



**Submitted to:-**

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**Reg no:-**

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**Section:-**

**5 A**

**Cloud Computing**

**LAB O5**

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

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

```
hafsa021@hafsa021:~/lab4/workspace/python_project$ java
Command 'java' not found, but can be installed with:
sudo apt install default-jre          # version 2:1.17-75, or
sudo apt install openjdk-17-jre-headless # version 17.0.16+8~us1-0ubuntu1~24.04.1
sudo apt install openjdk-21-jre-headless # version 21.0.8+9~us1-0ubuntu1~24.04.1
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
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
hafsa021@hafsa021:~/lab4/workspace/python_project$
```

```
hafsa021@hafsa021:~/lab4/workspace/python_project$ sudo apt install default-jre -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
adwaita-icon-theme alsamixer-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 libasound2d64 libatk-bridge2.0-0t64 libatk-wrapper-Java libatk-wrapper-Java-JNI libatk1.0-0t64 libavahi-client3
libavahi-common-data libavahi-common3 libcairo-object2 libcairo2 libcolor2 libcups2t64 libdatarie1 libdconf1 libdrm-amdgpu libdrm-intel libepoxy0 libgbm1
libgdk-pixbuf2.0-0 libgdk-pixbuf2.0-common libglif7 libgl1-mesa-dri libglvnd libglx-mesa libglx0 libgraphite2-3 libgtk-3-0t64
libgtk-3-bin libgtk-3-common libharfbuzz0b libice6 liblcms2-2 liblvm19 libpango-1.0-0 libpangocaliro-1.0-0 libpciaccess0 libpcsc-lite1
libpixman-1-0 librsvg2-2 librsvg2-common libsm6 libthai-data libvulkan1 libwayland-client0 libwayland-cursor0 libwayland-egli libwayland-server0
libx11-xcb1 libxau7 libxcb-dri3-0 libxcb-present0 libxcb-randr0 libxcb-render0 libxcb-shm0 libxcb-sync1 libxcb-xfixes0
libcomposite1 libcursor1 libdamage1 libfixes3 libft2 libxi6 libinerama1 libkbfile1 libmu6 librandr2 librender1 libshm-fence1 libxt6t64 libxtst6
libxv1 libxf86dga1 libxf86vmi mesa-libgallium mesa-vulkan-drivers openjdk-21-jre openjdk-21-jre-headless session-migration ubuntu-mono x11-common
x11-utils
Suggested packages:
alsa-utils libasound2-plugins colord cups-common gvfs liblcms2-utils pcscd librsvg2-bin libnss-mdns fonts-ipafont-gothic fonts-ipafont-mincho
fonts-way-microhei | fonts-way-zenhei fonts-indic mesa-utils
Recommended packages:
luit
The following NEW packages will be installed:
adwaita-icon-theme alsamixer-conf at-spi2-common at-spi2-core ca-certificates-java dconf-gsettings-backend dconf-service default-jre
default-jre-headless fontconfig fonts-dejavu-extra gsettings-desktop-schemas gtk-update-icon-cache hicolor-icon-theme humanity-icon-theme java-common
libasound2-data libasound2d64 libatk-bridge2.0-0t64 libatk-wrapper-Java libatk-wrapper-Java-JNI libatk1.0-0t64 libavahi-client3
libavahi-common-data libavahi-common3 libcairo-object2 libcairo2 libcolor2 libcups2t64 libdatarie1 libdconf1 libdrm-amdgpu libdrm-intel libepoxy0 libgbm1
libgdk-pixbuf2.0-0 libgdk-pixbuf2.0-common libglif7 libgl1-mesa-dri libglvnd libglx-mesa libglx0 libgraphite2-3 libgtk-3-0t64
libgtk-3-bin libgtk-3-common libharfbuzz0b libice6 liblcms2-2 liblvm19 libpango-1.0-0 libpangocaliro-1.0-0 libpciaccess0 libpcsc-lite1
libpixman-1-0 librsvg2-2 librsvg2-common libsm6 libthai-data libvulkan1 libwayland-client0 libwayland-cursor0 libwayland-egli libwayland-server0
libx11-xcb1 libxau7 libxcb-dri3-0 libxcb-present0 libxcb-randr0 libxcb-render0 libxcb-shm0 libxcb-sync1 libxcb-xfixes0
libcomposite1 libcursor1 libdamage1 libfixes3 libft2 libxi6 libinerama1 libkbfile1 libmu6 librandr2 librender1 libshm-fence1 libxt6t64 libxtst6
libxv1 libxf86dga1 libxf86vmi mesa-libgallium mesa-vulkan-drivers openjdk-21-jre openjdk-21-jre-headless session-migration ubuntu-mono x11-common
x11-utils
0 upgraded, 106 newly installed, 0 to remove and 35 not upgraded.
Need to get 117 MB/118 MB of archives.
After this operation, 546 MB of additional disk space will be used.
2% [Working]
2% [Connecting to ok.archive.ubuntu.com] [Connecting to security.ubuntu.com]
```

134 kB/s 14min 36s  
134 kB/s 14min 36s

```
Adding debian:SSL.com_TLS_ECC_Root_CA_2022.pem
Adding debian:SSL.com_TLS_RSA_Root_CA_2022.pem
Adding debian:Starfield_Class_2_CA.pem
Adding debian:Starfield_Root_Certificate_Authority_-_G2.pem
Adding debian:Starfield_Services_Root_Certificate_Authority_-_G2.pem
Adding debian:SwissSign_Gold_CA_-_G2.pem
Adding debian:SwissSign_Silver_CA_-_G2.pem
Adding debian:SZAFIR_ROOT_CA2.pem
Adding debian:Telia_Root_CA_v2.pem
Adding debian:TeliaSonera_Root_CA_v1.pem
Adding debian:TrustAsia_Global_Root_CA_G3.pem
Adding debian:TrustAsia_Global_Root_CA_G4.pem
Adding debian:Trustwave_Global_Certification_Authority.pem
Adding debian:Trustwave_Global_ECC_P256_Certification_Authority.pem
Adding debian:Trustwave_Global_ECC_P384_Certification_Authority.pem
Adding debian:T-TeleSec_GlobalRoot_Class_2.pem
Adding debian:T-TeleSec_GlobalRoot_Class_3.pem
Adding debian:TUBITAK_Kamu_SM_SSL_Kok_Sertifikasi_-_Surum_1.pem
Adding debian:TunTrust_Root_CA.pem
Adding debian:TWCA_Global_Root_CA.pem
Adding debian:TWCA_Root_Certification_Authority.pem
Adding debian:UCA_Extended_Validation_Root.pem
Adding debian:UCA_Global_G2_Root.pem
Adding debian:USERTrust_ECC_Certification_Authority.pem
Adding debian:USERTrust_RSA_Certification_Authority.pem
Adding debian:vTrus_ECC_Root_CA.pem
Adding debian:vTrus_Root_CA.pem
Adding debian:XRamp_Global_CA_Root.pem
done.
Setting up openjdk-21-jre:amd64 (21.0.8+9~us1-0ubuntu1~24.04.1) ...
Setting up default-jre-headless (2:1.21-75+exp1) ...
Setting up default-jre (2:1.21-75+exp1) ...
Processing triggers for libgdk-pixbuf-2.0-0:amd64 (2.42.10+dfsg-3ubuntu3.2) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
```

```
hafsa021@hafsa021:~$ java --version
openjdk 21.0.8 2025-07-15
OpenJDK Runtime Environment (build 21.0.8+9-Ubuntu-0ubuntu124.04.1)
OpenJDK 64-Bit Server VM (build 21.0.8+9-Ubuntu-0ubuntu124.04.1, mixed mode, sharing)
hafsa021@hafsa021:~$ _
```

```
hafsa021@hafsa021:~$ sudo apt remove default-jre -y
```

```
hafsa021@hafsa021:~$ sudo apt remove default-jre -y
[sudo] password for hafsa021:
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 alsamixer-conf alsamixer-common 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+bridge-2.0-0+64 libatk+wrapper-java libatk+wrapper-javajni libatk1.0-0+64 libatspi2.0-0+64 libavahi-client3
  libavahim-common data libavahi-common3 libcairo-gobject2 libcairo2 libclutter2 libcurl2t64 libdatriel libdbconflibdbm-andguit libdrm-intel libevoxy0 libgbm
  libgdk-pixbuf2-0.0-0 libgdk-pixbuf2.0-bin libgdk-pixbuf2.0-common libgfif libgl1 libgl1-mesa-dri libglvnd libglx-mesa libglx1 libgraphite2-3 libgtk-3-0+64
  libgtk-3-bin libgtk-3-common libharfbuzz0b libice6 liblcms2-2 liblvm2c2 libpango-1.0-0 libpangocairo-1.0-0 libpangoft2-1.0-0 libpicaaccess0 libpocsclite1
  libpixman-1 librsvg2-2 librsvg2-common libsm6 libthai0 libvlk0 libwayland-client0 libwayland-cursor0 libwayland-egl1 libwayland-server0
  libxi1-xcb libxcb-glx2 libxcb-dri3-0 libxcb-glx0 libxcb-present0 libxcb-randr0 libxcb-render0 libxcb-shape0 libxcb-shm0 libxcb-sync1 libxcb-xfixes0
  libxcomposite1 libxcursor1 libxdamage1 libxf86vm1 mesa-lib�allium mesa-vulkan-drivers openjdk-21-jre 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
0 upgraded, 0 newly installed, 1 to remove and 67 not upgraded.
After this operation, 6,144 B disk space will be freed.
(Reading database ... 101562 files and directories currently installed.)
Removing default-jre (2:1.21-75+exp1) ...
```

```
hafsa021@hafsa021:~$ sudo apt remove --purge default-jre* -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Note, selecting 'default-jre-headless' for glob 'default-jre*'
Note, selecting 'default-jre' for glob 'default-jre*'
Package 'default-jre' is not installed, so not removed
The following packages were automatically installed and are no longer required:
  adwaita-icon-theme alsacore-topology-conf also-ucm-conf at-spi2-common ca-certificates-java dconf-gsettings-backend dconf-service fontconfig
  fonts-dejavu-extra gsettings-desktop-schemas gtk-update-icon-cache hicolor-icon-theme humanity-icon-theme java-common libasound2-data libasound2d64
  libatk-bridge2.0-0t64 libatk-wrapper-Java libatk-wrapper-Java-jni libatk2.0-0t64 libatspi2.0-0t64 libavahi-client3 libavahi-common-data libavahi-common3
  libcairo-gobject2 libcairo2 libcolor2d libcurl2s2t64 libdbatriebil libdcfnd libdrm-amdgpu libdrm-intel libepoxy libgbmi libgdk-pixbuf-2.0-0
  libgdk-pixbuf2.0-bin libgdk-pixbuf2.0-common libglif7 libgl1 libgl1-mesa-dri libglvnd libglx-mesa0 libglx0 libgrahpite2-3 libgtk-3-0t64 libgtk-3-bin
  libgtk-3-common libharfbuzz libicms2-2 liblomm20 libpango-1.0-0 libpangocairo-1.0-0 libpicioaccess0 libpocrclite1 libpixman-1-0
  librsvg2-2 librsvg2-common libmesa libthai-data libthai libvulkan1 libwayland-client libwayland-cursor0 libwayland-egl1 libwayland-server libxi1-xcb1
  libxcb-0 libxcb-dr13-0 libxcb-glx0 libxcb-present0 libxcb-randr0 libxcb-render0 libxcb-shape0 libxcb-shm0 libxcb-sync1 libxcb-fixes0 libcomposite1
  libxcursor1 libxdamage1 libxfices3 libxft2 libx16 libxinerama1 libxbfile1 libxmu6 libxrandr2 libxrender1 libxshmfence1 libxtt64 libxtst6
  libxtx86dgal libxxf86vmi mesa-lib�allium mesa-vulkan-drivers openjdk-21-jre 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-headless*
  0 upgraded, 0 newly installed, 1 to remove and 67 not upgraded.
After this operation, 12.3 kB disk space will be freed.
(Reading database ... 101561 files and directories currently installed.)
Removing default-jre-headless (2:1.21-75+exp1) ...
hafsa021@hafsa021:~$ _
```

```
hafsa021@hafsa021:~$ hash -r
hafsa021@hafsa021:~$ 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-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
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
```

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

```
hafsa021@hafsa021:~$ sudo apt update
Hit:1 http://archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:5 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [21.5 kB]
Get:6 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 kB]
Get:7 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [52.2 kB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [208 kB]
Get:9 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [1,535 kB]
Get:10 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [175 kB]
Get:11 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 kB]
Get:12 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [377 kB]
Get:13 http://archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 kB]
Get:14 http://archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [7,140 kB]
Get:15 http://archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [212 kB]
Get:16 http://archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [10.9 kB]
Get:17 http://archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 kB]
Fetched 2,559 kB in 19s (134 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
67 packages can be upgraded. Run 'apt list --upgradable' to see them.
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ sudo apt-get update
Hit:1 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:2 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:4 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Reading package lists... Done
```

```
hafsa021@hafsa021:~$ sudo apt-get install default-jre -y
```

```
hafsa021@hafsa021:~$ sudo apt-get install default-jre -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
adwaita-icon-theme alsamixer-conf alsamixer-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 libcolor2 libcurls2t64 libdatrie1 libdrm-amdgpu1 libdrm-intel1 libepoxy0 libgbm1
libgdk-pixbuf2.0-0 libgdk-pixbuf2.0-bin libgdk-pixbuf2.0-common libgif7 libgl1 libgl1-mesa-dri libglvnd libglx-mesa0 libglx0 libgraphite2-3 libgtk-3-0t64
libgtk-3-bin libgtk-3-common libharfbuzz0b libice6 liblcms2-2 liblvm20 libpango-1.0-0 libpangocairo-1.0-0 libpangofft-1.0-0 libpccaccess0 libpcsc-lite1
libpixman-1-0 librsvg2-2 librsvg2-common libsm6 libthai-data libvulkan1 libwayland-client0 libwayland-cursor0 libwayland-egl1 libwayland-server0
libxi11-xcb libxau7 libxcb-dri3-0 libxcb-glx0 libxcb-present0 libxcb-randr0 libxcb-render0 libxcb-shape0 libxcb-shm0 libxcb-sync1 libxcb-xfixes0
libxcomposite1 libxcursor1 libxdamage1 libxfices3 libxft2 libxi6 libxinerama1 libxkbfile1 libxml2 libxrander1 libxshmfence1 libxt6t64 libxtst6
libxv1 libxxf86g1 libxxf86vm1 mesa-libgallium mesa-vulkan-drivers openjdk-21-jre openjdk-21-jre-headless session-migration ubuntu-mono x11-common
x11-utils
Suggested packages:
alsa-libs libasound2-plugins colord cups-common gvfs liblcms2-utils pcscd librsvg2-bin libnss-mdns fonts-ipafont-gothic fonts-ipafont-mincho
fonts-wqy-microhei | fonts-wqy-zenhei fonts-indic mesa-utils
Recommended packages:
luit
The following NEW packages will be installed:
adwaita-icon-theme alsamixer-conf alsamixer-conf at-spi2-common at-spi2-core ca-certificates-java dconf-gsettings-backend dconf-service default-jre
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 libcolor2 libcurls2t64 libdatrie1 libdrm-amdgpu1 libdrm-intel1 libepoxy0 libgbm1
libgdk-pixbuf2.0-0 libgdk-pixbuf2.0-bin libgdk-pixbuf2.0-common libgif7 libgl1 libgl1-mesa-dri libglvnd libglx-mesa0 libgraphite2-3 libgtk-3-0t64
libgtk-3-bin libgtk-3-common libharfbuzz0b libice6 liblcms2-2 liblvm20 libpango-1.0-0 libpangocairo-1.0-0 libpangofft-1.0-0 libpccaccess0 libpcsc-lite1
libpixman-1-0 librsvg2-2 librsvg2-common libsm6 libthai-data libvulkan1 libwayland-client0 libwayland-cursor0 libwayland-egl1 libwayland-server0
libxi11-xcb libxau7 libxcb-dri3-0 libxcb-glx0 libxcb-present0 libxcb-randr0 libxcb-render0 libxcb-shape0 libxcb-shm0 libxcb-sync1 libxcb-xfixes0
libxcomposite1 libxcursor1 libxdamage1 libxfices3 libxft2 libxi6 libxinerama1 libxkbfile1 libxml2 libxrander1 libxshmfence1 libxt6t64 libxtst6
libxv1 libxxf86g1 libxxf86vm1 mesa-libgallium mesa-vulkan-drivers openjdk-21-jre openjdk-21-jre-headless session-migration ubuntu-mono x11-common
x11-utils
0 upgraded, 106 newly installed, 0 to remove and 67 not upgraded.
Need to get 116 MB/120 MB of archives.
After this operation, 561 MB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble/main amd64 adwaita-icon-theme all 46.0-1 [723 kB]
9% [adwaita-icon-theme 638 kB/723 kB 88%]
```

704 kB/s 2min 43s

```
fonts-wqy-microhei | fonts-wqy-zenhei fonts-indic mesa-utils
Recommended packages:
luit
The following NEW packages will be installed:
adwaita-icon-theme als-a-topology-conf als-a-ucm-conf at-spi2-common at-spi2-core ca-certificates-java dconf-gsettings-backend dconf-service default-jre
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 libcolor2 libcupsc2t64 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 libllvm0 libpango-1.0-0 libpangocairo-1.0-0 libpangoft2-1.0-0 libpcaccess0 libpcslite1
libpixman-1-0 librsvg2-2 librsvg2-common libsm6 libthai-data libthai0 libvulkan1 libwayland-cursor0 libwayland-client0 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
libcomposite1 libxcursor1 libxdamage1 libxfixes3 libxf86-video-amdgpu1 libxinerama1 libxkbfile1 libxmu6 libxrandr2 libxrender1 libxshmfence1 libxt6t64 libxt6
libxv1 libxf86dgai libxf86vmi mesa-libgallium mesa-vulkan-drivers openjdk-21-jre openjdk-21-jre-headless session-migration ubuntu-mono x11-common
x11-utils
0 upgraded, 106 newly installed, 0 to remove and 67 not upgraded.
Need to get 116 MB/120 MB of archives.
After this operation, 561 MB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble/main amd64 adwaita-icon-theme all 46.0-1 [723 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 openjdk-21-jre-headless amd64 21.0.8+9~us1~ubuntu1~24.04.1 [46.4 MB]
Get:3 http://archive.ubuntu.com/ubuntu noble/main amd64 default-jre-headless amd64 2:1.21-75+exp1 [3,094 B]
Get:4 http://archive.ubuntu.com/ubuntu noble/main amd64 libatk1.0-0t64 amd64 2.52.0-1build1 [55.3 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble/main amd64 libatk-bridge2.0-0t64 amd64 2.52.0-1build1 [66.0 kB]
Get:6 http://archive.ubuntu.com/ubuntu noble/main amd64 libpixman-1-0 amd64 0.42.2-1build1 [279 kB]
Get:7 http://archive.ubuntu.com/ubuntu noble/main amd64 libxcb-render0 amd64 1.15-1ubuntu2 [16.2 kB]
Get:8 http://archive.ubuntu.com/ubuntu noble/main amd64 libxcb-shm0 amd64 1.15-1ubuntu2 [5,756 B]
Get:9 http://archive.ubuntu.com/ubuntu noble/main amd64 libxrender1 amd64 1:0.9.10-1build1 [19.0 kB]
Get:10 http://archive.ubuntu.com/ubuntu noble/main amd64 libcairo2 amd64 1.18.0-3build1 [566 kB]
Get:11 http://archive.ubuntu.com/ubuntu noble/main amd64 libcairo-gobject2 amd64 1.18.0-3build1 [127 kB]
Get:12 http://archive.ubuntu.com/ubuntu noble/main amd64 libcolor2 amd64 1.4.7-1build2 [149 kB]
Get:13 http://archive.ubuntu.com/ubuntu noble/main amd64 libepoxy0 amd64 1.5.10-1build1 [220 kB]
Get:14 http://archive.ubuntu.com/ubuntu noble/main amd64 fontconfig amd64 2.15.0-1.ubuntu2 [180 kB]
Get:15 http://archive.ubuntu.com/ubuntu noble/main amd64 libthai-data all 0.1.29-2build1 [158 kB]
Get:16 http://archive.ubuntu.com/ubuntu noble/main amd64 libdatrie1 amd64 0.2.13-3build1 [19.0 kB]
Get:17 http://archive.ubuntu.com/ubuntu noble/main amd64 libthai0 amd64 0.1.29-2build1 [18.9 kB]
Get:18 http://archive.ubuntu.com/ubuntu noble/main amd64 libpango-1.0-0 amd64 1.52.1+ds-1build1 [231 kB]
Get:19 http://archive.ubuntu.com/ubuntu noble/main amd64 libpangoft2-1.0-0 amd64 1.52.1+ds-1build1 [42.5 kB]
Get:20 http://archive.ubuntu.com/ubuntu noble/main amd64 libpangocairo-1.0-0 amd64 1.52.1+ds-1build1 [28.8 kB]
Get:21 http://archive.ubuntu.com/ubuntu noble/main amd64 libwayland-client0 amd64 1.22.0-2.1build1 [26.4 kB]
Get:22 http://archive.ubuntu.com/ubuntu noble/main amd64 libwayland-cursor0 amd64 1.22.0-2.1build1 [10.4 kB]
Get:23 http://archive.ubuntu.com/ubuntu noble/main amd64 libwayland-egl1 amd64 1.22.0-2.1build1 [5,628 B]
Get:24 http://archive.ubuntu.com/ubuntu noble/main amd64 libcomposite1 amd64 1:0.4.5-1build3 [6,320 B]
Get:25 http://archive.ubuntu.com/ubuntu noble/main amd64 libxfixes3 amd64 1:6.0.0-2build1 [10.8 kB]
Get:26 http://archive.ubuntu.com/ubuntu noble/main amd64 libxcursor1 amd64 1:1.2.1-1build1 [20.7 kB]
Get:27 http://archive.ubuntu.com/ubuntu noble/main amd64 libxdamage1 amd64 1:1.1.6-1build1 [6,150 B]
Get:28 http://archive.ubuntu.com/ubuntu noble/main amd64 libxinerama1 amd64 2:1.1.4-3build1 [6,396 B]
Get:29 http://archive.ubuntu.com/ubuntu noble/main amd64 libxrandr2 amd64 2:1.5.2-2build1 [19.7 kB]
Get:30 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libgtk-3-common all 3.24.41-4ubuntu1.3 [1,426 kB]
Get:31 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libgtk-3-0t64 amd64 3.24.41-4ubuntu1.3 [2,913 kB]
49% [31 libgtk-3-0t64 2,282 kB/2,913 kB 78%]
```

113 kB/s 9min 15s

```
Unpacking libxaw7:amd64 (2:1.0.14-1build2) ...
Selecting previously unselected package libxcb-shape0:amd64.
Preparing to unpack .../093-libxcb-shape0_1.15-1ubuntu2_amd64.deb ...
Unpacking libxcb-shape0:amd64 (1.15-1ubuntu2) ...
Selecting previously unselected package libxft2:amd64.
Preparing to unpack .../094-libxft2_2.3.6-1build1_amd64.deb ...
Unpacking libxft2:amd64 (2.3.6-1build1) ...
Selecting previously unselected package libxkbfile1:amd64.
Preparing to unpack .../095-libxkbfile1_1%3a1.1.0-1build4_amd64.deb ...
Unpacking libxkbfile1:amd64 (1:1.1.0-1build4) ...
Selecting previously unselected package libxv1:amd64.
Preparing to unpack .../096-libxv1_2%3a1.0.11-1.1build1_amd64.deb ...
Unpacking libxv1:amd64 (2:1.0.11-1.1build1) ...
Selecting previously unselected package libxxf86dga1:amd64.
Preparing to unpack .../097-libxxf86dga1_2%3a1.1.5-1build1_amd64.deb ...
Unpacking libxxf86dga1:amd64 (2:1.1.5-1build1) ...
Selecting previously unselected package x11-utils.
Preparing to unpack .../098-x11-utils_7.7+6build2_amd64.deb ...
Unpacking x11-utils (7.7+6build2) ...
Selecting previously unselected package libatk-wrapper-java.
Preparing to unpack .../099-libatk-wrapper-java_0.40.0-3build2_all.deb ...
Unpacking libatk-wrapper-java (0.40.0-3build2) ...
Selecting previously unselected package libatk-wrapper-java-jni:amd64.
Preparing to unpack .../100-libatk-wrapper-java-jni_0.40.0-3build2_amd64.deb ...
Unpacking libatk-wrapper-java-jni:amd64 (0.40.0-3build2) ...
Selecting previously unselected package libgdk-pixbuf2.0-bin.
Preparing to unpack .../101-libgdk-pixbuf2.0-bin_2.42.10+dfsg-3ubuntu3.2_amd64.deb ...
Unpacking libgdk-pixbuf2.0-bin (2.42.10+dfsg-3ubuntu3.2) ...
Selecting previously unselected package libgtk-3-bin.
Preparing to unpack .../102-libgtk-3-bin_3.24.41-4ubuntu1.3_amd64.deb ...
Unpacking libgtk-3-bin (3.24.41-4ubuntu1.3) ...
Selecting previously unselected package librsvg2-2:amd64.
Preparing to unpack .../103-librsvg2-2_2.58.0+dfsg-1build1_amd64.deb ...
Unpacking librsvg2-2:amd64 (2.58.0+dfsg-1build1) ...
Selecting previously unselected package librsvg2-common:amd64.
Preparing to unpack .../104-librsvg2-common_2.58.0+dfsg-1build1_amd64.deb ...
Unpacking librsvg2-common:amd64 (2.58.0+dfsg-1build1) ...
Selecting previously unselected package mesa-vulkan-drivers:amd64.
Preparing to unpack .../105-mesa-vulkan-drivers_25.0.7-0ubuntu0.24.04.2_amd64.deb ...
Unpacking mesa-vulkan-drivers:amd64 (25.0.7-0ubuntu0.24.04.2) ...
Setting up libgraphite2-3:amd64 (1.3.14-2build1) ...
Setting up libxcb-dri3-0:amd64 (1.15-1ubuntu2) ...
Setting up liblcms2-2:amd64 (2.14-2build1) ...
Setting up libpixman-1-0:amd64 (0.42.2-1build1) ...
Setting up libwayland-server0:amd64 (1.22.0-2.1build1) ...
Setting up libx11-xcb1:amd64 (2:1.8.7-1build1) ...
Setting up libpciaccess0:amd64 (0.17-3ubuntu0.24.04.2) ...
Setting up session-migration (0.3.9build1) ...
Setting up fontconfig (2.15.0-1.1ubuntu2) ...
Regenerating fonts cache...
```

```
Replacing debian:SSL.com_EV_Root_Certification_Authority_ECC.pem
Replacing debian:SSL.com_EV_Root_Certification_Authority_RSA_R2.pem
Replacing debian:SSL.com_Root_Certification_Authority_ECC.pem
Replacing debian:SSL.com_Root_Certification_Authority_RSA.pem
Replacing debian:SSL.com_TLS_ECC_Root_CA_2022.pem
Replacing debian:SSL.com_TLS_RSA_Root_CA_2022.pem
Replacing debian:Starfield_Class_2_CA.pem
Replacing debian:Starfield_Root_Certificate_Authority_-_G2.pem
Replacing debian:Starfield_Services_Root_Certificate_Authority_-_G2.pem
Replacing debian:SwissSign_Gold_CA_-_G2.pem
Replacing debian:SwissSign_Silver_CA_-_G2.pem
Replacing debian:SZAFIR_ROOT_CA2.pem
Replacing debian:Telia_Root_CA_v2.pem
Replacing debian:TeliaSonera_Root_CA_v1.pem
Replacing debian:TrustAsia_Global_Root_CA_G3.pem
Replacing debian:TrustAsia_Global_Root_CA_G4.pem
Replacing debian:Trustwave_Global_Certification_Authority.pem
Replacing debian:Trustwave_Global_ECC_P256_Certification_Authority.pem
Replacing debian:Trustwave_Global_ECC_P384_Certification_Authority.pem
Replacing debian:T_TeleSec_GlobalRoot_Class_2.pem
Replacing debian:T_TeleSec_GlobalRoot_Class_3.pem
Replacing debian:TUBITAK_Kamu_SM_SSL_Kok_Sertifikasi_-_Surum_1.pem
Replacing debian:TunTrust_Root_CA.pem
Replacing debian:TWCA_Global_Root_CA.pem
Replacing debian:TWCA_Root_Certification_Authority.pem
Replacing debian:UCA_Extended_Validation_Root.pem
Replacing debian:UCA_Global_G2_Root.pem
Replacing debian:USERTrust_ECC_Certification_Authority.pem
Replacing debian:USERTrust_RSA_Certification_Authority.pem
Replacing debian:vTrus_ECC_Root_CA.pem
Replacing debian:vTrus_Root_CA.pem
Replacing debian:XRamp_Global_CA_Root.pem
done.
Setting up openjdk-21-jre:amd64 (21.0.8+9~us1-0ubuntu1~24.04.1) ...
Setting up default-jre-headless (2:1.21-75+exp1) ...
Setting up default-jre (2:1.21-75+exp1) ...
Processing triggers for libgdk-pixbuf-2.0-0:amd64 (2.42.10+dfsg-3ubuntu3.2) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ java -version
openjdk version "21.0.8" 2025-07-15
OpenJDK Runtime Environment (build 21.0.8+9-Ubuntu-0ubuntu124.04.1)
OpenJDK 64-Bit Server VM (build 21.0.8+9-Ubuntu-0ubuntu124.04.1, mixed mode, sharing)
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ sudo apt-get remove default-jre -y
[sudo] password for hafsa021:
```

```
hafsa021@hafsa021:~$ sudo apt-get remove default-jre -y
[sudo] password for hafsa021:
Sorry, try again.
[sudo] password for hafsa021:
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 alsamixer-topology-conf alsamixer-conf 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 libcolor2 libcurl2t64 libdatetrie1 libdrm-amdgpu1 libdrm-intel1 libepoxy libgbm1
  libgdk-pixbuf2.0-0 libgdk-pixbuf2.0-bin libgdk-pixbuf2.0-common libgl1 libgl1-mesa-dri libglvnd libgraphite2-3 libgtk-3-0t64
  libgtk-3-bin libgtk-3-common libharfbuzz0e libice6 liblcms2-2 libllvm20 libpango-1.0-0 libpangofft2-1.0-0 libpciaccess0 libpcsc-lite1
  libpixman-1-0 librsvg2-2 librsvg2-common libsm6 libthai-data libthai0 libvulkan libwayland-client0 libwayland-cursor0 libwayland-egl1 libwayland-server0
  libx11-xcb libxau7 libxcb-dri3-0 libxcb-present0 libxcb-randr0 libxcb-render0 libxcb-shm libxcb-sync1 libxcb-xfixes0
  libxcursor1 libxdamage1 libxf86dga1 libxf86vm1 mesa-vulkan-drivers openjdk-21-jre 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
0 upgraded, 0 newly installed, 1 to remove and 67 not upgraded.
After this operation, 6,144 B disk space will be freed.
(Reading database ... 101562 files and directories currently installed.)
Removing default-jre (2:1.21-75+exp1) ...
```

```
Removing libxrender1:amd64 (1:0.9.10-1.1build1) ...
Removing libxtst6:amd64 (2:1.2.3-1.1build1) ...
Removing libxv1:amd64 (2:1.0.11-1.1build1) ...
Removing libxxf86dga1:amd64 (2:1.1.5-1build1) ...
Removing libxxf86vm1:amd64 (1:1.1.4-1build4) ...
Removing session-migration (0.3.9build1) ...
Removing x11-common (1:7.7+23ubuntu3) ...
Removing libatk1.0-0t64:amd64 (2.52.0-1build1) ...
Removing at-spi2-common (2.52.0-1build1) ...
Removing mesa-libgallium:amd64 (25.0.7-0ubuntu0.24.04.2) ...
Removing libdrm-amdgpu1:amd64 (2.4.122-1~ubuntu0.24.04.1) ...
Removing libdrm-intel1:amd64 (2.4.122-1~ubuntu0.24.04.1) ...
Removing libllvm20:amd64 (1:20.1.2-0ubuntu1~24.04.2) ...
Removing libpciaccess0:amd64 (0.17-3ubuntu0.24.04.2) ...
Removing libx11-xcb1:amd64 (2:1.8.7-1build1) ...
Removing libxcb-dri3-0:amd64 (1.15-1ubuntu2) ...
Removing libxcb-present0:amd64 (1.15-1ubuntu2) ...
Removing libxcb-randr0:amd64 (1.15-1ubuntu2) ...
Removing libxcb-sync1:amd64 (1.15-1ubuntu2) ...
Removing libxcb-xfixes0:amd64 (1.15-1ubuntu2) ...
Removing libxshmfence1:amd64 (1.3-1build5) ...
Removing ubuntu-mono (24.04-0ubuntu1) ...
Removing humanity-icon-theme (0.6.16) ...
Removing adwaita-icon-theme (46.0-1) ...
Removing gtk-update-icon-cache (3.24.41-4ubuntu1.3) ...
Removing hicolor-icon-theme (0.17-2) ...
Removing libgdk-pixbuf2.0-0:amd64 (2.42.10+dfsg-3ubuntu3.2) ...
Removing libgdk-pixbuf2.0-common (2.42.10+dfsg-3ubuntu3.2) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libglib2.0-0t64:amd64 (2.80.0-6ubuntu3.4) ...
No schema files found: removed existing output file.
Processing triggers for libc-bin (2.39-0ubuntu8.5) ...
hafsa021@hafsa021:~$ sudo apt-get autoclean
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
```

```
Reading state information... done
hafsa021@hafsa021:~$ hash -r
hafsa021@hafsa021:~$ 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-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
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
```

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

```
hafsa021@hafsa021:~$ sudo apt update
Hit:1 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu noble-security InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
67 packages can be upgraded. Run 'apt list --upgradable' to see them.
hafsa021@hafsa021:~$ _
```

```
hafsa021@hafsa021:~$ sudo apt upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following NEW packages will be installed:
  linux-headers-6.8.0-86 linux-image-6.8.0-86-generic linux-modules-6.8.0-86-generic linux-modules-extra-6.8.0-86-generic
    linux-tools-6.8.0-86 linux-tools-6.8.0-86-generic
The following packages will be upgraded:
  bind9-dnsutils bind9-host bind9-libs cloud-init coreutils distro-info-data dpkg firmware-sof-signed fwupd landscape-common libc-bin libc-dev-bin
  libc-devtools libc6 libc6-dev libfwupd2 libnss-systemd libpam-modules libpam-modules-bin libpam-runtime libpam-systemd libpam0g libpython3.12-minimal
  libpython3.12-stdlib libpython3.12t64 libsqlite3-0 libssl3t64 libsystemd-shared libsystemd libtiff6 libudev libudisks2-0 libxml2 linux-firmware
  linux-generic linux-headers-generic linux-image-generic linux-libc-dev linux-tools-common locales open-vm-tools openssh-client openssh-server
  openssh-sftp-server openssl powernegmt-base python3-software-properties python3.12 python3.12-minimal snapd software-properties-common sosreport systemd
  systemd-dev systemd-hwdb systemd-resolved systemd-sysv systemd-timesyncd tcpdump ubuntu-drivers-common udev udisk2 vim vim-common vim-runtime vim-tiny
  xxd
67 upgraded, 7 newly installed, 0 to remove and 0 not upgraded.
37 standard LTS security updates
Need to get 829 MB of archives.
After this operation, 308 MB of additional disk space will be used.
Do you want to continue? [Y/n] _
```

```
Get:24 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libpam-modules amd64 1.5.3-5ubuntu5.5 [286 kB]
Get:25 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libpython3.12t64 amd64 3.12.3-1ubuntu0.8 [2,355 kB]
Get:26 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 python3.12 amd64 3.12.3-1ubuntu0.8 [651 kB]
Get:27 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libpython3.12-stdlib amd64 3.12.3-1ubuntu0.8 [2,068 kB]
Get:28 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 python3.12-minimal amd64 3.12.3-1ubuntu0.8 [2,394 kB]
Get:29 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libpython3.12-minimal amd64 3.12.3-1ubuntu0.8 [836 kB]
Get:30 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libsqlite3-0 amd64 3.45.1-1ubuntu2.5 [701 kB]
Get:31 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 openssh-sftp-server amd64 1:9.6p1-3ubuntu13.14 [37.3 kB]
Get:32 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 openssh-server amd64 1:9.6p1-3ubuntu13.14 [510 kB]
Get:33 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 openssh-client amd64 1:9.6p1-3ubuntu13.14 [906 kB]
Get:34 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 ubuntu-drivers-common amd64 1:0.9.7.6ubuntu3.4 [65.8 kB]
Get:35 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libxml2 amd64 2.9.14+dfsg-1.3ubuntu3.5 [763 kB]
Get:36 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 open-vm-tools amd64 2:12.5.0-1~ubuntu0.24.04.2 [742 kB]
Get:37 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 distro-info-data all 0.60ubuntu0.5 [6,394 kB]
Get:38 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 locales all 2.39-0ubuntu8.6 [4,229 kB]
Get:39 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 openssl amd64 3.0.13-0ubuntu3.6 [1,003 kB]
Get:40 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 systemd-hwdb all 255.1.6 [3,684 kB]
Get:41 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 vim amd64 2:9.1.0016-1ubuntu7.9 [1,881 kB]
Get:42 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 vim-common all 2:9.1.0016-1ubuntu7.9 [386 kB]
Get:43 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 vim-tiny amd64 2:9.1.0016-1ubuntu7.9 [803 kB]
Get:44 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 vim-runtime all 2:9.1.0016-1ubuntu7.9 [7,281 kB]
Get:45 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 xxd amd64 2:9.1.0016-1ubuntu7.9 [63.8 kB]
Get:46 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 bind9-dnsutils amd64 1:9.18.39-0ubuntu0.24.04.2 [156 kB]
Get:47 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 bind9-host amd64 1:9.18.39-0ubuntu0.24.04.2 [50.5 kB]
Get:48 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 bind9-libs amd64 1:9.18.39-0ubuntu0.24.04.2 [1,257 kB]
Get:49 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 powermgmt-base all 1.37ubuntu0.1 [7,650 kB]
Get:50 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 tcpdump amd64 4.99.4-3ubuntu4.24.04.1 [479 kB]
Get:51 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 firmware-sof-signed all 2023.12.1-1ubuntu1.10 [7,382 kB]
Get:52 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libfwupd2 amd64 1.9.31-0ubuntu1~24.04.1 [136 kB]
Get:53 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 fwupd amd64 1.9.31-0ubuntu1~24.04.1 [4,592 kB]
Get:54 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 landscape-common amd64 24.02-0ubuntu5.6 [93.2 kB]
Get:55 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libtiff6 amd64 4.5.1+git230720-4ubuntu2.4 [199 kB]
Get:56 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 udisks2 amd64 2.10.1-6ubuntu1.3 [297 kB]
Get:57 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libudisks2-0 amd64 2.10.1-6ubuntu1.3 [175 kB]
Get:58 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-firmware amd64 20240318.git3b128b60-0ubuntu2.19 [538 MB]
Get:59 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-modules-6.8.0-86-generic amd64 6.8.0-86.87 [39.4 MB]
Get:60 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-image-6.8.0-86-generic amd64 6.8.0-86.87 [14.8 MB]
Get:61 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-modules-extra-6.8.0-86-generic amd64 6.8.0-86.87 [113 MB]
Get:62 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-generic amd64 6.8.0-86.87 [1,700 kB]
Get:63 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-image-generic amd64 6.8.0-86.87 [11.0 kB]
Get:64 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-headers-6.8.0-86 all 6.8.0-86.87 [14.0 MB]
Get:65 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-headers-6.8.0-86-generic amd64 6.8.0-86.87 [4,170 kB]
Get:66 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-headers-generic amd64 6.8.0-86.87 [10.8 kB]
Get:67 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-common all 6.8.0-86.87 [772 kB]
Get:68 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-6.8.0-86 amd64 6.8.0-86.87 [5,432 kB]
Get:69 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-6.8.0-86-generic amd64 6.8.0-86.87 [1,812 kB]
Get:70 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 software-properties-common all 0.99.49.3 [14.4 kB]
Get:71 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 python3-software-properties all 0.99.49.3 [29.9 kB]
Get:72 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 snapd amd64 2.71+ubuntu24.04 [33.9 MB]
96% [72 snapd 4,956 kB/33.9 MB 15%]
```

```
Setting up libpython3.12-minimal:amd64 (3.12.3-1ubuntu0.8) ...
Setting up linux-libc-dev:amd64 (6.8.0-86.87) ...
Setting up libnss-systemd:amd64 (255.4-1ubuntu8.11) ...
Setting up locales (2.39-0ubuntu8.6) ...
Generating locales (this might take a while)...
  en_US.UTF-8... done
Generation complete.
Setting up landscape-common (24.02-0ubuntu5.6) ...
Setting up xxd (2:9.1.0016-1ubuntu7.9) ...
Setting up vim-common (2:9.1.0016-1ubuntu7.9) ...
Setting up python3-software-properties (0.99.49.3) ...
Setting up systemd-timesyncd (255.4-1ubuntu8.11) ...
Setting up udev (255.4-1ubuntu8.11) ...
Setting up sosreport (4.9.2-0ubuntu0~24.04.1) ...
Installing new version of config file /etc/sos/sos.conf ...
Setting up systemd-hwe-hwdb (255.1.6) ...
Setting up linux-modules-6.8.0-86-generic (6.8.0-86.87) ...
Setting up libtiff6:amd64 (4.5.1+git230720-4ubuntu2.4) ...
Setting up linux-image-6.8.0-86-generic (6.8.0-86.87) ...
I: /boot/vmlinuz is now a symlink to vmlinuz-6.8.0-86-generic
I: /boot/initrd.img is now a symlink to initrd.img-6.8.0-86-generic
Setting up libpam-systemd:amd64 (255.4-1ubuntu8.11) ...
Setting up linux-modules-extra-6.8.0-86-generic (6.8.0-86.87) ...
Setting up vim-runtime (2:9.1.0016-1ubuntu7.9) ...
Setting up libc-dev-bin (2.39-0ubuntu8.6) ...
Setting up openssl (3.0.13-0ubuntu3.6) ...
Setting up linux-tools-common (6.8.0-86.87) ...
Setting up libxml2:amd64 (2.9.14+dfsg-1.3ubuntu3.5) ...
Setting up fwupd (1.9.31-0ubuntu1~24.04.1) ...
fwupd-offline-update.service is a disabled or a static unit not running, not starting it.
fwupd-refresh.service is a disabled or a static unit not running, not starting it.
fwupd.service is a disabled or a static unit not running, not starting it.
Setting up libudisks2-0:amd64 (2.10.1-6ubuntu1.3) ...
Setting up libc-devtools (2.39-0ubuntu8.6) ...
Setting up systemd-resolved (255.4-1ubuntu8.11) ...
Setting up linux-headers-6.8.0-86 (6.8.0-86.87) ...
Setting up python3.12-minimal (3.12.3-1ubuntu0.8) ...
Setting up snapd (2.71+ubuntu24.04) ...
Installing new version of config file /etc/apparmor.d/usr.lib.snapd.snap-confine.real ...
snapd.failure.service is a disabled or a static unit not running, not starting it.
snapd gpio-chardev-setup.target is a disabled or a static unit not running, not starting it.
snapd.snap-repair.service is a disabled or a static unit not running, not starting it.
Setting up openssh-sftp-server (1:9.6p1-3ubuntu13.14) ...
Setting up udisks2 (2.10.1-6ubuntu1.3) ...
Setting up linux-image-generic (6.8.0-86.87) ...
Setting up libpython3.12-stdlib:amd64 (3.12.3-1ubuntu0.8) ...
Setting up ubuntu-drivers-common (1:0.9.7.6ubuntu3.4) ...
Setting up openssh-server (1:9.6p1-3ubuntu13.14) ...

Progress: [ 87%] [#####
hafsa021@hafsa021:~$ nano ~/apt_update_vs_upgrade.md
```

```
GNU nano 7.2
Myself Hafsa Khalid.
I am student of Software Engineering at FJWU.wq
/home/hafsa021/apt_update_vs_upgrade.md
```

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

```
hafsa021@hafsa021:~$ sudo snap install --classic code
[sudo] password for hafsa021:
2025-10-23T20:26:05Z INFO Waiting for automatic snapd restart...
code 7d842fb8 from Visual Studio Code (vscode*) installed
```

```
hafsa021@hafsa021:~$ snap list code
Name    Version   Rev  Tracking      Publisher  Notes
code    7d842fb8  211  latest/stable  vscode*    classic
hafsa021@hafsa021:~$ _
```

```
hafsa021@hafsa021:~$ code --version
1.105.1
7d842fb85a0275a4a8e4d7e040d2625abbf7f084
x64
hafsa021@hafsa021:~$ _
```

```
hafsa021@hafsa021:~$ ls -l /snap/bin > snapbin.txt
hafsa021@hafsa021:~$ grep code snapbin.txt
lrwxrwxrwx 1 root root 13 Oct 24 00:53 code -> /usr/bin/snap
lrwxrwxrwx 1 root root 13 Oct 24 00:53 code.url-handler -> /usr/bin/snap
hafsa021@hafsa021:~$
```

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

```
hafsa021@hafsa021:~$ sudo apt update && sudo apt upgrade -y
[sudo] password for hafsa021:
Get:1 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Hit:2 http://archive.ubuntu.com/ubuntu noble InRelease
Get:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Hit:4 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Get:5 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [1,260 kB]
Get:6 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [1,536 kB]
Get:7 http://archive.ubuntu.com/ubuntu noble-updates/main Translation-en [292 kB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [208 kB]
Fetched 3,548 kB in 11s (335 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
All packages are up to date.
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
hafsa021@hafsa021:~$ _
```

```
hafsa021@hafsa021:~$ sudo apt install xfce4 xfce4-goodies -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  zzip accountsservice accountsservice-ubuntu-schemas acl activity-log-manager adwaita-icon-theme alsa-topology-conf
  alsa-ucm-conf apg aspell-en at-spi2-common at-spi2-core avahi-daemon avahi-utils bamfdaemon bluez bluez-obexd
  bubblewrap bzip2 cheese-common colord colord-data cpp cpp-13 cpp-13-x86-64-linux-gnu cpp-x86-64-linux-gnu
  cracklib-runtime cups cups-browsed cups-client cups-common cups-core-drivers cups-daemon cups-filters
  cups-filters-core-drivers cups-ipp-utils cups-pk-helper cups-ppdc cups-server-common dconf-cli
  dconf-gsettings-backend dconf-service desktop-base desktop-file-utils dictionaries-common dns-root-data dnsmasq-base
  docbook-xml elementary-xfce-icon-theme emacsclient-common enchant-2 evolution-data-server evolution-data-server-common
  exo-utils fontconfig fonts-droid-fallback fonts-noto-mono fonts-quicksand fonts-ubuntu fonts-urw-base35 gcc-13-base
  gcr gcr4 geocode-glib-common ghostscript gir1.2-atk-1.0 gir1.2-dbusmenu-glib-0.4 gir1.2-freedesktop
  gir1.2-gdkpixbuf-2.0 gir1.2-gtk-3.0 gir1.2-handy-1 gir1.2-harfbuzz-0.0 gir1.2-ibus-1.0 gir1.2-notify-0.7
  gir1.2-pango-1.0 gir1.2-polkit-1.0 gir1.2-secret-1 gkbd-capplet glib-networking glib-networking-common
  glib-networking-services gnome-bluetooth gnome-bluetooth-3-common gnome-bluetooth-sendto gnome-control-center-faces
  gnome-desktop3-data gnome-keyring gnome-keyring-pkcs11 gnome-menus gnome-power-manager gnome-screensaver
  gnome-session-bin gnome-session-common gnome-settings-daemon-common gnome-startup-applications gnome-terminal
  gnome-terminal-data greybird-gtk-theme gsettings-desktop-schemas gsettings-ubuntu-schemas gstreamer1.0-clutter-3.0
  gstreamer1.0-gl gstreamer1.0-plugins-base gstreamer1.0-plugins-good gstreamer1.0-x gtk-update-icon-cache
  gtk2-engines-murrine gvfs gvfs-backends gvfs-common gvfs-daemons gvfs-libs hicolor-icon-theme humanity-icon-theme
  hunspell-en-us i965-va-driver ibus ibus-data ibus-gtk ibus-gtk3 ibus-gtk4 im-config indicator-applet
  indicator-application indicator-appmenu indicator-bluetooth indicator-common indicator-datetime indicator-keyboard
  indicator-messages indicator-power indicator-printers indicator-session indicator-sound intel-media-va-driver
  ipp-usb jayatana libaa1 libabsl20220623t64 libaccounts-glib0 libaccounts-service0 libbadwaiata-1-0 libasound2-data
  libasound2-plugins libasound2t64 libaspell115 libasynchns0 libatk-bridge2.0-0t64 libatk1.0-0t64 libatkmm-1.6-1v5
  libatomic1 libatspi2.0-0t64 libauthen-sasl-perl libavahi-client3 libavahi-common-data libavahi-common3
  libavahi-core7 libavahi-glib1 libavc1394-0 libavcodec60 libavutil58 libavatana-appindicator3-1 libavatana-id3-0.4-0
  libavatana-indicator3-7 libbamf3-2t64 libbluetooth3 libburn4t64 libcaca0 libcairo-gobject2
  libcairo-script-interpreter2 libcairo2 libcairomm-1.0-1v5 libcamel-1.2-64t64 libcanberra-gtk3-0t64
```

```
Pending kernel upgrade!
Running kernel version:
  6.8.0-71-generic
Diagnostics:
  The currently running kernel version is not the expected kernel version 6.8.0-86-generic.

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

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:
  hafsa021 @ session #1: login[991]
  hafsa021 @ user manager service: systemd[1356]

No VM guests are running outdated hypervisor (qemu) binaries on this host.
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ sudo apt install xrdp -y
```

```
Setting up pipewire-module-xrdp (0.2-2) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu8.6) ...
Scanning processes...
Scanning candidates...
Scanning linux images...

Pending kernel upgrade!
Running kernel version:
  6.8.0-71-generic
Diagnostics:
  The currently running kernel version is not the expected kernel version 6.8.0-86-generic.

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

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:
hafsa021 @ session #1: login[991]
hafsa021 @ user manager service: systemd[1356]

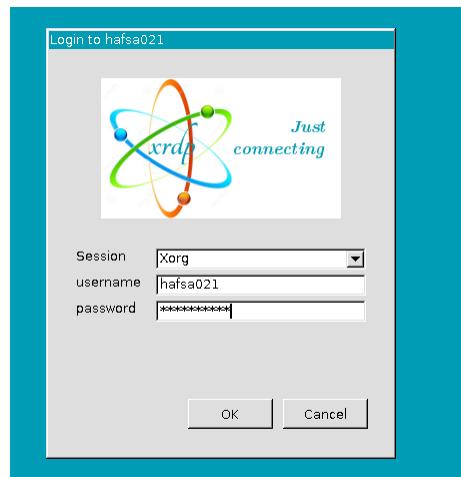
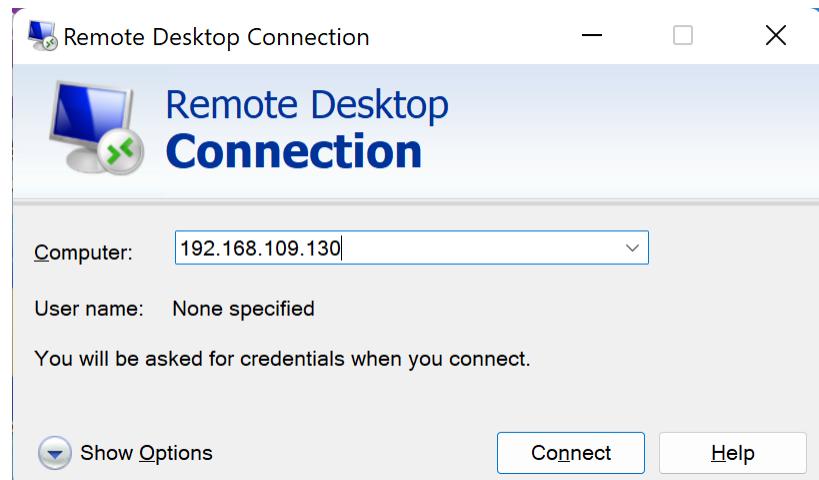
No VM guests are running outdated hypervisor (qemu) binaries on this host.
```

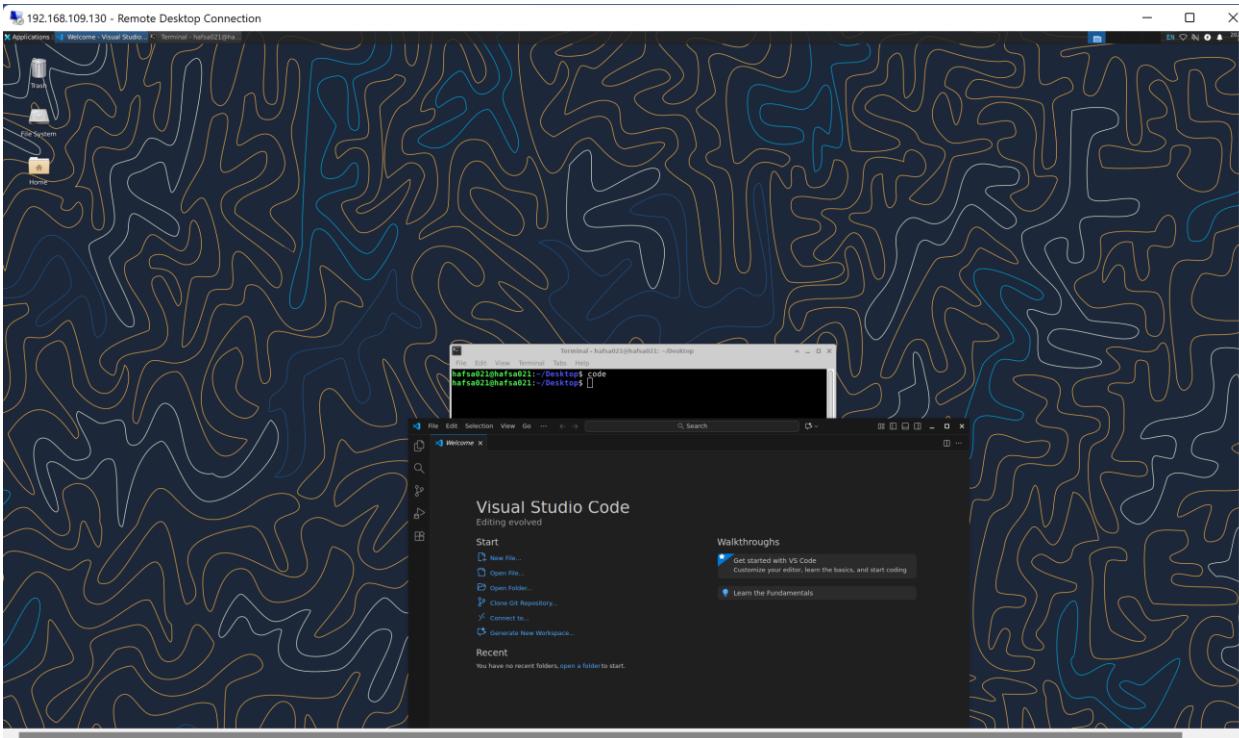
```
hafsa021@hafsa021:~$ sudo systemctl enable --now xrdp
Synchronizing state of xrdp.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable xrdp
```

```
hafsa021@hafsa021:~$ sudo systemctl status xrdp
● xrdp.service - xrdp daemon
  Loaded: loaded (/usr/lib/systemd/system/xrdp.service; enabled; preset: enabled)
  Active: active (running) since Fri 2025-10-24 01:24:24 UTC; 2min 42s ago
    Docs: man:xrdp(8)
          man:xrdp.ini(5)
  Main PID: 33240 (xrdp)
    Tasks: 1 (limit: 2210)
   Memory: 864.0K (peak: 1.5M)
     CPU: 35ms
    CGroup: /system.slice/xrdp.service
            └─33240 /usr/sbin/xrdp

Oct 24 01:24:23 hafsa021 systemd[1]: Starting xrdp.service - xrdp daemon...
Oct 24 01:24:23 hafsa021 xrdp[33238]: [INFO ] address [0.0.0.0] port [3389] mode 1
Oct 24 01:24:23 hafsa021 xrdp[33238]: [INFO ] listening to port 3389 on 0.0.0.0
Oct 24 01:24:23 hafsa021 xrdp[33238]: [INFO ] xrdp_listen_pp done
Oct 24 01:24:23 hafsa021 systemd[1]: xrdp.service: Can't open PID file /run/xrdp/xrdp.pid (yet?) after start: No such f
Oct 24 01:24:24 hafsa021 systemd[1]: Started xrdp.service - xrdp daemon.
Oct 24 01:24:25 hafsa021 xrdp[33240]: [INFO ] starting xrdp with pid 33240
Oct 24 01:24:25 hafsa021 xrdp[33240]: [INFO ] address [0.0.0.0] port [3389] mode 1
Oct 24 01:24:25 hafsa021 xrdp[33240]: [INFO ] listening to port 3389 on 0.0.0.0
Oct 24 01:24:25 hafsa021 xrdp[33240]: [INFO ] xrdp_listen_pp done
lines 1-22/22 (END)
● xrdp.service - xrdp daemon
  Loaded: loaded (/usr/lib/systemd/system/xrdp.service; enabled; preset: enabled)
  Active: active (running) since Fri 2025-10-24 01:24:24 UTC; 2min 42s ago
    Docs: man:xrdp(8)
          man:xrdp.ini(5)
  Main PID: 33240 (xrdp)
```

```
hafsa021@hafsa021:~$ echo xfce4-session > ~/.xsession
hafsa021@hafsa021:~$
```





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

```
hafsa021@hafsa021:~$ sudo apt update
[sudo] password for hafsa021:
Get:1 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Hit:2 http://archive.ubuntu.com/ubuntu noble InRelease
Get:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:5 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [21.5 kB]
Get:6 http://security.ubuntu.com/ubuntu noble-security/main amd64 c-n-f Metadata [8,984 B]
Get:7 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Get:8 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [52.3 kB]
Get:9 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B]
Get:10 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [1,536 kB]
Get:11 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [175 kB]
Get:12 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]
Get:13 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [378 kB]
Get:14 http://archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 B]
Get:15 http://archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [7,148 B]
Get:16 http://archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]
Get:17 http://archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [11.0 kB]
Get:18 http://archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]
Fetched 2,570 kB in 4s (676 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
All packages are up to date.
```

```

hafsa021@hafsa021:~$ sudo apt install lightdm lightdm-gtk-greeter -y
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.
The following additional packages will be installed:
  gnome-accessibility-themes gnome-themes-extra gnome-themes-extra-data gtk2-engines-pixbuf
The following NEW packages will be installed:
  gnome-accessibility-themes gnome-themes-extra gnome-themes-extra-data gtk2-engines-pixbuf lightdm-gtk-greeter
0 upgraded, 5 newly installed, 0 to remove and 0 not upgraded.
Need to get 2,495 kB of archives.
After this operation, 7,003 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble/main amd64 gnome-accessibility-themes all 3.28-2ubuntu5 [2,296 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble/main amd64 gnome-themes-extra-data all 3.28-2ubuntu5 [69.4 kB]
Get:3 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 gtk2-engines-pixbuf amd64 2.24.33-4ubuntu1.1 [20.6 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble/main amd64 gnome-themes-extra amd64 3.28-2ubuntu5 [15.2 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble/universe amd64 lightdm-gtk-greeter amd64 2.0.9-0ubuntu3 [94.3 kB]
Fetched 2,495 kB in 4s (650 kB/s)
Selecting previously unselected package gnome-accessibility-themes.
(Reading database ... 175803 files and directories currently installed.)
Preparing to unpack .../gnome-accessibility-themes_3.28-2ubuntu5_all.deb ...
Unpacking gnome-accessibility-themes (3.28-2ubuntu5) ...
Selecting previously unselected package gnome-themes-extra-data.
Preparing to unpack .../gnome-themes-extra-data_3.28-2ubuntu5_all.deb ...
Unpacking gnome-themes-extra-data (3.28-2ubuntu5) ...
Selecting previously unselected package gtk2-engines-pixbuf:amd64.
Preparing to unpack .../gtk2-engines-pixbuf_2.24.33-4ubuntu1.1_amd64.deb ...
Unpacking gtk2-engines-pixbuf:amd64 (2.24.33-4ubuntu1.1) ...
Selecting previously unselected package gnome-themes-extra:amd64.
Preparing to unpack .../gnome-themes-extra_3.28-2ubuntu5_amd64.deb ...
Unpacking gnome-themes-extra:amd64 (3.28-2ubuntu5) ...
Selecting previously unselected package lightdm-gtk-greeter.
Preparing to unpack .../lightdm-gtk-greeter_2.0.9-0ubuntu3_amd64.deb ...
Unpacking lightdm-gtk-greeter (2.0.9-0ubuntu3) ...
Setting up gnome-themes-extra-data (3.28-2ubuntu5) ...
Setting up gnome-accessibility-themes (3.28-2ubuntu5) ...
Setting up gtk2-engines-pixbuf:amd64 (2.24.33-4ubuntu1.1) ...
Setting up lightdm-gtk-greeter (2.0.9-0ubuntu3) ...
update-alternatives: using /usr/share/xgreeters/lightdm-gtk-greeter.desktop to provide /usr/share/xgreeters/lightdm-greeter.desktop (lightdm-greeter) in
Setting up gnome-themes-extra:amd64 (3.28-2ubuntu5) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Scanning processes...
Scanning candidates...
Scanning linux images...

Pending kernel upgrade!
Running kernel version:
  6.8.0-71-generic
Diagnostics:
  The currently running kernel version is not the expected kernel version 6.8.0-86-generic.

```

```

Pending kernel upgrade!
Running kernel version:
  6.8.0-71-generic
Diagnostics:
  The currently running kernel version is not the expected kernel version 6.8.0-86-generic.

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

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:
  hafsa021 @ session #1: login[991]
  hafsa021 @ user manager service: systemd[1356]

No VM guests are running outdated hypervisor (qemu) binaries on this host.
hafsa021@hafsa021:~$
```

```

hafsa021@hafsa021:~$ sudo mkdir -p /etc/lightdm/lightdm.conf.d
hafsa021@hafsa021:~$ echo -e "[Seat:*\n  greeter-session=lightdm-gtk-greeter\n  user-session=xfce\n  autologin-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
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ sudo rm -f /var/lib/lightdm/.Xauthority
hafsa021@hafsa021:~$ sudo rm -f ~/.Xauthority
hafsa021@hafsa021:~$ sudo rm -rf ~/.cache/sessions
hafsa021@hafsa021:~$ sudo chown -R $USER:$USER /home/$USER
chown: cannot access '/home/hafsa021/thinclient_drives': Permission denied
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ sudo systemctl restart lightdm
hafsa021@hafsa021:~$ 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.
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ sudo systemctl set-default graphical.target
Created symlink /etc/systemd/system/default.target → /usr/lib/systemd/system/graphical.target.
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ sudo reboot

Broadcast message from root@hafsa021 on pts/2 (Fri 2025-10-24 04:11:37 UTC):

The system will reboot now!
```

```
hafsa021@hafsa021:~$ Connection to 192.168.109.130 closed by remote host.
Connection to 192.168.109.130 closed.
```

```
C:\Users\HP>
```

```
hafsa021@hafsa021:~$ sudo systemctl status lightdm --no-pager
[sudo] password for hafsa021:
● lightdm.service - Light Display Manager
   Loaded: loaded (/usr/lib/systemd/system/lightdm.service; indirect; preset: enabled)
   Active: active (running) since Fri 2025-10-24 04:12:36 UTC; 1min 22s ago
     Docs: man:lightdm(1)
   Process: 1163 ExecStartPre=/bin/sh -c [ "$(basename $(cat /etc/X11/default-display-manager 2>/dev/null))" = "lightdm" ] (code=exited, stat
us=0/SUCCESS)
   Main PID: 1182 (lightdm)
      Tasks: 7 (limit: 2207)
     Memory: 99.7M (peak: 103.8M)
        CPU: 2.892s
       CGroup: /system.slice/lightdm.service
               └─1182 /usr/sbin/lightdm
                  ├─1215 /usr/lib/xorg/Xorg -core :0 -seat seat0 -auth /var/run/lightdm/root/:0 -nolisten tcp vt7 -novtswitch
                  ├─1347 lightdm --session-child 13 20
Oct 24 04:12:36 hafsa021 systemd[1]: Starting lightdm.service - Light Display Manager...
Oct 24 04:12:36 hafsa021 systemd[1]: Started lightdm.service - Light Display Manager.
Oct 24 04:12:40 hafsa021 lightdm[1267]: pam_unix(lightdm-greeter:session): session opened for user lightdm(uid=111) by (uid=0)
Oct 24 04:12:44 hafsa021 lightdm[1347]: pam_succeed_if(lightdm:auth): requirement "user ingroup nopasswdlogin" not met by user "hafsa021"
hafsa021@hafsa021:~$
```

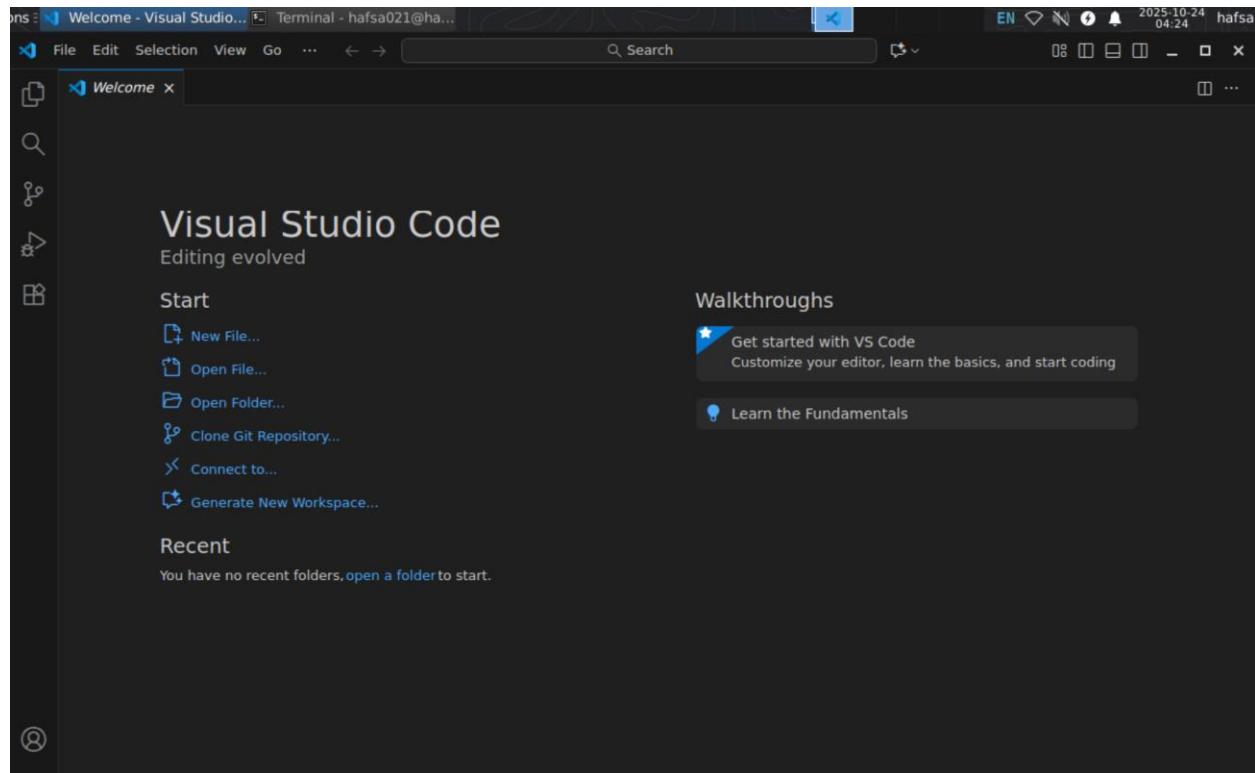
```
hafsa021@hafsa021:~$ Connection to 192.168.109.130 closed by remote host.  
Connection to 192.168.109.130 closed.  
  
C:\Users\HP>ssh hafsa021@192.168.109.130  
ssh: connect to host 192.168.109.130 port 22: Connection timed out  
  
C:\Users\HP>ssh hafsa021@192.168.109.130  
hafsa021@192.168.109.130's password:  
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.8.0-86-generic x86_64)  
  
 * Documentation: https://help.ubuntu.com  
 * Management: https://landscape.canonical.com  
 * Support: https://ubuntu.com/pro  
  
System information as of Fri Oct 24 04:13:17 AM UTC 2025  
  
System load: 1.22 Processes: 272  
Usage of /: 70.3% of 9.75GB Users logged in: 0  
Memory usage: 20% IPv4 address for ens33: 192.168.109.130  
Swap usage: 0%  
  
Expanded Security Maintenance for Applications is not enabled.  
0 updates can be applied immediately.  
6 additional security updates can be applied with ESM Apps.  
Learn more about enabling ESM Apps service at https://ubuntu.com/esm  
  
Last login: Fri Oct 24 04:13:19 2025 from 192.168.109.1  
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ sudo systemctl set-default multi-user.target  
[sudo] password for hafsa021:  
Removed "/etc/systemd/system/default.target".  
Created symlink /etc/systemd/system/default.target → /usr/lib/systemd/system/multi-user.target.  
hafsa021@hafsa021:~$ sudo systemctl disable lightdm  
Synchronizing state of lightdm.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.  
Executing: /usr/lib/systemd/systemd-sysv-install disable lightdm  
Removed "/etc/systemd/system/display-manager.service".  
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ sudo reboot  
  
Broadcast message from root@hafsa021 on pts/1 (Fri 2025-10-24 04:19:47 UTC):  
  
The system will reboot now!  
  
hafsa021@hafsa021:~$ Connection to 192.168.109.130 closed by remote host.  
Connection to 192.168.109.130 closed.  
  
C:\Users\HP>
```

```
hafsa021@hafsa021:~$ sudo systemctl start lightdm  
[sudo] password for hafsa021:  
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ sudo systemctl start lightdm
[sudo] password for hafsa021:
hafsa021@hafsa021:~$ sudo systemctl stop lightdm
hafsa021@hafsa021:~$ sudo systemctl start lightdm
hafsa021@hafsa021:~$
```



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

```
hafsa021@hafsa021:~$ sudo apt install google-chrome-stable -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
E: Unable to locate package google-chrome-stable
hafsa021@hafsa021:~$
```

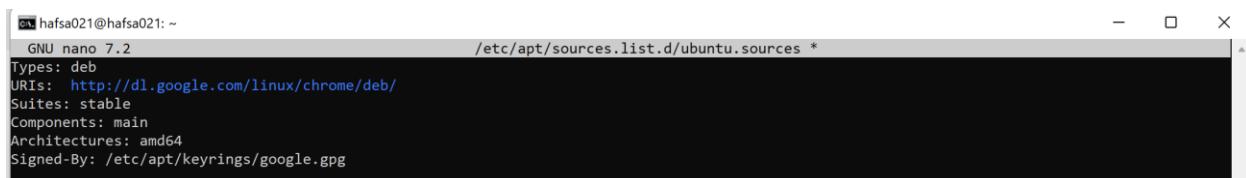
```
hafsa021@hafsa021:~$ ls -la /etc/apt
total 56
drwxr-xr-x  9 root root  4096 Oct 23 14:17 .
drwxr-xr-x 142 root root 12288 Oct 24 01:37 ..
drwxr-xr-x  2 root root  4096 Oct 23 20:12 apt.conf.d
drwxr-xr-x  2 root root  4096 Mar 31 2024 auth.conf.d
drwxr-xr-x  2 root root  4096 Mar 31 2024 keyrings
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   344 Oct 23 14:17 sources.list
-rw-r--r--  1 root root   344 Oct 23 14:17 sources.list.backup
drwxr-xr-x  2 root root  4096 Oct 23 13:57 sources.list.d
-rw-r--r--  1 root root 1024 Oct 23 13:10 .sources.list.swp
drwxr-xr-x  2 root root  4096 Aug  5 17:01 trusted.gpg.d
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ 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
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ ls -la /etc/apt/sources.list.d/
total 16
drwxr-xr-x  2 root root  4096 Oct 23 13:57 .
drwxr-xr-x  9 root root  4096 Oct 23 14:17 ..
-rw-r--r--  1 root root 2552 Aug  5 17:02 ubuntu.sources.curtin.orig
-rw-r--r--  1 root root  386 Sep 26 09:19 ubuntu.sources.disabled
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ cat /etc/apt/sources.list.d/ubuntu.sources
cat: /etc/apt/sources.list.d/ubuntu.sources: No such file or directory
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ sudo nano /etc/apt/sources.list.d/ubuntu.sources
```



```
hafsa021@hafsa021:~$ 
GNU nano 7.2                               /etc/apt/sources.list.d/ubuntu.sources *
Types: deb
URIs: http://dl.google.com/linux/chrome/deb/
Suites: stable
Components: main
Architectures: amd64
Signed-By: /etc/apt/keyrings/google.gpg
```

```
hafsa021@hafsa021:~$ sudo mkdir -p /etc/apt/keyrings
hafsa021@hafsa021:~$ curl -fsSL https://dl.google.com/linux/linux_signing_key.pub | sudo gpg --dearmor -o /etc/apt/keyrings/google.gpg
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ sudo apt update
Hit:1 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:2 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Get:4 http://dl.google.com/linux/chrome/deb stable InRelease [1,825 B]
Hit:5 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Get:6 http://dl.google.com/linux/chrome/deb stable/main amd64 Packages [1,214 B]
Fetched 3,039 B in 2s (1,361 B/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
All packages are up to date.
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ sudo apt install google-chrome-stable -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  fonts-liberation fonts-liberation-sans-narrow
The following NEW packages will be installed:
  fonts-liberation fonts-liberation-sans-narrow google-chrome-stable
0 upgraded, 3 newly installed, 0 to remove and 0 not upgraded.
Need to get 122 MB of archives.
After this operation, 401 MB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble/main amd64 fonts-liberation all 1:2.1.5-3 [1,603 kB]
Get:2 http://dl.google.com/linux/chrome/deb stable/main amd64 google-chrome-stable amd64 141.0.7390.122-1 [120 MB]
Get:3 http://archive.ubuntu.com/ubuntu noble/main amd64 fonts-liberation-sans-narrow all 1:1.07.6-4 [197 kB]
Fetched 122 MB in 57s (2,125 kB/s)
Selecting previously unselected package fonts-liberation.
(Reading database ... 179830 files and directories currently installed.)
Preparing to unpack .../fonts-liberation_1%3a2.1.5-3_all.deb ...
Unpacking fonts-liberation (1:2.1.5-3) ...
Selecting previously unselected package google-chrome-stable.
Preparing to unpack .../google-chrome-stable_141.0.7390.122-1_amd64.deb ...
Unpacking google-chrome-stable (141.0.7390.122-1) ...

Progress: [ 23%] [#####.....]
```

```
Selecting previously unselected package fonts-liberation-sans-narrow.
Preparing to unpack .../fonts-liberation-sans-narrow_1%3a1.07.6-4_all.deb ...
Unpacking fonts-liberation-sans-narrow (1:1.07.6-4) ...
Setting up fonts-liberation (1:2.1.5-3) ...
Setting up fonts-liberation-sans-narrow (1:1.07.6-4) ...
Setting up google-chrome-stable (141.0.7390.122-1) ...
update-alternatives: using /usr/bin/google-chrome-stable to provide /usr/bin/x-www-browser (x-www-browser) in auto mode
update-alternatives: using /usr/bin/google-chrome-stable to provide /usr/bin/gnome-www-browser (gnome-www-browser) in auto mode
update-alternatives: using /usr/bin/google-chrome-stable to provide /usr/bin/google-chrome (google-chrome) in auto mode
Processing triggers for gnome-menus (3.36.0-1.1ubuntu3) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for fontconfig (2.15.0-1.1ubuntu2) ...
Processing triggers for bamfdaemon (0.5.6+22.04.20220217-0ubuntu5) ...
Rebuilding /usr/share/applications/bamf-2.index...
Processing triggers for desktop-file-utils (0.27-2build1) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
hafsa021@hafsa021:~$ .....
```

```
hafsa021@hafsa021:~$ google-chrome --version
Google Chrome 141.0.7390.122
```

```
hafsa021@hafsa021:~$ sudo apt remove google-chrome-stable -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages will be REMOVED:
  google-chrome-stable
0 upgraded, 0 newly installed, 1 to remove and 0 not upgraded.
After this operation, 396 MB disk space will be freed.
(Reading database ... 180140 files and directories currently installed.)
Removing google-chrome-stable (141.0.7390.122-1) ...
Processing triggers for desktop-file-utils (0.27-2build1) ...
Processing triggers for gnome-menus (3.36.0-1.1ubuntu3) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for bamfdaemon (0.5.6+22.04.20220217-0ubuntu5) ...
Rebuilding /usr/share/applications/bamf-2.index...
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ sudo nano /etc/apt/sources.list.d/ubuntu.sources
```

```
hafsa021@hafsa021:~$ sudo rm -f /etc/apt/keyrings/google.gpg
```

```
hafsa021@hafsa021:~$ sudo rm -f /etc/apt/keyrings/google.gpg
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ sudo rm -f /etc/apt/keyrings/google.gpg
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ echo "deb [arch=amd64 signed-by=/etc/apt/keyrings/google.gpg] http://dl.google.com/linux/chrome/deb/ stable main" | sudo tee /etc/apt/sources.list.d/google-chrome.list > /dev/null
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ ls -la /etc/apt/sources.list.d/
total 24
drwxr-xr-x 2 root root 4096 Oct 24 04:49 .
drwxr-xr-x 9 root root 4096 Oct 23 14:17 ..
-rw-r--r-- 1 root root 107 Oct 24 04:52 google-chrome.list
-rw-r--r-- 1 root root 151 Oct 24 04:49 ubuntu.sources
-rw-r--r-- 1 root root 2552 Aug 5 17:02 ubuntu.sources.curtin.orig
-rw-r--r-- 1 root root 386 Sep 26 09:19 ubuntu.sources.disabled
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ sudo mkdir -p /etc/apt/keyrings
hafsa021@hafsa021:~$ curl -fsSL https://dl.google.com/linux/linux_signing_key.pub | sudo gpg --dearmor -o /etc/apt/keyrings/google.gpg
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ sudo apt update
Hit:1 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:2 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Get:4 http://dl.google.com/linux/chrome/deb stable InRelease [1,825 B]
Hit:5 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Get:6 http://dl.google.com/linux/chrome/deb stable/main amd64 Packages [1,214 B]
Fetched 3,039 B in 2s (1,361 B/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
All packages are up to date.
```

```
hafsa021@hafsa021:~$ sudo apt install google-chrome-stable -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  fonts-liberation fonts-liberation-sans-narrow
The following NEW packages will be installed:
  fonts-liberation fonts-liberation-sans-narrow google-chrome-stable
0 upgraded, 3 newly installed, 0 to remove and 0 not upgraded.
Need to get 122 MB of archives.
After this operation, 401 MB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble/main amd64 fonts-liberation all 1:2.1.5-3 [1,603 kB]
Get:2 http://dl.google.com/linux/chrome/deb stable/main amd64 google-chrome-stable amd64 141.0.7390.122-1 [120 MB]
Get:3 http://archive.ubuntu.com/ubuntu noble/main amd64 fonts-liberation-sans-narrow all 1:1.07.6-4 [197 kB]
Fetched 122 MB in 57s (2,125 kB/s)
Selecting previously unselected package fonts-liberation.
(Reading database ... 179830 files and directories currently installed.)
Preparing to unpack .../fonts-liberation_1%3a2.1.5-3_all.deb ...
Unpacking fonts-liberation (1:2.1.5-3) ...
Selecting previously unselected package google-chrome-stable.
Preparing to unpack .../google-chrome-stable_141.0.7390.122-1_amd64.deb ...
Unpacking google-chrome-stable (141.0.7390.122-1) ...
Selecting previously unselected package fonts-liberation-sans-narrow.
Preparing to unpack .../fonts-liberation-sans-narrow_1%3a1.07.6-4_all.deb ...
Unpacking fonts-liberation-sans-narrow (1:1.07.6-4) ...
Setting up fonts-liberation (1:2.1.5-3) ...
Setting up fonts-liberation-sans-narrow (1:1.07.6-4) ...
Setting up google-chrome-stable (141.0.7390.122-1) ...
update-alternatives: using /usr/bin/google-chrome-stable to provide /usr/bin/x-www-browser (x-www-browser) in auto mode
update-alternatives: using /usr/bin/google-chrome-stable to provide /usr/bin/gnome-www-browser (gnome-www-browser) in auto mode
update-alternatives: using /usr/bin/google-chrome-stable to provide /usr/bin/google-chrome (google-chrome) in auto mode
hafsa021@hafsa021:~$
```

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

```
hafsa021@hafsa021:~$ sudo add-apt-repository ppa:ubuntuhandbook1/audacity -y
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.
Hit:1 http://security.ubuntu.com/ubuntu noble InRelease
Hit:2 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:4 http://dl.google.com/linux/chrome/deb stable InRelease
Hit:5 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Get:6 https://ppa.launchpadcontent.net/ubuntuhandbook1/audacity/ubuntu noble InRelease [18.1 kB]
Get:7 https://ppa.launchpadcontent.net/ubuntuhandbook1/audacity/ubuntu noble/main amd64 Packages [1,064 B]
Get:8 https://ppa.launchpadcontent.net/ubuntuhandbook1/audacity/ubuntu noble/main Translation-en [492 B]
Fetched 19.6 kB in 3s (6,155 B/s)
Reading package lists... Done
W: Target Packages (main/binary-amd64/Packages) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Packages (main/binary-all/Packages) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Translations (main/i18n/Translation-en_US) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Translations (main/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target DEP-11 (main/dep11/Components-amd64.yml) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target DEP-11 (main/dep11/Components-all.yml) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target CNF (main/cnf/Commands-amd64) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target CNF (main/cnf/Commands-all) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Packages (main/binary-amd64/Packages) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Packages (main/binary-all/Packages) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Translations (main/i18n/Translation-en_US) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Translations (main/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target DEP-11 (main/dep11/Components-amd64.yml) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target DEP-11 (main/dep11/Components-all.yml) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target CNF (main/cnf/Commands-amd64) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target CNF (main/cnf/Commands-all) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ sudo apt update
Hit:1 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:2 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:3 https://ppa.launchpadcontent.net/ubuntuhandbook1/audacity/ubuntu noble InRelease
Hit:4 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:5 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:6 http://dl.google.com/linux/chrome/deb stable InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
All packages are up to date.
W: Target Packages (main/binary-amd64/Packages) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Packages (main/binary-all/Packages) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Translations (main/i18n/Translation-en_US) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Translations (main/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target DEP-11 (main/dep11/Components-amd64.yml) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target DEP-11 (main/dep11/Components-all.yml) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target CNF (main/cnf/Commands-amd64) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target CNF (main/cnf/Commands-all) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Packages (main/binary-amd64/Packages) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Packages (main/binary-all/Packages) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Translations (main/i18n/Translation-en_US) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Translations (main/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target DEP-11 (main/dep11/Components-amd64.yml) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target DEP-11 (main/dep11/Components-all.yml) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target CNF (main/cnf/Commands-amd64) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target CNF (main/cnf/Commands-all) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
hafsa021@hafsa021:~$
```

```

lfafsa021@lfafsa021:~$ sudo apt install -y audacity
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 liblivilv-0-0 libmd4c0 libopusfile0 libpcre2-16-0 libpcre2-32-0 libportaudio2 libportmidi0 libportsmf0t64
  libqt5core5t64 libqt5dbus5t64 libqt5gui5t64 libqt5network5t64 libqt5qlmodels5 libqt5quicks5 libqt5svg5 libqt5waylandclient5 libqt5waylandcompositor5
  libqt5widgets5t64 libqt5x11extrass5 libsbssms10 libserd-0-0 libsoundtouch1 libratom-0-0 libsuil-0-0 libvamp-hostsdk3v5 libwxbase3.2-1t64 libwxgth3.2-1t64
  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 qtwaylands
Suggested packages:
  ladspa-plugin gnomeplatform-gt5 qt5-image-formats-plugins qt5-qmltooling-plugins serdi sordi
The following NEW packages will be installed:
  audacity audacity-data libdouble-conversion3 libflac++10 liblivilv-0-0 libmd4c0 libopusfile0 libpcre2-16-0 libpcre2-32-0 libportaudio2 libportmidi0 libportsmf0t64
  libqt5core5t64 libqt5dbus5t64 libqt5gui5t64 libqt5network5t64 libqt5qlmodels5 libqt5quicks5 libqt5svg5 libqt5waylandclient5 libqt5waylandcompositor5
  libqt5widgets5t64 libqt5x11extrass5 libsbssms10 libserd-0-0 libsoundtouch1 libratom-0-0 libsuil-0-0 libvamp-hostsdk3v5 libwxbase3.2-1t64 libwxgth3.2-1t64
  libxcb-icccm4 libxcb-image0 libxcb-keysyms1 libxcb-render-util0 libxcb-xinerama0 libxcb-xinput0 libxcb-xkb1 libxkbcommon-x11-0 libzix-0-0 qt5-gtk-platformtheme
0 upgraded, 46 newly installed, 0 to remove and 0 not upgraded.
Need to get 33.0 MB of archives.
After this operation, 131 MB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble/main amd64 libflac++10 amd64 1.4.3+ds-2.1ubuntu2 [30.8 kB]
Get:2 https://ppa.launchpadcontent.net/ubuntu/handbook1/audacity/ubuntu/noble/main amd64 audacity-data all 3.7.5-0build1~ubuntu24.04 [2,671 kB]
Get:3 https://archive.ubuntu.com/ubuntu noble/universe amd64 libid3tag0 amd64 0.15.1b-14build1 [33.6 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble/universe amd64 libserd-0-0 amd64 0.32.2-1 [43.6 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble/universe amd64 libzix-0-0 amd64 0.4.2-2build1 [23.6 kB]
Get:6 http://archive.ubuntu.com/ubuntu noble/universe amd64 libsoundtouch1 amd64 0.16.16-2build1 [15.8 kB]
Get:7 http://archive.ubuntu.com/ubuntu noble/universe amd64 libratom-0-0 amd64 0.6.16-1build1 [17.3 kB]
Get:8 http://archive.ubuntu.com/ubuntu noble/universe amd64 liblivilv-0-0 amd64 0.24.22-1build1 [41.0 kB]
Get:9 http://archive.ubuntu.com/ubuntu noble/universe amd64 libopusfile0 amd64 0.12-4build3 [44.7 kB]
Get:10 http://archive.ubuntu.com/ubuntu noble/universe amd64 libportaudio2 amd64 19.6.0-1.2build3 [67.9 kB]
Get:11 http://archive.ubuntu.com/ubuntu noble/universe amd64 libportmidi0 amd64 1:217-6.1build3 [18.1 kB]
Get:12 http://archive.ubuntu.com/ubuntu noble/universe amd64 libportsmf0t64 amd64 0.1-svn20190101-7build1 [60.3 kB]
Get:13 http://archive.ubuntu.com/ubuntu noble/universe amd64 libsbssms10 amd64 2.3.0-0build1 [112 kB]
Get:14 http://archive.ubuntu.com/ubuntu noble/universe amd64 libsoundtouch1 amd64 2.3.24-ds1-1build1 [60.5 kB]
Get:15 http://archive.ubuntu.com/ubuntu noble/universe amd64 libsuil-0-0 amd64 0.10.20-1build1 [20.5 kB]
Get:16 http://archive.ubuntu.com/ubuntu noble/universe amd64 libvamp-hostsdk3v5 amd64 2.10.0-4build1 [92.3 kB]
Get:17 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libpcre2-16-0 amd64 10.42-4ubuntu2.1 [197 kB]
Get:18 http://archive.ubuntu.com/ubuntu noble/universe amd64 libwxbase3.2-1t64 amd64 3.2.4+dfsg-4build1 [899 kB]
Get:19 http://archive.ubuntu.com/ubuntu noble/universe amd64 libwxgth3.2-1t64 amd64 3.2.4+dfsg-4build1 [4,535 kB]
Get:20 https://ppa.launchpadcontent.net/ubuntu/handbook1/audacity/ubuntu/noble/main amd64 audacity amd64 3.7.5-0build1~ubuntu24.04 [7,649 kB]
Get:21 http://archive.ubuntu.com/ubuntu noble/universe amd64 libdouble-conversion3 amd64 3.3.0-1build1 [40.3 kB]
Get:22 http://archive.ubuntu.com/ubuntu noble/universe amd64 libmd4c0 amd64 0.4.8-1build1 [42.3 kB]
Get:23 http://archive.ubuntu.com/ubuntu noble/universe amd64 libpcre2-16-0 amd64 10.42-4ubuntu2.1 [210 kB]
Get:24 http://archive.ubuntu.com/ubuntu noble/universe amd64 libqt5core5t64 amd64 5.15.13+dfsg-1ubuntu1 [2,011 kB]
Get:25 http://archive.ubuntu.com/ubuntu noble/universe amd64 libqt5dbus5t64 amd64 5.15.13+dfsg-1ubuntu1 [228 kB]
Get:26 http://archive.ubuntu.com/ubuntu noble/universe amd64 libqt5network5t64 amd64 5.15.13+dfsg-1ubuntu1 [723 kB]
Get:27 http://archive.ubuntu.com/ubuntu noble/main amd64 libxcb-icccm4 amd64 0.4.1-1.1build3 [10.8 kB]
Get:28 http://archive.ubuntu.com/ubuntu noble/main amd64 libxcb-image0 amd64 0.4.0-2build1 [10.8 kB]
Get:29 http://archive.ubuntu.com/ubuntu noble/main amd64 libxcb-keysyms1 amd64 0.4.0-0-1build4 [7,956 kB]
Get:30 http://archive.ubuntu.com/ubuntu noble/main amd64 libxcb-render-util0 amd64 0.3.9-1build4 [9,688 kB]
Get:31 http://archive.ubuntu.com/ubuntu noble/main amd64 libxcb-xinerama0 amd64 1.15-1ubuntu2 [5,410 kB]

```

```
Setting up libid3tag0:amd64 (0.15.1b-14build1) ...
Setting up libqt5core5t64:amd64 (5.15.13+dfsg-1ubuntu1) ...
Setting up libpcre2-32-0:amd64 (10.42-4ubuntu2.1) ...
Setting up libsoundtouch1:amd64 (2.3.2+ds1-1build1) ...
Setting up libxcb-xinerama0:amd64 (1.15-1ubuntu2) ...
Setting up qttranslations5-l10n (5.15.13-1) ...
Setting up libportmidi0:amd64 (1:217-6.1build3) ...
Setting up libxkbcommon-x11-0:amd64 (1.6.0-1build1) ...
Setting up libssbms10:amd64 (2.3.0-1build1) ...
Setting up libmd4c0:amd64 (0.4.8-1build1) ...
Setting up libwxbase3.2-1t64:amd64 (3.2.4+dfsg-4build1) ...
Setting up libopusfile0:amd64 (0.12-4build3) ...
Setting up libwxgtk3.2-1t64:amd64 (3.2.4+dfsg-4build1) ...
Setting up libserd-0-0:amd64 (0.32.2-1) ...
Setting up libqt5dbus5t64:amd64 (5.15.13+dfsg-1ubuntu1) ...
Setting up libqt5network5t64:amd64 (5.15.13+dfsg-1ubuntu1) ...
Setting up libqt5gui5t64:amd64 (5.15.13+dfsg-1ubuntu1) ...
Setting up libqt5qml5:amd64 (5.15.13+dfsg-1ubuntu0.1) ...
Setting up libosord-0-0:amd64 (0.16.16-2build1) ...
Setting up libsratom-0-0:amd64 (0.6.16-1build1) ...
Setting up liblilv-0-0:amd64 (0.24.22-1build1) ...
Setting up libqt5x11extras5:amd64 (5.15.13-1) ...
Setting up libqt5qmlmodels5:amd64 (5.15.13+dfsg-1ubuntu0.1) ...
Setting up libqt5widgets5t64:amd64 (5.15.13+dfsg-1ubuntu1) ...
Setting up libqt5svg5:amd64 (5.15.13-1) ...
Setting up audacity (3.7.5-0build1~ubuntu24.04) ...
Setting up qt5-gtk-platformtheme:amd64 (5.15.13+dfsg-1ubuntu1) ...
Setting up libqt5waylandclient5:amd64 (5.15.13-1) ...
Setting up libqt5quick5:amd64 (5.15.13+dfsg-1ubuntu0.1) ...
Setting up libqt5waylandcompositor5:amd64 (5.15.13-1) ...
Setting up qtwayland5:amd64 (5.15.13-1) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for shared-mime-info (2.4-4) ...
Processing triggers for bamfdaemon (0.5.6+22.04.20220217-0ubuntu5) ...
Rebuilding /usr/share/applications/bamf-2.index...
Processing triggers for desktop-file-utils (0.27-2build1) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Processing triggers for gnome-menus (3.36.0-1.1ubuntu3) ...
Processing triggers for libc-bin (2.39-0ubuntu8.6) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
```

```
hafsa021@hafsa021:~$ audacity --version
hafsa021@hafsa021:~$ audacity
hafsa021@hafsa021:~$ which audacity
/usr/bin/audacity
```

```
hafsa021@hafsa021:~$ 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://security.ubuntu.com/ubuntu noble-security InRelease
Hit:2 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:3 http://dl.google.com/linux/chrome/deb stable InRelease
Get:4 https://ppa.launchpadcontent.net/obsproject/obs-studio/ubuntu noble InRelease [17.8 kB]
Hit:5 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:6 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:7 https://ppa.launchpadcontent.net/ubuntuhandbook1/audacity/ubuntu noble InRelease
Get:8 https://ppa.launchpadcontent.net/obsproject/obs-studio/ubuntu noble/main amd64 Packages [1,172 B]
Get:9 https://ppa.launchpadcontent.net/obsproject/obs-studio/ubuntu noble/main Translation-en [160 B]
Fetched 19.1 kB in 3s (6,771 B/s)
Reading package lists... Done
W: Target Packages (main/binary-amd64/Packages) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Packages (main/binary-all/Packages) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Translations (main/i18n/Translation-en_US) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Translation (main/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target DEP-11 (main/dep11/Components-amd64.yml) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target DEP-11 (main/dep11/Components-all.yml) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target CNF (main/cnf/Commands-and64) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target CNF (main/cnf/Commands-all) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Packages (main/binary-amd64/Packages) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Packages (main/binary-all/Packages) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Translations (main/i18n/Translation-en_US) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Translation (main/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target DEP-11 (main/dep11/Components-amd64.yml) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target DEP-11 (main/dep11/Components-all.yml) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target CNF (main/cnf/Commands-and64) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target CNF (main/cnf/Commands-all) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ sudo apt update
Hit:1 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:2 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:4 https://ppa.launchpadcontent.net/obsproject/obs-studio/ubuntu noble InRelease
Hit:5 http://dl.google.com/linux/chrome/deb stable InRelease
Hit:6 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:7 https://ppa.launchpadcontent.net/ubuntuhandbook1/audacity/ubuntu noble InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
All packages are up to date.
W: Target Packages (main/binary-amd64/Packages) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Packages (main/binary-all/Packages) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Translations (main/i18n/Translation-en_US) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Translations (main/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target DEP-11 (main/dep11/Components-amd64.yml) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target DEP-11 (main/dep11/Components-all.yml) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target CNF (main/cnf/Commands-and64) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target CNF (main/cnf/Commands-all) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Packages (main/binary-amd64/Packages) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Packages (main/binary-all/Packages) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Translations (main/i18n/Translation-en_US) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target Translations (main/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target DEP-11 (main/dep11/Components-amd64.yml) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target DEP-11 (main/dep11/Components-all.yml) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target CNF (main/cnf/Commands-and64) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
W: Target CNF (main/cnf/Commands-all) is configured multiple times in /etc/apt/sources.list.d/google-chrome.list:1 and /etc/apt/sources.list.d/ubuntu.sources:1
hafsa021@hafsa021:~$
```

```

hafsa021@hafsa021:~$ 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 libavdevice0 libavfilter9 libavformat0 libb2-1 libbdplus0 libblas3 liblburay2 libbs2b libchromaprint1 libcjson1 libcd1394-25 libdecor-0-0
libdecor-0-plugin1-gtk libfdk-aac2 libfftw3-double3 libflite1 libgfortran5 libgme0 liblapack3 libluajit-5.1-2 libluajit-5.1-common libmbcrypto7t64 libmbdtls14t64
libmbdx09-1t64 libmysofal libnorm1t64 libopenal-data libopenal libopenalmp0t64 libpdm-5.3-0t64 libplacebo338 libpocketsphn3 libpostproc57 librcodegenccp1 libqt6core6t64
libqt6dbus0t64 libqt6gu16t64 libqt6network6t64 libqt6opengl6t64 libqt6qm1mod6 libqt6quicK6 libqt6svg6 libqt6waylandclient6 libqt6waylandcompositor6
libqt6waylandeglclienthwintegration6 libqt6waylandeglcompositorhwintegration6 libqt6widgets64 libqt6wlshellintegration6 libqt6x11t64 librabitmq4 librist4 librubberband2
libsd12-2.0-0 libsndio7.0 libspinxbase3t64 librst1.5-gnutls librst1.5-openssl libssh-gcrypt-4 libsswscale7 libts0t64 libudfread0 libunibreak5 libvidstab1.1 libxcb-composite0
libzimg2 libzmpq pocketsphn-en-us qt6-gtk-platformtheme qt6-qpa-plugins qt6-translations-l10n qt6-wayland
Suggested packages:
liblburay-bdj libfftw3-bin libfftw3-dev qt6-qmltooling-plugins sndiod
The following NEW packages will be installed:
libaacs0 libass9 libavdevice0 libavfilter9 libavformat0 libb2-1 libbdplus0 libblas3 liblburay2 libbs2b libchromaprint1 libcjson1 libcd1394-25 libdecor-0-0
libdecor-0-plugin1-gtk libfdk-aac2 libfftw3-double3 libflite1 libgfortran5 libgme0 liblapack3 libluajit-5.1-2 libluajit-5.1-common libmbcrypto7t64 libmbdtls14t64
libmbdx09-1t64 libmysofal libnorm1t64 libopenal-data libopenal libopenalmp0t64 libpdm-5.3-0t64 libplacebo338 libpocketsphn3 libpostproc57 librcodegenccp1 libqt6core6t64
libqt6dbus0t64 libqt6gu16t64 libqt6network6t64 libqt6opengl6t64 libqt6qm1mod6 libqt6quicK6 libqt6svg6 libqt6waylandclient6 libqt6waylandcompositor6
libqt6waylandeglclienthwintegration6 libqt6waylandeglcompositorhwintegration6 libqt6widgets64 libqt6wlshellintegration6 libqt6x11t64 librabitmq4 librist4 librubberband2
libsd12-2.0-0 libsndio7.0 libspinxbase3t64 librst1.5-gnutls librst1.5-openssl libssh-gcrypt-4 libsswscale7 libts0t64 libudfread0 libunibreak5 libvidstab1.1 libxcb-composite0
libzimg2 libzmpq5 obs-studio pocketsphn-en-us qt6-gtk-platformtheme qt6-qpa-plugins qt6-translations-l10n qt6-wayland
0 upgraded, 75 newly installed, 0 to remove and 0 not upgraded.
Need to get 182 MB of archives.
After this operation, 534 MB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble/universe amd64 libaacs0 amd64 0.11.1-2build1 [62.9 kB]
Get:2 https://ppa.launchpadcontent.net/obsproject/obs/stable/ubuntu/noble/main amd64 obs-studio amd64 32.0.0-obsproject1-noble [105 kB]
Get:3 http://archive.ubuntu.com/ubuntu noble/universe amd64 libunibreak5 amd64 5.1-2build1 [25.0 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble/universe amd64 libas9 amd64 1:0.17.1-2build1 [104 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble/universe amd64 libudfread0 amd64 1.1.2-1build1 [19.0 kB]
Get:6 http://archive.ubuntu.com/ubuntu noble/universe amd64 liblburay2 amd64 1:1.3.4-1build1 [159 kB]
Get:7 http://archive.ubuntu.com/ubuntu noble/universe amd64 libchromaprint1 amd64 1.5.1-5 [30.5 kB]
Get:8 http://archive.ubuntu.com/ubuntu noble/universe amd64 libgme0 amd64 0.6.3-7build1 [134 kB]
Get:9 http://archive.ubuntu.com/ubuntu noble/universe amd64 libopenalmp0t64 amd64 0.7.3-1.1build3 [647 kB]
Get:10 http://archive.ubuntu.com/ubuntu noble/universe amd64 librabbitmq4 amd64 0.11.0-0build1 [37.4 kB]
Get:11 http://archive.ubuntu.com/ubuntu noble/universe amd64 libcjson1 amd64 1.7.17-1 [24.8 kB]
Get:12 http://archive.ubuntu.com/ubuntu noble/universe amd64 libmbcrypto7t64 amd64 2.28.8-1 [209 kB]
Get:13 http://archive.ubuntu.com/ubuntu noble/universe amd64 librist4 amd64 0.2.10+dfsg-2 [74.9 kB]
Get:14 http://archive.ubuntu.com/ubuntu noble/universe amd64 librst1.5-gnutls amd64 1.5.3-1build2 [316 kB]
Get:15 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libssh-gcrypt-4 amd64 0.10.6-2ubuntu0.1 [224 kB]
Get:16 http://archive.ubuntu.com/ubuntu noble/universe amd64 libnorm1t64 amd64 1.5.9+dfsg-3.1build1 [154 kB]
Get:17 http://archive.ubuntu.com/ubuntu noble/universe amd64 libpbgm-5.3-0t64 amd64 5.3.128+dfsg-2.1build1 [167 kB]
Get:18 http://archive.ubuntu.com/ubuntu noble/universe amd64 libzmpq5 amd64 4.3.5-1build2 [260 kB]
Get:19 http://archive.ubuntu.com/ubuntu noble/universe amd64 libavformat60 amd64 7:6.1.1-3ubuntu5 [1,153 kB]
Get:20 http://archive.ubuntu.com/ubuntu noble/universe amd64 libbs2b amd64 3.1.0+dfsg-7build1 [10.6 kB]
Get:21 http://archive.ubuntu.com/ubuntu noble/universe amd64 libflite1 amd64 2.2.6build3 [13.6 kB]
Get:22 http://archive.ubuntu.com/ubuntu noble/universe amd64 libmysofal amd64 1.3.2+dfsg-2ubuntu2 [1,158 kB]
Get:23 http://archive.ubuntu.com/ubuntu noble/universe amd64 libplacebo338 amd64 6.338.2-2build1 [2,654 kB]
Get:24 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libblals3 amd64 3.12.0-3build1.1 [238 kB]
Ign:24 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libgfortran5 amd64 14.2.0-4ubuntu2-24.04 [916 kB]
Get:25 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 liblapack3 amd64 3.12.0-3build1.1 [2,646 kB]
Get:26 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 liblapack3 amd64 3.12.0-3build1.1 [2,646 kB]

```

```

Setting up libsswcale:amd64 (7:6.1.1-3ubuntus5) ...
Setting up libqt6widgets64:amd64 (6.4.2+dfsg-21.1build5) ...
Setting up liblapack3:amd64 (3.12.0-3build1.1) ...
update-alternatives: using /usr/lib/x86_64-linux-gnu/lapack/liblapack.so.3 to provide /usr/lib/x86_64-linux-gnu/liblapack.so.3 (liblapack.so.3-x86_64-linux-gnu) in auto mode
Setting up libmbdx09-1t64:amd64 (2.28.8-1) ...
Setting up libzmpq5:amd64 (4.3.5-1build2) ...
Setting up qt6-qpa-plugins:amd64 (6.4.2+dfsg-21.1build5) ...
Setting up libqt6qml:amd64 (6.4.2+dfsg-4build3) ...
Setting up libopenal:amd64 (1:1.23.1-4build1) ...
Setting up libavformat60:amd64 (7:6.1.1-3ubuntus5) ...
Setting up libpbgm0:amd64 (6.4.2+dfsg-21.1build5) ...
Setting up libqt6qm1mod6:amd64 (6.4.2+dfsg-4build3) ...
Setting up libluajit-5.1-2:amd64 (2.1.0+git20231223.c525cb+dfsg-1) ...
Setting up libspinxbase3t64:amd64 (0.8+prealpha1-17build2) ...
Setting up libqt6svg6:amd64 (6.4.2-4ubuntus3) ...
Setting up libqt6waylandclient6:amd64 (6.4.2-5build3) ...
Setting up libass9:amd64 (1:0.17.1-2build1) ...
Setting up qt6-gtk-platformtheme:amd64 (6.4.2+dfsg-21.1build5) ...
Setting up libqt6quicK6:amd64 (6.4.2+dfsg-4build3) ...
Setting up libmbdtls14t64:amd64 (2.28.8-1) ...
Setting up libqt6wlshellintegration6:amd64 (6.4.2-5build3) ...
Setting up libqt6waylandcompositor6:amd64 (6.4.2-5build3) ...
Setting up libqt6waylandeglcompositorhwintegration6:amd64 (6.4.2-5build3) ...
Setting up libqt6waylandeglclienthwintegration6:amd64 (6.4.2-5build3) ...
Setting up libpocketsphn3:amd64 (0.8.0+real5prealpha1-1ubuntus5) ...
Setting up qt6-wayland:amd64 (6.4.2-5build3) ...
Setting up libavfilter9:amd64 (7:6.1.1-3ubuntus5) ...
Setting up libavdevice0:amd64 (7:6.1.1-3ubuntus5) ...
Setting up libavfoundation0:obs-project1-noble) ...
Processing triggers for bamfdaemon (0.5.6+22.04.20220127-0ubuntus5) ...
Rebuilding /usr/share/applications/bamf-2.index...
Processing triggers for desktop-file-utils (0.27-1build1) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Processing triggers for gnome-menus (3.36.0-1.1ubuntus3) ...
Processing triggers for libc-bin (2.39-0ubuntus8.6) ...
Processing triggers for man-db (2.12.0-4build2) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
hafsa021@hafsa021:~$
```

```
hafsa021@hafsa021:~$ obs --version
OBS Studio - 32.0.0
hafsa021@hafsa021:~$ obs
qt.qpa.xcb: could not connect to display
qt.qpa.plugin: Could not load the Qt platform plugin "xcb" in "" even though it was found.
This application failed to start because no Qt platform plugin could be initialized. Reinstalling the application may fix this problem.

Available platform plugins are: minimal, linuxfb, xcb, vnc, offscreen, vkhrendispatcher, wayland-egl, minimalegl, wayland, eglfs.
```

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

```
hafsa021@hafsa021:~$ vim
```

```
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
```

```
hafsa021@hafsa021:~$ mkdir -p ~/Lab5
hafsa021@hafsa021:~$ cd ~/Lab5
hafsa021@hafsa021:~/Lab5$
```

```
hafsa021@hafsa021:~/Lab5$ vim k8s-sample.yaml
```

```
hafsa021@hafsa021: ~/Lab5
```

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

```
-- INSERT --
```

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

```
hafsa021@hafsa021:~/Lab5$ cd ~/Lab5  
hafsa021@hafsa021:~/Lab5$
```

```
hafsa021@hafsa021:~/Lab5$ vim k8s-sample.yaml
```

```
hafsa021@hafsa021:~/Lab5$ hafsa021@hafsa021:~/Lab5$ cat k8s-sample.yaml
apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
  annotations:
    lab: lesson11

spec:
  containers:
    - name: nginx
      image: nginx:1.19
      ports:
        - containerPort: 80
          restartPolicy: Always

hafsa021@hafsa021:~/Lab5$
```

```
hafsa021@hafsa021:~/Lab5$ vim k8s-sample.yaml
```

```
hafsa021@hafsa021:~/Lab5
# temp: do-not-keep
#
apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
  annotations:
    lab: lesson11

spec:
  containers:
    - name: nginx
      image: nginx:1.19
      ports:
        - containerPort: 80
          restartPolicy: Always

~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
-- INSERT --
```

```
hafsa021@hafsa021:~/Lab5$ hafsa021@hafsa021:~/Lab5$ cat k8s-sample.yaml
apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
  annotations:
    lab: lesson11

spec:
  containers:
    - name: nginx
      image: nginx:1.19
      ports:
        - containerPort: 80
          restartPolicy: Always
a
hafsa021@hafsa021:~/Lab5$
```

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

```
hafsa021@hafsa021:~/Lab5$ cd ~/Lab5
hafsa021@hafsa021:~/Lab5$ vim k8s-sample.yaml
```

```
hafsa021@hafsa021: ~/Lab5
apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
  annotations:
    lab: lesson11

spec:
  containers:
    - name: nginx
      ports:
        - containerPort: 80
          restartPolicy: Always
~
```

```
hafsa021@hafsa021: ~/Lab5
apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
  annotations:
    lab: lesson11

spec:
  containers:
    - name: nginx
      image: nginx:1.19
      ports:
        - containerPort: 80
          restartPolicy: Always
```

```
hafsa021@hafsa021: ~/Lab5
apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
  annotations:
    lab: lesson11

spec:
  containers:
    - name: nginx
      restartPolicy: Always
```

```
hafsa021@hafsa021: ~/Lab5
apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
  annotations:
    lab: lesson11

spec:
  containers:
    - name: nginx
      image: nginx:1.19
      ports:
        - containerPort: 80
          restartPolicy: Always
```

```
hafsa021@hafsa021: ~/Lab5
apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
  annotations:
    lab: lesson11

spec:
  containers:
    - name: nginx
      image: nginx:1.19
      ports:
        - containerPort: 80
          restartPolicy: Always
~
```

```
hafsa021@hafsa021: ~/Lab5
apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
  annotations:
    lab: lesson11

spec:
  containers:
    - name: nginx
      image: nginx:1.19
      ports:
        - containerPort: 80
          restartPolicy: Always
        -
```

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

```
hafsa021@hafsa021:~/Lab5$ hafsa021@hafsa021:~/Lab5$ cd ~/Lab5
hafsa021@hafsa021:~/Lab5$ vim k8s-sample.yaml
```

```
hafsa021@hafsa021: ~/Lab5
apiVersion: v1
kind: Pod
metadata:
    annotations:
        lab: lesson11

spec:
    containers:
        - name: nginx
            image: nginx:1.19
            ports:
                - containerPort: 80
                    restartPolicy: Always

~  
~  
~  
~  
~  
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~  
~  
~  
~  
~  
~  
~  
~  
~  
~  
~  
~  
~  
~  
/nginx
```

```
hafsa021@hafsa021: ~/Lab5
apiVersion: v1
kind: Pod
metadata:
    annotations:
        lab: lesson11

spec:
    containers:
        - name: nginx
            image: nginx:1.19
            # nginx test 1
            # nginx test 2
            ports:
                - containerPort: 80
                    restartPolicy: Always

~  
~
```

```
hafsa021@hafsa021: ~/Lab5
apiVersion: v1
kind: Pod
metadata:
  annotations:
    lab: lesson11

  spec:
    containers:
      - name: nginx
        image: nginx:1.19
        # nginx test 1
        # nginx test 2
        ports:
          - containerPort: 80
            restartPolicy: Always

```

```
hafsa021@hafsa021: ~/Lab5
apiVersion: v1
kind: Pod
metadata:
  annotations:
    lab: lesson11

  spec:
    containers:
      - name: nginx
        image: nginx:1.19
        # nginx test 1
        # nginx test 2
        ports:
          - containerPort: 80
            restartPolicy: Always

~
~
~
~
~
~
~
~
~
:%s/nginx/webapp
```

```
hafsa021@hafsa021: ~/Lab5
apiVersion: v1
kind: Pod
metadata:
  annotations:
    lab: lesson11

spec:
  containers:
    - name: webapp
      image: webapp:1.19
      # webapp test 1
      # webapp test 2
      ports:
        - containerPort: 80
          restartPolicy: Always

~
~
~
~
~
~
~
~
4 substitutions on 4 lines
```

```
[hafsa021@hafsa021: ~/Lab5]
```

```
apiVersion: v1
kind: Pod
metadata:
  annotations:
    lab: lesson11

spec:
  containers:
    - name: nginx
      image: nginx:1.19
      # nginx test 1
      # nginx test 2
      ports:
        - containerPort: 80
          restartPolicy: Always
```

```
4 changes; before #1 26 seconds ago
```