http://pk.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://pk.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://pk.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:5 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:6 http://dl.google.com/linux/chrome/deb stable InRelease
Hit:7 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:8 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Ign:9 http://dl.google.com/linux/chromr/deb stable InRelease
```

```
tehreem064@tehreem:~$ sudo apt install google-chrome-stable -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  google-chrome-stable
0 upgraded, 1 newly installed, 0 to remove and 1 not upgraded.
Need to get 118 MB of archives.
After this operation, 390 MB of additional disk space will be used.
Get:1 http://dl.google.com/linux/chrome/deb stable/main amd64 google-chrome-stab
le amd64 142.0.7444.59-1 [118 MB]
17% [1 google-chrome-stable 24.7 MB/118 MB 21%] 2,843 kB/s 32s
```

## Task 8:

```
tehreem064@tehreem:~$ sudo add-apt-repository ppa:ubuntuhandbook1/audacity -y
[sudo] password for tehreem064:
Repository: 'Types: deb
URIs: https://ppa.launchpadcontent.net/ubuntuhandbook1/audacity/ubuntu/
Suites: noble
Components: main
'
Description:
Unofficial build of Audacity audio editor

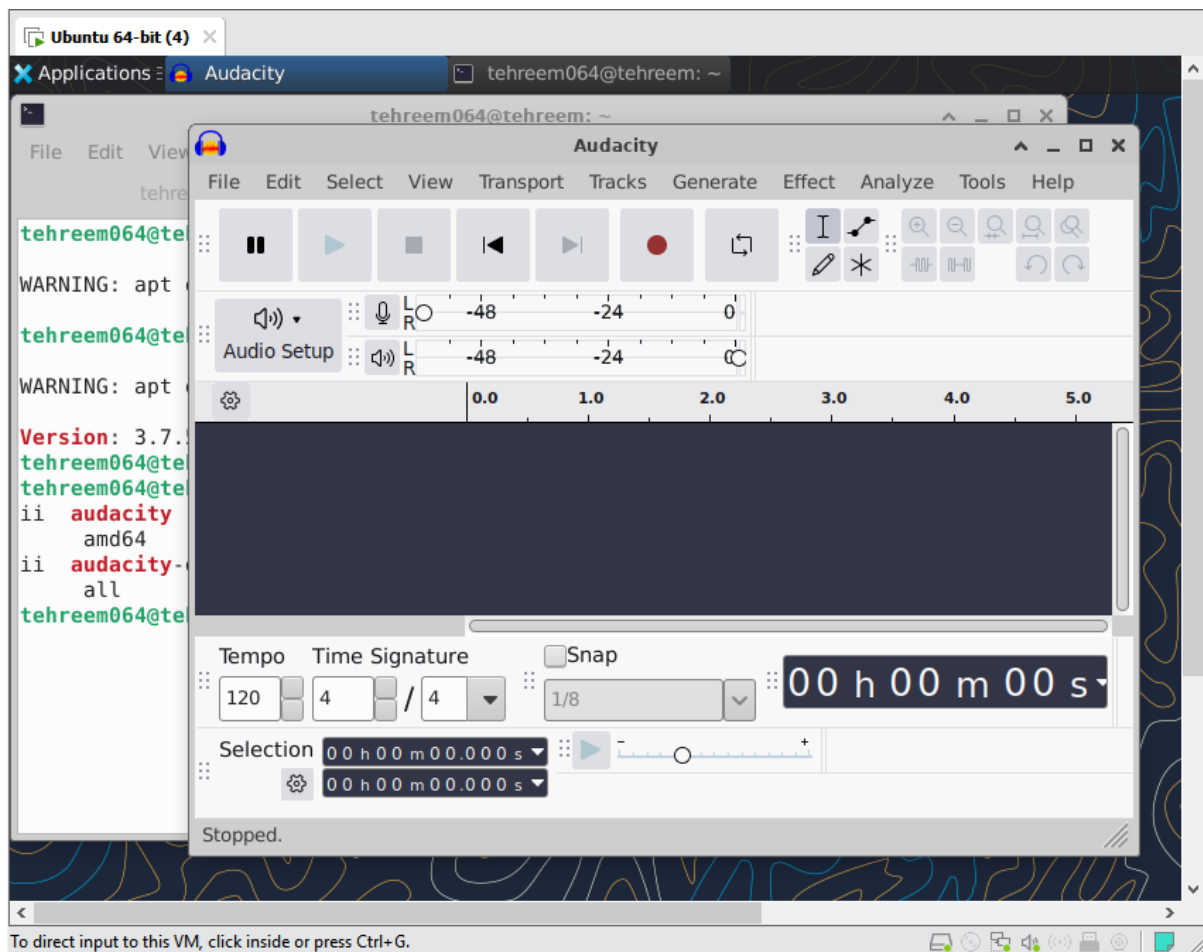
For help, please use Audacity forum: http://forum.audacityteam.org/

If the packages here are helpful, you may buy me a coffee:

    https://ko-fi.com/ubuntuhandbook1
More info: https://launchpad.net/~ubuntuhandbook1/+archive/ubuntu/audacity
Adding repository.
E: Conflicting values set for option Signed-By regarding source http://dl.google.com/linux/chrome/deb/ stable: /etc/apt/keyrings/google.gpg !=
E: The list of sources could not be read.
tehreem064@tehreem:~$
```

```
tehreem064@tehreem:~$ sudo apt update
Hit:1 http://pk.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://pk.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://pk.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:5 http://dl.google.com/linux/chrome/deb stable InRelease
Hit:6 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:7 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:8 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:9 https://ppa.launchpadcontent.net/ubuntuhandbook1/audacity/ubuntu noble InRelease
Reading package lists... 5%
```

```
tehreem064@tehreem:~$ sudo apt install audacity -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  audacity-data libdouble-conversion3 libflac++10 libid3tag0 liblilv-0-0 libmd4c0 libopusfile0
  libpcre2-16-0 libpcre2-32-0 libportaudio2 libportmidi0 libportsmf0t64 libqt5core5t64
  libqt5dbus5t64 libqt5gui5t64 libqt5network5t64 libqt5qml5 libqt5qmlmodels5 libqt5quick5
  libqt5svg5 libqt5waylandclient5 libqt5waylandcompositor5 libqt5widgets5t64 libqt5x11extras5
  libsbcsms10 libserd-0-0 libsord-0-0 libsoundtouch1 libsratom-0-0 libsuil-0-0
  libvamp-hostsdk3v5 libwxbase3.2-1t64 libwxgtk3.2-1t64 libxcb-icccm4 libxcb-image0
  libxcb-keysyms1 libxcb-render-util0 libxcb-xinerama0 libxcb-xinput0 libxcb-xkb1
  libxkbcommon-x11-0 libzix-0-0 qt5-gtk-platformtheme qttranslations5-l10n qtwayland5
Suggested packages:
  ladspa-plugin qgnomeplatform-qt5 qt5-image-formats-plugins qt5-qmltooling-plugins serdi
  sordi
The following NEW packages will be installed:
```



```

tehreem064@tehreem:~$ sudo add-apt-repository ppa:obsproject/obs-studio -y
Repository: 'Types: deb
URIs: https://ppa.launchpadcontent.net/obsproject/obs-studio/ubuntu/
Suites: noble
Components: main
'
Description:
Latest stable release of OBS Studio
More info: https://launchpad.net/~obsproject/+archive/ubuntu/obs-studio
Adding repository.
Hit:1 http://pk.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://pk.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://pk.archive.ubuntu.com/ubuntu noble-backports InRelease

```

```

tehreem064@tehreem:~$ sudo apt update
Hit:1 http://pk.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://pk.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://pk.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:5 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:6 http://dl.google.com/linux/chrome/deb stable InRelease
Hit:7 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:8 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:9 https://ppa.launchpadcontent.net/obsproject/obs-studio/ubuntu noble InRelease
Hit:10 https://ppa.launchpadcontent.net/ubuntuhandbook1/audacity/ubuntu noble InRelease
Reading package lists... 0%

```

```

tehreem064@tehreem:~$ sudo apt install obs-studio -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libaacs0 libass9 libavdevice60 libavfilter9 libavformat60 libb2-1 libbdplus0 libblas3
  libbbluray2 libbs2b0 libchromaprint1 libcbjson1 libdc1394-25 libdecor-0-0
  libdecor-0-plugin-1-gtk libfdk-aac2 libfftw3-double3 libflite1 libgfortran5 libgme0
  liblapack3 liblua5.1-2 liblua5.1-common libmbedcrypto7t64 libmbedtls14t64
  libmbedx509-1t64 libmysofal libnorm1t64 libopenal-data libopenall libopenmpt0t64
  libpgm-5.3-0t64 libplacebo338 libpocketsphinx3 libpostproc57 libqrencodegencpl libqt6core6t64
  libqt6dbus6t64 libqt6gui6t64 libqt6network6t64 libqt6opengl6t64 libqt6qml6 libqt6qmlmodels6
  libqt6quick6 libqt6svg6 libqt6waylandclient6 libqt6waylandcompositor6
  libqt6waylandeglclienthwintegration6 libqt6waylandeglcompositorhwintegration6
  libqt6widgets6t64 libqt6wlshellintegration6 libqt6xml6t64 librabbitmq4 librist4
  librubberband2 libsdl2-2.0-0 libsndio7.0 libspinxbase3t64 libstr1.5-gnutls
  libstr1.5-openssl libssh-4 libssh-gcrypt-4 libswscale7 libts0t64 libudfread0 libunibreak5
  libvorbis0a libvorbisenc3t64 libvorbisfile3t64 libvpx9 libx264-163 libx265-163 libx265-dev

```

```

tehreem064@tehreem:~$ obs --version
OBS Studio - 32.0.2
tehreem064@tehreem:~$ █

```

## Task 9:

```

          VIM - Vi IMproved

          version 9.1.697
          by Bram Moolenaar et al.
      Modified by team+vim@tracker.debian.org
      Vim is open source and freely distributable


      Help poor children in Uganda!

type  :help iccf<Enter>          for information

type  :q<Enter>                  to exit
type  :help<Enter>  or  <F1>    for on-line help
type  :help version9<Enter>    for version info

```

```

apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
spec:
  containers:
  - name: nginx
    image: nginx:1.19
    ports:
    - containerPort: 80
    restartPolicy: Always
~
~
~
~
~
~

```

```

tehreem064@tehreem:~/Lab5$ vim k8s-sample.yaml
tehreem064@tehreem:~/Lab5$ vim k8s-sample.yaml
tehreem064@tehreem:~/Lab5$ ls -la
total 12
drwxrwxr-x  2 tehreem064 tehreem064 4096 Oct 30 18:39 .
drwx----- 24 tehreem064 tehreem064 4096 Oct 30 18:39 ..
-rw-rw-r--  1 tehreem064 tehreem064  172 Oct 30 18:39 k8s-sample.yaml
tehreem064@tehreem:~/Lab5$ 

```

## Task 10:

```

tehreem064@tehreem:~/Lab5$ cat k8s-sample.yaml
apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
spec:
  containers:
  - name: nginx
    image: nginx:1.19
    ports:
    - containerPort: 80
    restartPolicy: Always

  annotations:
    lab: lesson11
tehreem064@tehreem:~/Lab5$ 

```

```

apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
spec:
  containers:
  - name: nginx
    image: nginx:1.19
    ports:
    - containerPort: 80
    restartPolicy: Always

annotations:
  lab: lesson11
  #don't show
~
~
~
~

```

```

tehreem064@tehreem:~/Lab5$ cat k8s-sample.yaml
tehreem064@tehreem:~/Lab5$ cat k8s-sample.yaml
apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
spec:
  containers:
  - name: nginx
    image: nginx:1.19
    ports:
    - containerPort: 80
    restartPolicy: Always

annotations:
  lab: lesson11
tehreem064@tehreem:~/Lab5$

```

## Task 11:

```

apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
spec:
  containers:
  - name: nginx
    image: nginx:1.19
    ports:
    - containerPort: 80
    restartPolicy: Always

annotations:
  lab: lesson11
~

```

```

apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
spec:
  containers:
  - name: nginx
    image: nginx:1.19
    ports:
    - containerPort: 80
    restartPolicy: Always

annotations:
  lab: lesson11
~
~

```



```

apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
spec:
  containers:
  - name: nginx
    image: nginx:1.19
    ports:
    - containerPort: 80
    restartPolicy: Always

  annotations:
    lab: lesson11
~
~

```

```

apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
spec:
  containers:
  - name: nginx
    image: nginx:1.19
    ports:
    - containerPort: 80
    restartPolicy: Always

  annotations:
    lab: lesson11
~
~

```

## Task 12:

```

apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
spec:
  containers:
  - name: nginx
    image: nginx:1.19
    ports:
    - containerPort: 80
    restartPolicy: Always

  annotations:
    lab: lesson11
~
~
~
~
~

```

```

apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
spec:
  containers:
  - name: nginx
    image: nginx:1.19
    ports:
    - containerPort: 80
    restartPolicy: Always

  annotations:
    lab: lesson11
~
~

```

```

apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
spec:
  containers:
  - name: nginx
    image: nginx:1.19
    ports:
    - containerPort: 80
    restartPolicy: Always
    nginx
    nginx
  annotations:
    lab: lesson11
~

```

```

apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
spec:
  containers:
  - name: nginx
    image: nginx:1.19
    ports:
    - containerPort: 80
    restartPolicy: Always
    nginx
    nginx
  annotations:
    lab: lesson11
~

```

```

apiVersion: v1
kind: Pod
metadata:
  name: webapp-pod
spec:
  containers:
  - name: webapp
    image: webapp:1.19
    ports:
    - containerPort: 80
    restartPolicy: Always
    webapp
    webapp
  annotations:
    lab: lesson11
~


```

```

apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
spec:
  containers:
  - name: nginx
    image: nginx:1.19
    ports:
    - containerPort: 80
    restartPolicy: Always
    nginx
    nginx
  annotations:
    lab: lesson11
~

```

## Exam Evaluation Question:

 docker desktop Feedback

Welcome to Docker

Work

Personal


Using Docker for work?  
We recommend signing in with your work email address.


You must initialize pass before signing in to Docker Desktop.  
[Learn more](#)

Work email address

Continue

Or





Create an account 