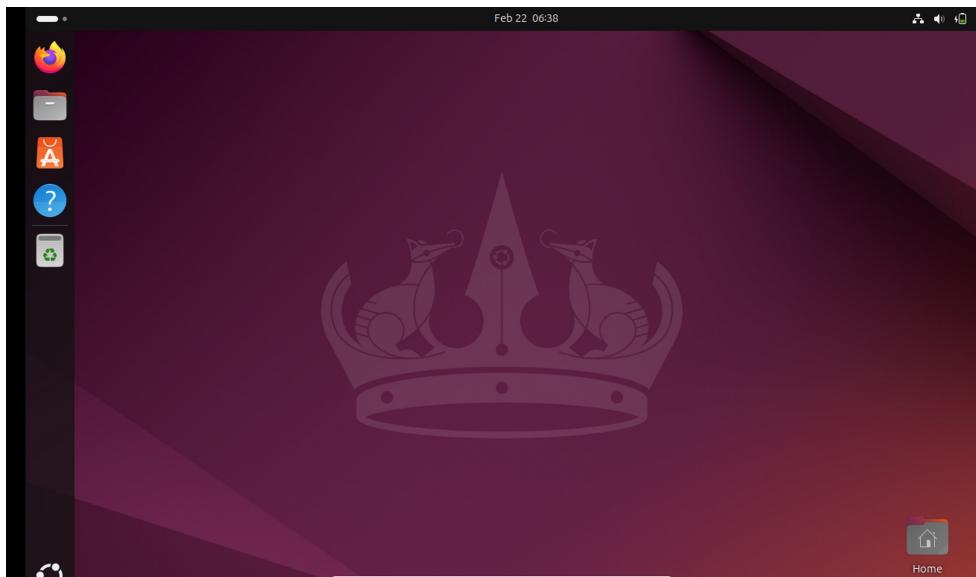


Hadoop installation

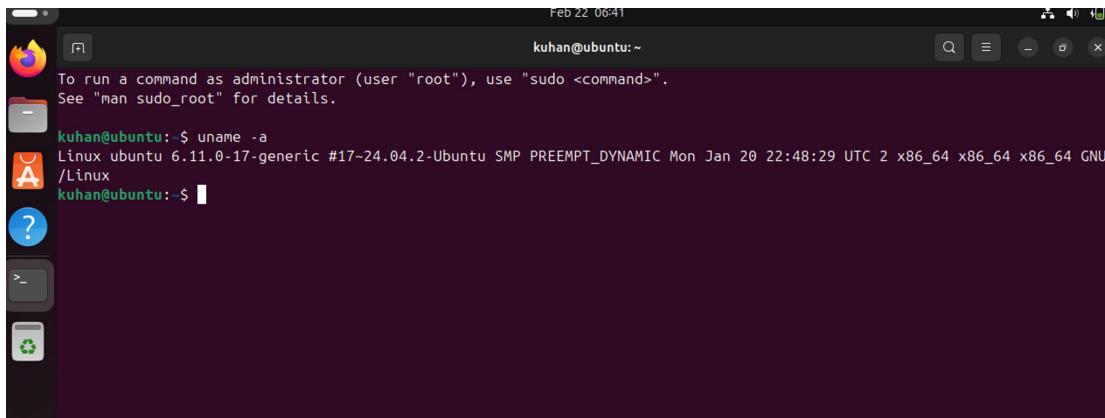
22 February 2025 12:08

**Name : Kuhan K
Roll No: 2024MCS110028**

Ubuntu installation in virtual box



Checking for Space



```
kuhan@ubuntu:~$ uname -a
Linux ubuntu 6.11.0-17-generic #17~24.04.2-Ubuntu SMP PREEMPT_DYNAMIC Mon Jan 20 22:48:29 UTC 2 x86_64 x86_64 x86_64 GNU
/Linux
kuhan@ubuntu:~$ free -h
total        used         free      shared  buff/cache   available
Mem:       3.0Gi     939Mi     1.2Gi     34Mi      1.0Gi     2.1Gi
Swap:          0B         0B         0B
kuhan@ubuntu:~$
```

Check for java installation

```
kuhan@ubuntu:~$ java --version
Command 'java' not found, but can be installed with:
sudo apt install openjdk-17-jre-headless # version 17.0.12+7-1ubuntu2~24.04, or
sudo apt install openjdk-21-jre-headless # version 21.0.4+7-1ubuntu2~24.04
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 11.0.24+8-1ubuntu3~24.04.1
sudo apt install openjdk-8-jre-headless # version 8u422-b05-1~24.04
kuhan@ubuntu:~$
```

Download java

The screenshot shows a Firefox browser window with the Oracle Java Archive Downloads page loaded. The page has a dark header with the Oracle logo and navigation links for Products, Industries, Resources, Customers, Partners, Developers, and Company. Below the header is a table listing Java archive download links for various platforms:

Platform	File Size	Download Link
Linux ARM v6/v7 Soft Float ABI	69.75 MB	jdk-8u202-linux-arm64-vfp-hflt.tar.gz
Linux x86	173.08 MB	jdk-8u202-linux-i586.rpm
Linux x86	1879 MB	jdk-8u202-linux-i586.tar.gz
Linux x64	170.15 MB	jdk-8u202-linux-x64.rpm
Linux x64	185.05 MB	jdk-8u202-linux-x64.tar.gz
Mac OS X x64	249.15 MB	jdk-8u202-macosx-x64.dmg
Solaris SPARC 64-bit (SVR4 package)	125.09 MB	jdk-8u202-solaris-sparcv9.tar.Z

The screenshot shows the Oracle Java Archive Downloads page. It lists several download options:

- Linux ARM v6/v7 Soft Float ABI: 69.75 MB, download link: [jdk-8u202-linux-arm64-vfp-hflt.tar.gz](#)
- Linux x86: 173.08 MB, download link: [jdk-8u202-linux-i586.rpm](#)
- Linux x86
- Linux x64
- Linux x64
- Mac OS X x64
- Solaris SPARC 64bit (SVR4 package): 125.00 MB, download link: [jdu-8u202-solaris-sparcv8tar.Z](#)

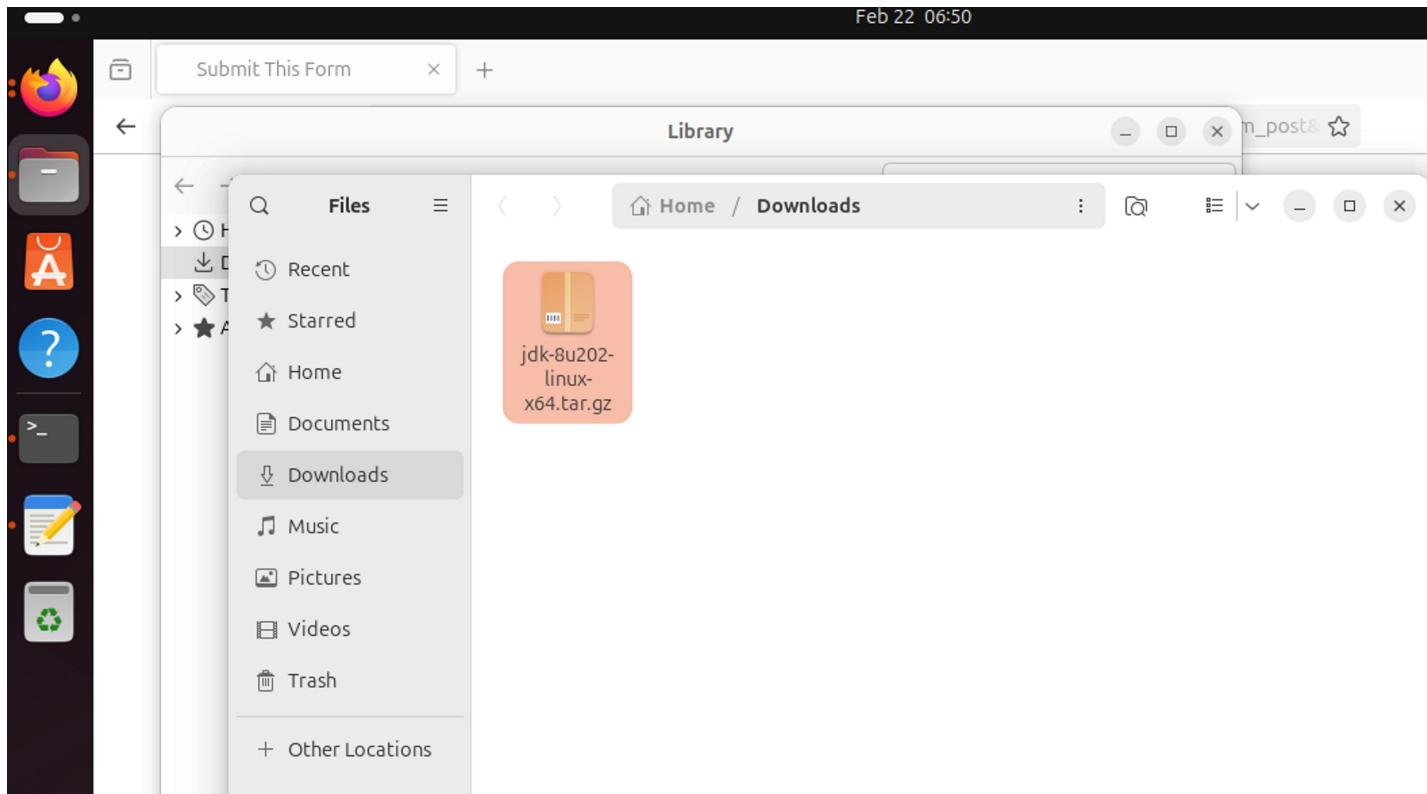
A modal dialog box is open, requiring acceptance of the Oracle Binary Code License Agreement for the Java SE Platform Products. The checkbox "I reviewed and accept the Oracle Binary Code License Agreement for the Java SE Platform Products" is checked. Below the checkbox, it says "Required". A note states "You will be redirected to the login screen in order to download the file." A green button labeled "Download jdk-8u202-linux-x64.tar.gz" with a download icon is visible.

The screenshot shows the Oracle sign-in page at <https://signon.oracle.com/signin>. The page has a light beige background with a wavy pattern. It features a "Sign in to Oracle" heading, a "Username or email" input field containing "kuhankailash92@gmail.com", and a large black "Next" button. Below the "Next" button is a blue "Forgot username?" link.

The screenshot shows the Firefox Library window. The left sidebar includes links for "Organize", "History", "Downloads" (which is selected), "Tags", and "All Bookmarks". The main area displays a list of downloads:

- jdk-8u202-linux-x64.tar.gz (185 MB — oracle.com — 06:46)

A red bar highlights the first item. A search bar at the top right says "Search Downloads".



```
kuhan@ubuntu:~$ java --version
Command 'java' not found, but can be installed with:
sudo apt install openjdk-17-jre-headless # version 17.0.12+7-1ubuntu2~24.04, or
sudo apt install openjdk-21-jre-headless # version 21.0.4+7-1ubuntu2~24.04
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 11.0.24+8-1ubuntu3~24.04.1
sudo apt install openjdk-8-jre-headless # version 8u422-b05-1~24.04
kuhan@ubuntu:~$ cd /usr/local
kuhan@ubuntu:/usr/local$
```



Unzip java tar file

```
kuhan@ubuntu:~$ cd /usr/local  
kuhan@ubuntu:/usr/local$ tar -xvzf ~/Downloads/jdk-8u202-linux-x64.tar.gz
```

```
kuhan@ubuntu:/usr/local  
tar: jdk1.8.0_202/jre/lib/fontconfig.SuSE.10.properties.src: Cannot open: No such file or directory  
jdk1.8.0_202/jre/lib/fontconfig.SuSE.11.bfc  
tar: jdk1.8.0_202/jre: Cannot mkdir: No such file or directory  
tar: jdk1.8.0_202/jre/lib/fontconfig.SuSE.11.bfc: Cannot open: No such file or directory  
jdk1.8.0_202/jre/COPYRIGHT  
tar: jdk1.8.0_202/jre: Cannot mkdir: No such file or directory  
tar: jdk1.8.0_202/jre/COPYRIGHT: Cannot open: No such file or directory  
jdk1.8.0_202/jre/THIRDPARTYLICENSEREADME-JAVAFX.txt  
tar: jdk1.8.0_202/jre: Cannot mkdir: No such file or directory  
tar: jdk1.8.0_202/jre/THIRDPARTYLICENSEREADME-JAVAFX.txt: Cannot open: No such file or directory  
jdk1.8.0_202/jre/Welcome.html  
tar: jdk1.8.0_202/jre: Cannot mkdir: No such file or directory  
tar: jdk1.8.0_202/jre/Welcome.html: Cannot open: No such file or directory  
jdk1.8.0_202/jre/README  
tar: jdk1.8.0_202/jre: Cannot mkdir: No such file or directory  
tar: jdk1.8.0_202/jre/README: Cannot open: No such file or directory  
jdk1.8.0_202/README.html  
tar: jdk1.8.0_202: Cannot mkdir: Permission denied  
tar: jdk1.8.0_202/README.html: Cannot open: No such file or directory  
tar: Exiting with failure status due to previous errors  
kuhan@ubuntu:/usr/local$
```

```
kuhan@ubuntu:/usr/local
tar: jdk1.8.0_202/jre/lib/fontconfig.SuSE.10.properties.src: Cannot open: No such file or directory
jdk1.8.0_202/jre/lib/fontconfig.SuSE.11.bfc
tar: jdk1.8.0_202/jre: Cannot mkdir: No such file or directory
tar: jdk1.8.0_202/jre/lib/fontconfig.SuSE.11.bfc: Cannot open: No such file or directory
jdk1.8.0_202/jre/COPYRIGHT
tar: jdk1.8.0_202/jre: Cannot mkdir: No such file or directory
tar: jdk1.8.0_202/jre/COPYRIGHT: Cannot open: No such file or directory
jdk1.8.0_202/jre/THIRDPARTYLICENSEREADME-JAVAFX.txt
tar: jdk1.8.0_202/jre: Cannot mkdir: No such file or directory
tar: jdk1.8.0_202/jre/THIRDPARTYLICENSEREADME-JAVAFX.txt: Cannot open: No such file or directory
jdk1.8.0_202/jre/Welcome.html
tar: jdk1.8.0_202/jre: Cannot mkdir: No such file or directory
tar: jdk1.8.0_202/jre/Welcome.html: Cannot open: No such file or directory
jdk1.8.0_202/jre/README
tar: jdk1.8.0_202/jre: Cannot mkdir: No such file or directory
tar: jdk1.8.0_202/jre/README: Cannot open: No such file or directory
jdk1.8.0_202/README.html
tar: jdk1.8.0_202: Cannot mkdir: Permission denied
tar: jdk1.8.0_202/README.html: Cannot open: No such file or directory
tar: Exiting with failure status due to previous errors
kuhan@ubuntu:/usr/local$ sudo tar -xvzf ~/Downloads/jdk-8u202-linux-x64.tar.gz
```

```
tar: Exiting with failure status due to previous errors
kuhan@ubuntu:/usr/local$ sudo tar -xvzf ~/Downloads/jdk-8u202-linux-x64.tar.gz
[sudo] password for kuhan: [REDACTED]
```

```
kuhan@ubuntu:/usr/local
jdk1.8.0_202/jre/lib/amd64/libprism_common.so
jdk1.8.0_202/jre/lib/amd64/libnio.so
jdk1.8.0_202/jre/lib/amd64/libprism_es2.so
jdk1.8.0_202/jre/lib/amd64/libinstrument.so
jdk1.8.0_202/jre/lib/amd64/libawt_xawt.so
jdk1.8.0_202/jre/lib/amd64/libmanagement.so
jdk1.8.0_202/jre/lib/amd64/libunpack.so
jdk1.8.0_202/jre/lib/amd64/libgstreamer-lite.so
jdk1.8.0_202/jre/lib/amd64/libawt_headless.so
jdk1.8.0_202/jre/lib/amd64/libsplashscreen.so
jdk1.8.0_202/jre/lib/fontconfig.properties.src
jdk1.8.0_202/jre/lib/psfont.properties.ja
jdk1.8.0_202/jre/lib/fontconfig.Turbo.properties.src
jdk1.8.0_202/jre/lib/jce.jar
jdk1.8.0_202/jre/lib/flavormap.properties
jdk1.8.0_202/jre/lib/jfxswt.jar
jdk1.8.0_202/jre/lib/fontconfig.SuSE.10.properties.src
jdk1.8.0_202/jre/lib/fontconfig.SuSE.11.bfc
jdk1.8.0_202/jre/COPYRIGHT
jdk1.8.0_202/jre/THIRDPARTYLICENSEREADME-JAVAFX.txt
jdk1.8.0_202/jre/Welcome.html
jdk1.8.0_202/README
jdk1.8.0_202/README.html
kuhan@ubuntu:/usr/local$
```

```
JDK1.8.0_202/README.HTML
kuhan@ubuntu:/usr/local$ java -version
Command 'java' not found, but can be installed with:
sudo apt install openjdk-17-jre-headless # version 17.0.12+7-1ubuntu2~24.04, or
sudo apt install openjdk-21-jre-headless # version 21.0.4+7-1ubuntu2~24.04
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 11.0.24+8-1ubuntu3~24.04.1
sudo apt install openjdk-8-jre-headless # version 8u422-b05-1~24.04
kuhan@ubuntu:/usr/local$
```

```
kuhan@ubuntu:/usr/local$ java -version
Command 'java' not found, but can be installed with:
sudo apt install openjdk-17-jre-headless # version 17.0.12+7-1ubuntu2~24.
sudo apt install openjdk-21-jre-headless # version 21.0.4+7-1ubuntu2~24.0
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 11.0.24+8-1ubuntu3~24.
sudo apt install openjdk-8-jre-headless # version 8u422-b05-1~24.04
kuhan@ubuntu:/usr/local$ gedit ~/.bashrc
```

Add java path in bashrc file

```
sudo apt install openjdk-8-jre-headless # version 8u422-b05-1~24.04
kuhan@ubuntu:/usr/local$ gedit ~/.bashrc
Command 'gedit' not found, but can be installed with:
sudo snap install gedit # version 46.1, or
sudo apt install gedit # version 46.1-3
See 'snap info gedit' for additional versions.
kuhan@ubuntu:/usr/local$
```

```
kuhan@ubuntu:/usr/local$ ls -l
total 36
drwxr-xr-x 2 root root 4096 Feb 15 08:09 bin
drwxr-xr-x 2 root root 4096 Feb 15 08:09 etc
drwxr-xr-x 2 root root 4096 Feb 15 08:09 games
drwxr-xr-x 2 root root 4096 Feb 15 08:09 include
drwxr-xr-x 7 uucp 143 4096 Dec 15 2018 jdk1.8.0_202
drwxr-xr-x 3 root root 4096 Feb 15 08:09 lib
lrwxrwxrwx 1 root root 9 Feb 15 08:09 man -> share/man
drwxr-xr-x 2 root root 4096 Feb 15 08:09 sbin
drwxr-xr-x 7 root root 4096 Feb 15 08:12 share
drwxr-xr-x 2 root root 4096 Feb 15 08:09 src
kuhan@ubuntu:/usr/local$
```

```
kuhan@ubuntu:/usr/local$ vim.tiny ~/.bashrc
```

A screenshot of a terminal window titled "kuhan@ubuntu:/usr/local". The window contains the text of the .bashrc file. The text includes comments about alias definitions, programmable completion features, and sourcing .bash_aliases. It also includes logic for enabling completion features by sourcing bash-completion files from /usr/share or /etc. The terminal shows the cursor at line 117, column 1, and is identified as "Bot".

```
alias alert='notify-send --urgency=low -i "$( [ $? = 0 ] && echo terminal || echo error)" "$(history|tail -n1|sed -e '\''s/^\s*[0-9]\+\s*//;s/[;&]\s*alert$/'\'' )"'"

# Alias definitions.
# You may want to put all your additions into a separate file like
# ~/.bash_aliases, instead of adding them here directly.
# See /usr/share/doc/bash-doc/examples in the bash-doc package.

if [ -f ~/.bash_aliases ]; then
    . ~/.bash_aliases
fi

# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if ! shopt -oq posix; then
    if [ -f /usr/share/bash-completion/bash_completion ]; then
        . /usr/share/bash-completion/bash_completion
    elif [ -f /etc/bash_completion ]; then
        . /etc/bash_completion
    fi
fi
```

Press O to edit mode

A screenshot of a terminal window titled "kuhan@ubuntu:/usr/local". The window contains the same text as the previous screenshot, including the .bashrc file content and the instruction to press 'O' for edit mode. The terminal shows the cursor at line 118, column 1, and is identified as "Bot".

```
# Alias definitions.
# You may want to put all your additions into a separate file like
# ~/.bash_aliases, instead of adding them here directly.
# See /usr/share/doc/bash-doc/examples in the bash-doc package.

if [ -f ~/.bash_aliases ]; then
    . ~/.bash_aliases
fi

# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if ! shopt -oq posix; then
    if [ -f /usr/share/bash-completion/bash_completion ]; then
        . /usr/share/bash-completion/bash_completion
    elif [ -f /etc/bash_completion ]; then
        . /etc/bash_completion
    fi
fi

~  
~  
-- INSERT --
```

A screenshot of a terminal window titled "kuhan@ubuntu: /usr/local". The window shows a portion of a .bashrc file. The status bar at the bottom indicates "-- INSERT --", the cursor's position at "119,33", and the word "Bot". The code in the buffer includes comments about alias definitions, programmable completion features, and environment variables like JAVA_HOME and PATH.

```
# Alias definitions.
# You may want to put all your additions into a separate file like
# ~/.bash_aliases, instead of adding them here directly.
# See /usr/share/doc/bash-doc/examples in the bash-doc package.

if [ -f ~/.bash_aliases ]; then
    . ~/.bash_aliases
fi

# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if ! shopt -oq posix; then
    if [ -f /usr/share/bash-completion/bash_completion ]; then
        . /usr/share/bash-completion/bash_completion
    elif [ -f /etc/bash_completion ]; then
        . /etc/bash_completion
    fi
fi
export JAVA_HOME=/usr/local/jdk1.8.0_202
export PATH=$PATH:$JAVA_HOME/bin
```

Vim.tiny editor:

1. Use O to edit mode
2. Escape to close edit mode
3. :wq to save and exit

A screenshot of a terminal window titled "kuhan@ubuntu: /usr/local". The window shows the same .bashrc file as the previous screenshot. In the bottom right corner of the terminal window, the command ":wq" is visible, indicating the user has entered the command to save and quit the editor.

```
# Alias definitions.
# You may want to put all your additions into a separate file like
# ~/.bash_aliases, instead of adding them here directly.
# See /usr/share/doc/bash-doc/examples in the bash-doc package.

if [ -f ~/.bash_aliases ]; then
    . ~/.bash_aliases
fi

# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if ! shopt -oq posix; then
    if [ -f /usr/share/bash-completion/bash_completion ]; then
        . /usr/share/bash-completion/bash_completion
    elif [ -f /etc/bash_completion ]; then
        . /etc/bash_completion
    fi
fi
export JAVA_HOME=/usr/local/jdk1.8.0_202
export PATH=$PATH:$JAVA_HOME/bin
```

```
kuhan@ubuntu:/usr/local$ vim.tiny ~/.bashrc
kuhan@ubuntu:/usr/local$ cat ~/.bashrc
" /bin/bash -c $(cat < /dev/stdin )"
sudo apt update & openjdk-8-jre-headless >>>
kuhan@ubuntu:/usr/local$ source ~/.bashrc
```

```
kuhan@ubuntu:/usr/local$ source ~/.bashrc
kuhan@ubuntu:/usr/local$ java -version
java version "1.8.0_202"
Java(TM) SE Runtime Environment (build 1.8.0_202-b08)
Java HotSpot(TM) 64-Bit Server VM (build 25.202-b08, mixed mode)
kuhan@ubuntu:/usr/local$
```

If already java is installed, use below to update it

```
sudo update-alternatives --install "/usr/bin/java" java "/usr/local/jdk1.8.0_2-2/bin/java" 1
sudo update-alternatives --config java
```

Setting password less communication between namenode and datanode

```
kuhan@ubuntu:/usr/local$ ssh localhost
ssh: connect to host localhost port 22: Connection refused
kuhan@ubuntu:/usr/local$
```

```
kuhan@ubuntu:/usr/local$ ssh localhost
ssh: connect to host localhost port 22: Connection refused
kuhan@ubuntu:/usr/local$ sudo apt install openssh-server ssh
```

```
Java HotSpot(TM) 64-Bit Server VM (build 25.202-b08, mixed mode)
kuhan@ubuntu:/usr/local$ ssh localhost
ssh: connect to host localhost port 22: Connection refused
kuhan@ubuntu:/usr/local$ sudo apt install openssh-server ssh
[sudo] password for kuhan:
```

```

kuhan@ubuntu:/usr/local$ ssh localhost
ssh: connect to host localhost port 22: Connection refused
kuhan@ubuntu:/usr/local$ sudo apt install openssh-server ssh
[sudo] password for kuhan:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  ncurses-term openssh-sftp-server ssh-import-id
Suggested packages:
  molly-guard monkeysphere ssh-askpass
The following NEW packages will be installed:
  ncurses-term openssh-server openssh-sftp-server ssh ssh-import-id
0 upgraded, 5 newly installed, 0 to remove and 3 not upgraded.
Need to get 836 kB of archives.
After this operation, 6,809 kB of additional disk space will be used.
Do you want to continue? [Y/n]

```

The screenshot shows a terminal window titled "kuhan@ubuntu:/usr/local". The window contains the output of an "apt update" command. The progress bar at the bottom indicates the download of "ssh-import-id" is 62% complete.

```

kuhan@ubuntu:/usr/local
Get:5 http://in.archive.ubuntu.com/ubuntu noble-updates/main amd64 ssh-import-id all 5.11-0ubuntu2.24.04.1 [10.1 kB]
Fetched 836 kB in 3s (288 kB/s)
Preconfiguring packages ...
Selecting previously unselected package openssh-sftp-server.
(Reading database ... 149117 files and directories currently installed.)
Preparing to unpack .../openssh-sftp-server_1%3a9.6p1-3ubuntu13.8_amd64.deb ...
Unpacking openssh-sftp-server (1:9.6p1-3ubuntu13.8) ...
Selecting previously unselected package openssh-server.
Preparing to unpack .../openssh-server_1%3a9.6p1-3ubuntu13.8_amd64.deb ...
Unpacking openssh-server (1:9.6p1-3ubuntu13.8) ...
Selecting previously unselected package ncurses-term.
Preparing to unpack .../ncurses-term_6.4+20240113-1ubuntu2_all.deb ...
Unpacking ncurses-term (6.4+20240113-1ubuntu2) ...
Selecting previously unselected package ssh.
Preparing to unpack .../ssh_1%3a9.6p1-3ubuntu13.8_all.deb ...
Unpacking ssh (1:9.6p1-3ubuntu13.8) ...
Selecting previously unselected package ssh-import-id.
Preparing to unpack .../ssh-import-id_5.11-0ubuntu2.24.04.1_all.deb ...
Unpacking ssh-import-id (5.11-0ubuntu2.24.04.1) ...
Setting up openssh-sftp-server (1:9.6p1-3ubuntu13.8) ...
Setting up openssh-server (1:9.6p1-3ubuntu13.8) ...

Progress: [ 62%] [#####
.....]

```

Check for process lock

```

kuhan@ubuntu:/usr/local$ ps -ef|grep lock
root      41      2  0 06:28 ?          00:00:00 [kworker/R-kblockd]
root      52      2  0 06:28 ?          00:00:00 [kworker/0:1H-kblockd]
root      66      2  0 06:28 ?          00:00:00 [kworker/1:1H-kblockd]
root     5222      2  0 06:45 ?          00:00:00 [kworker/1:0H-kblockd]
kuhan    6589  3953  0 07:31 pts/0      00:00:00 grep --color=auto lock
kuhan@ubuntu:/usr/local$

```

Create passwordless ssh for namenode

```
kuhan@ubuntu:/usr/local$ ssh-keygen
kuhan      6589  3953  0 07:31 pts/0    00:00:00 grep --color=auto lock
kuhan@ubuntu:/usr/local$ ssh-keygen
\Generating public/private ed25519 key pair.
Enter file in which to save the key (/home/kuhan/.ssh/id_ed25519):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Saving key "\\" failed: Permission denied
kuhan@ubuntu:/usr/local$ ssh localhost
The authenticity of host 'localhost (127.0.0.1)' can't be established.
ED25519 key fingerprint is SHA256:Z3b2VLTzbIIQkLdwEmnXFz7GYpUIfzrHJV/D/itIRJg.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'localhost' (ED25519) to the list of known hosts.
```

```
kuhan@ubuntu:/usr$ cd ..
kuhan@ubuntu:$ cd ..
kuhan@ubuntu:$ ssh-keygen
Generating public/private ed25519 key pair.
Enter file in which to save the key (/home/kuhan/.ssh/id_ed25519):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/kuhan/.ssh/id_ed25519
Your public key has been saved in /home/kuhan/.ssh/id_ed25519.pub
The key fingerprint is:
SHA256:rfxx77HWSJzi/WCDy1LETvwTEzbZEunH7sSWZ/5qoNw kuhan@ubuntu
The key's randomart image is:
---[ED25519 256]---
|          .= |
|          B .|
|          o o =|
|          . = + o|
|          S .+ o B.|
|          .. =.*.B|
|          o..=o==X.|
|          .++E+==+|
|          ..o+=o+|
+----[SHA256]----+
kuhan@ubuntu:$
```

```
kuhan@ubuntu:$ ssh-copy-id -i localhost
/usr/bin/ssh-copy-id: ERROR: failed to open ID file 'localhost.pub': No such file
kuhan@ubuntu:$ ssh-copy-id -i ~/.ssh/id_ed25519.pub localhost
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/kuhan/.ssh/id_ed25519.pub"
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter
out any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompt
ed now it is to install the new keys
kuhan@localhost's password:
```

```
ff02::1      ip6-localhost  localhost
kuhan@ubuntu:/$ ssh-copy-id -i ~/.ssh/id_ed25519.pub localhost
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/kuhan/.ssh/
id_ed25519.pub"
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter
out any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompt
ed now it is to install the new keys
kuhan@localhost's password:

Number of key(s) added: 1

Now try logging into the machine, with: "ssh 'localhost'"
and check to make sure that only the key(s) you wanted were added.

kuhan@ubuntu:/$
```

```
kuhan@localhost's password:

Number of key(s) added: 1

Now try logging into the machine, with: "ssh 'localhost'"
and check to make sure that only the key(s) you wanted were added.

kuhan@ubuntu:/$ ssh localhost
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.11.0-17-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

Expanded Security Maintenance for Applications is not enabled.

3 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Sat Feb 22 07:41:25 2025 from 127.0.0.1
kuhan@ubuntu:~$
```

```
kuhan@ubuntu:/$ ssh localhost
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.11.0-17-generic x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

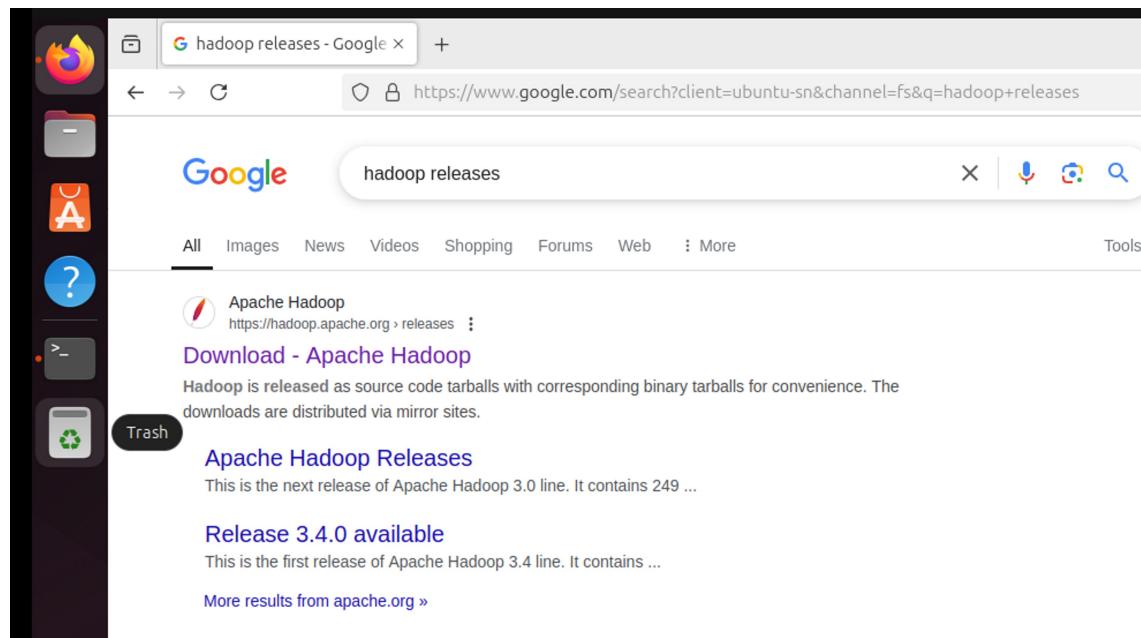
Expanded Security Maintenance for Applications is not enabled.

3 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Sat Feb 22 07:41:25 2025 from 127.0.0.1
kuhan@ubuntu:~$ exit
logout
Connection to localhost closed.
kuhan@ubuntu:/$
```

Download latest Hadoop releases



The screenshot shows a Firefox browser window with the URL <https://hadoop.apache.org/releases.html>. The page title is "Apache Hadoop". The main content is a "Download" section with a table of releases. The table has columns: Version, Release date, Source download, Binary download, and Release notes. The "Version" column is currently sorted by clicking on it. The table shows the following data:

Version	Release date	Source download	Binary download	Release notes
3.4.1	2024 Oct 18	source (checksum signature)	binary (checksum signature) binary-aarch64 (checksum signature) binary-jean (checksum signature)	Announcement
3.4.0	2024 Mar 17	source (checksum signature)	binary (checksum signature) binary-aarch64 (checksum signature)	Announcement
3.3.6	2023 Jun 23	source (checksum signature)	binary (checksum signature) binary-aarch64 (checksum signature)	Announcement
2.10.2	2022 May 31	source (checksum signature)	binary (checksum signature)	Announcement

To verify Apache Hadoop® releases using GPG:

1. Download the release hadoop-X.Y.Z-src.tar.gz from a [mirror site](#).

```
kuhan@ubuntu:~$ sudo wget https://www.apache.org/dyn/closer.cgi/hadoop/common/hadoop-3.4.1/hadoop-3.4.1.tar.gz
```

Copy binary

```
kuhan@ubuntu:~$ sudo wget https://www.apache.org/dyn/closer.cgi/hadoop/common/hadoop-3.4.1/hadoop-3.4.1.tar.gz
[sudo] password for kuhan:
--2025-02-22 10:29:54-- https://www.apache.org/dyn/closer.cgi/hadoop/common/hadoop-3.4.1/hadoop-3.4.1.tar.gz
Resolving www.apache.org (www.apache.org)... 151.101.2.132, 2a04:4e42::644
Connecting to www.apache.org (www.apache.org)|151.101.2.132|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [text/html]
Saving to: 'hadoop-3.4.1.tar.gz'

hadoop-3.4.1.tar.gz          [ =>                               ] 20.91K  ---KB/s   in 0.03s
2025-02-22 10:29:55 (669 KB/s) - 'hadoop-3.4.1.tar.gz' saved [21411]
```