

MODULE 1

Submitted by – KINJARAPU RAJASEKHAR

Date Of Submission-21/08/2024

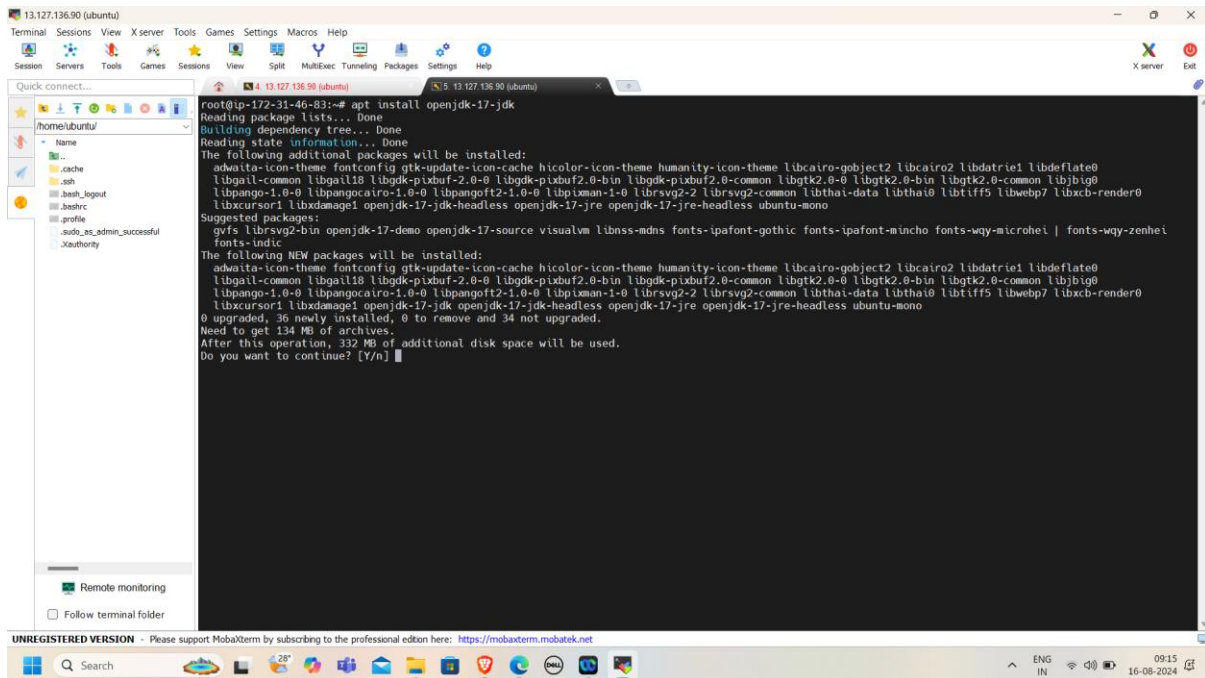
Date of Resubmission-

Batch no-SA246007

Submitted to- Vikul Mentor

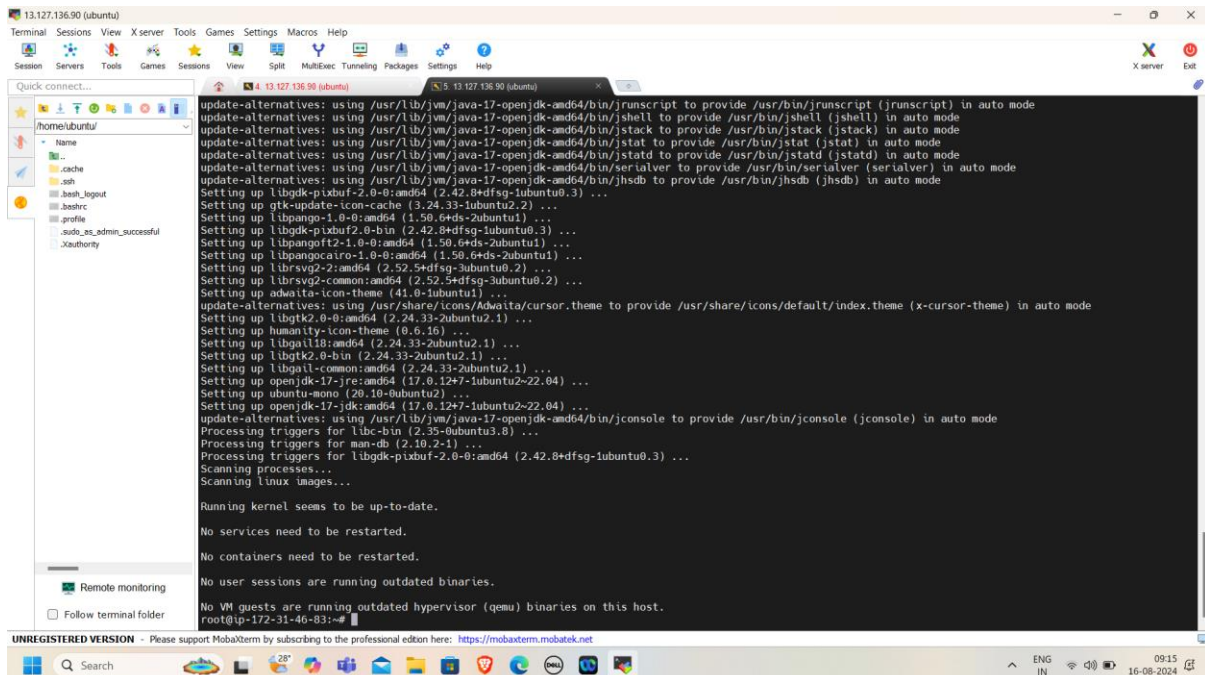
5. L5 - Install Tomcat web application server in AWS EC2 Ubuntu Instance and access Tomcat using a web browser

Step 1: login to ubuntu instance and install jdk (prerequisite to install tomcat server).command to install jdk is “apt install openjdk-17-jdk” and click on y(yes)



```
root@ip-172-31-46-83:~# apt install openjdk-17-jdk
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  adwaita-icon-theme fontconfig gtk-update-icon-cache hicolor-icon-theme humanity-icon-theme libcairo-gobject2 libcairo2 libdatrie1 libdeflate0
  libgail-common libgail18 libgdk-pixbuf2.0-0 libgdk-pixbuf2.0-bin libgdk-pixbuf2.0-common libgtk2.0-0 libgtk2.0-bin libgtk2.0-common libjpeg0
  libpango-1.0-0 libpangocairo-1.0-0 libpangoft2-1.0-0 libpangox-1.0 librsvg2-2 librsvg2-common libthai-data libthai0 libtiff5 libwebp7 libxcb-render0
  libxcursor1 libxdamage1 openjdk-17-jdk-headless openjdk-17-jre openjdk-17-jre-headless ubuntu-mono
Suggested packages:
  gvfs librsvg2-bin openjdk-17-demo openjdk-17-source visualvm libnss-mdns fonts-ipafont-gothic fonts-ipafont-mincho fonts-wqy-microhei fonts-wqy-zenhei
  fonts-indic
The following NEW packages will be installed:
  adwaita-icon-theme fontconfig gtk-update-icon-cache hicolor-icon-theme humanity-icon-theme libcairo-gobject2 libcairo2 libdatrie1 libdeflate0
  libgail-common libgail18 libgdk-pixbuf2.0-0 libgdk-pixbuf2.0-bin libgdk-pixbuf2.0-common libgtk2.0-0 libgtk2.0-bin libgtk2.0-common libjpeg0
  libpango-1.0-0 libpangocairo-1.0-0 libpangoft2-1.0-0 libpangox-1.0 librsvg2-2 librsvg2-common libthai-data libthai0 libtiff5 libwebp7 libxcb-render0
  libxcursor1 libxdamage1 openjdk-17-jdk openjdk-17-jdk-headless openjdk-17-jre openjdk-17-jre-headless ubuntu-mono
Need to get 134 MB of archives.
After this operation, 332 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

Step 2: here jdk is successfully installed



```
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/runscript to provide /usr/bin/runscript (runscript) in auto mode
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/jshell to provide /usr/bin/jshell (jshell) in auto mode
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/jstack to provide /usr/bin/jstack (jstack) in auto mode
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/jstat to provide /usr/bin/jstat (jstat) in auto mode
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/jstatd to provide /usr/bin/jstatd (jstatd) in auto mode
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/serialver to provide /usr/bin/serialver (serialver) in auto mode
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/jhsdb to provide /usr/bin/jhsdb (jhsdb) in auto mode
Setting up libgdk-pixbuf2.0-0:amd64 (2.42.8+dfsg-1ubuntu0.3) ...
Setting up gtk-update-icon-cache (3.24.33-1ubuntu2.2) ...
Setting up libpango-1.0-0:amd64 (1.50.6+ds-2ubuntu1) ...
Setting up libgdk-pixbuf2.0-bin (2.42.8+dfsg-1ubuntu0.3) ...
Setting up libpangoft2-1.0-0:amd64 (1.50.6+ds-2ubuntu1) ...
Setting up libpangocairo-1.0-0:amd64 (1.50.6+ds-2ubuntu1) ...
Setting up librsvg2-common:amd64 (2.52.5+dfsg-3ubuntu0.2) ...
Setting up librsvg2-2:amd64 (2.52.5+dfsg-3ubuntu0.2) ...
Setting up adwaita-icon-theme (41.0-1ubuntu1) ...
update-alternatives: using /usr/share/icons/Adwaita/cursor.theme to provide /usr/share/icons/default/index.theme (x-cursor-theme) in auto mode
Setting up libgtk2.0-0:amd64 (2.24.33-2ubuntu2.1) ...
Setting up libgail18:amd64 (2.24.33-2ubuntu2.1) ...
Setting up libgail-common:amd64 (2.24.33-2ubuntu2.1) ...
Setting up openjdk-17-jre:amd64 (17.0.12+7-1ubuntu2-22.04) ...
Setting up ubuntu-mono (20.10-0ubuntu2) ...
Setting up openjdk-17-jdk:amd64 (17.0.12+7-1ubuntu2-22.04) ...
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/jconsole to provide /usr/bin/jconsole (jconsole) in auto mode
Processing triggers for libc-bin (2.35-0ubuntu3.8) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for libgdk-pixbuf2.0-0:amd64 (2.42.8+dfsg-1ubuntu0.3) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

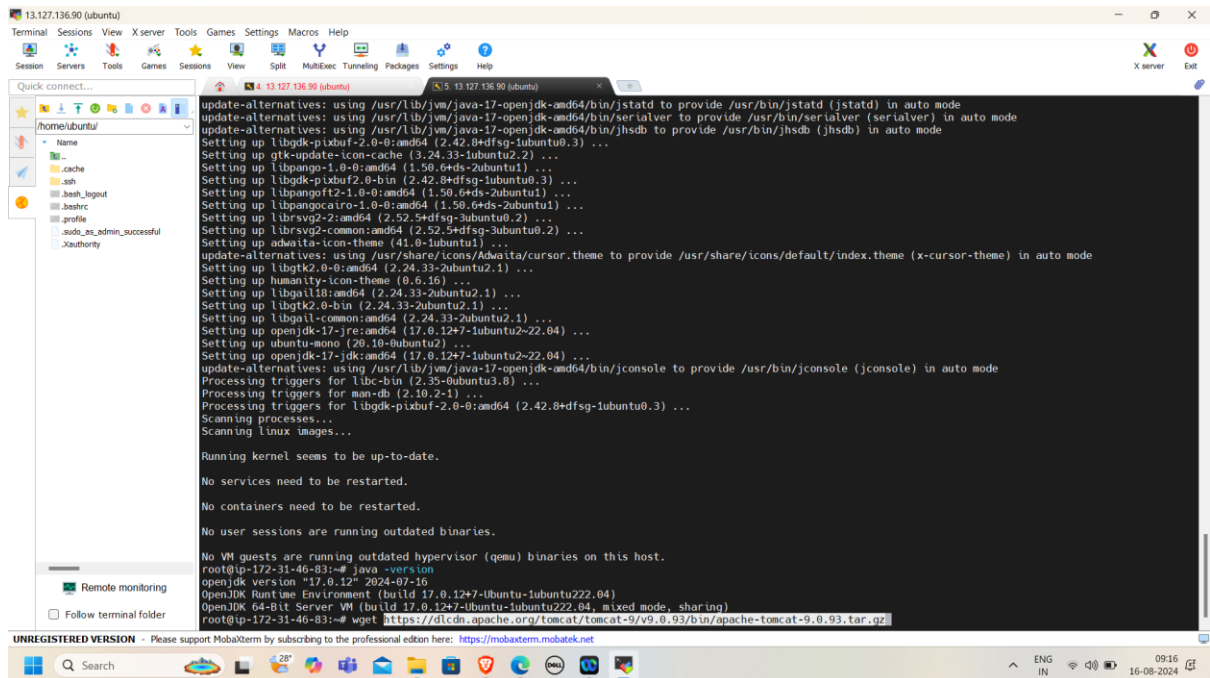
No services need to be restarted.

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.
root@ip-172-31-46-83:~#
```

Step 3: to get version command is "java -version"



```
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/jstatd to provide /usr/bin/jstatd (jstatd) in auto mode
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/serialver to provide /usr/bin/serialver (serialver) in auto mode
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/jhsdb to provide /usr/bin/jhsdb (jhsdb) in auto mode
Setting up libgdk-pixbuf2.0-0:amd64 (2.42.8dfsg-1ubuntu0.3) ...
Setting up gtk-update-icon-cache (3.24.33-1ubuntu0.2) ...
Setting up libpango-1.0-0:amd64 (1.50.6+ds-2ubuntu1) ...
Setting up libgdk-pixbuf2.0-bin (2.42.8dfsg-1ubuntu0.3) ...
Setting up libpangoft2-1.0-0:amd64 (1.50.6+ds-2ubuntu1) ...
Setting up libpangocairo-1.0-0:amd64 (1.50.6+ds-2ubuntu1) ...
Setting up librsvg2-2:amd64 (2.52.5+dfsg-3ubuntu0.2) ...
Setting up librsvg2-common:amd64 (2.52.5+dfsg-3ubuntu0.2) ...
Setting up adwaita-icon-theme (41.0-1ubuntu1) ...
update-alternatives: using /usr/share/icons/Adwaita/cursor.theme to provide /usr/share/icons/default/index.theme (x-cursor-theme) in auto mode
Setting up libgtk2.0-0:amd64 (2.24.33-2ubuntu2.1) ...
Setting up humanity-icon-theme (0.6.16) ...
Setting up libgall18:amd64 (2.24.33-2ubuntu2.1) ...
Setting up libgtk2.0-bin (2.24.33-2ubuntu2.1) ...
Setting up libgall1-common:amd64 (2.24.33-2ubuntu2.1) ...
Setting up openjdk-17-jre:amd64 (17.0.12+7-1ubuntu2-22.04) ...
Setting up ubuntu-mono (20.10-0ubuntu2) ...
Setting up openjdk-17-jdk:amd64 (17.0.12+7-1ubuntu2-22.04) ...
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/jconsole to provide /usr/bin/jconsole (jconsole) in auto mode
Processing triggers for libc-bin (2.35-0ubuntu3.8) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for libgdk-pixbuf2.0-0:amd64 (2.42.8dfsg-1ubuntu0.3) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

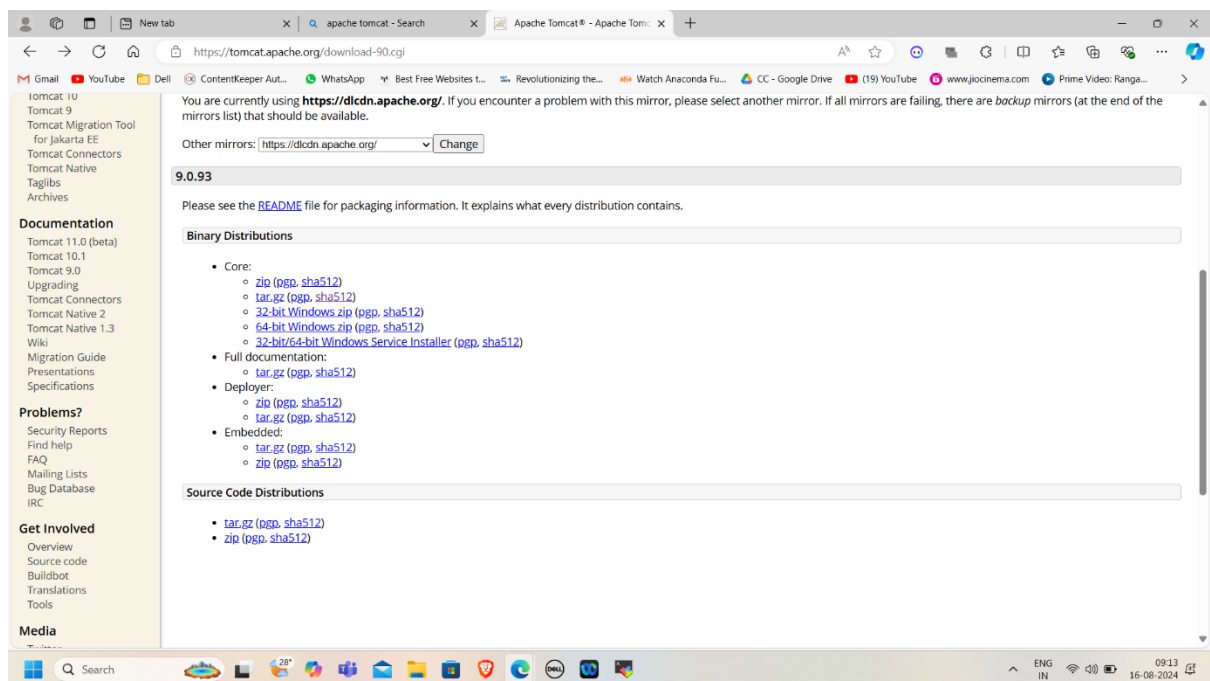
No services need to be restarted.

No containers need to be restarted.

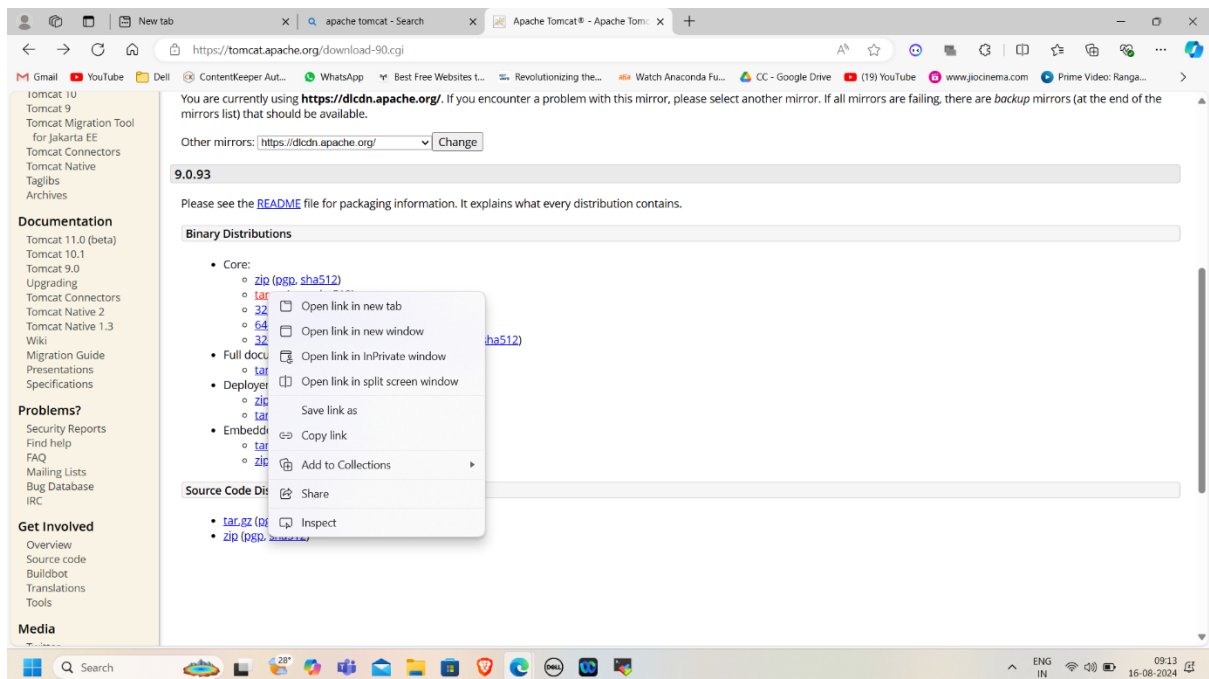
No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-172-31-46-83:~# java -version
openjdk version "17.0.12" 2024-07-16
OpenJDK Runtime Environment (build 17.0.12+7-Ubuntu-1ubuntu222.04)
OpenJDK 64-bit Server VM (build 17.0.12+7-Ubuntu-1ubuntu222.04, mixed mode, sharing)
root@ip-172-31-46-83:~# wget https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.93/bin/apache-tomcat-9.0.93.tar.gz
```

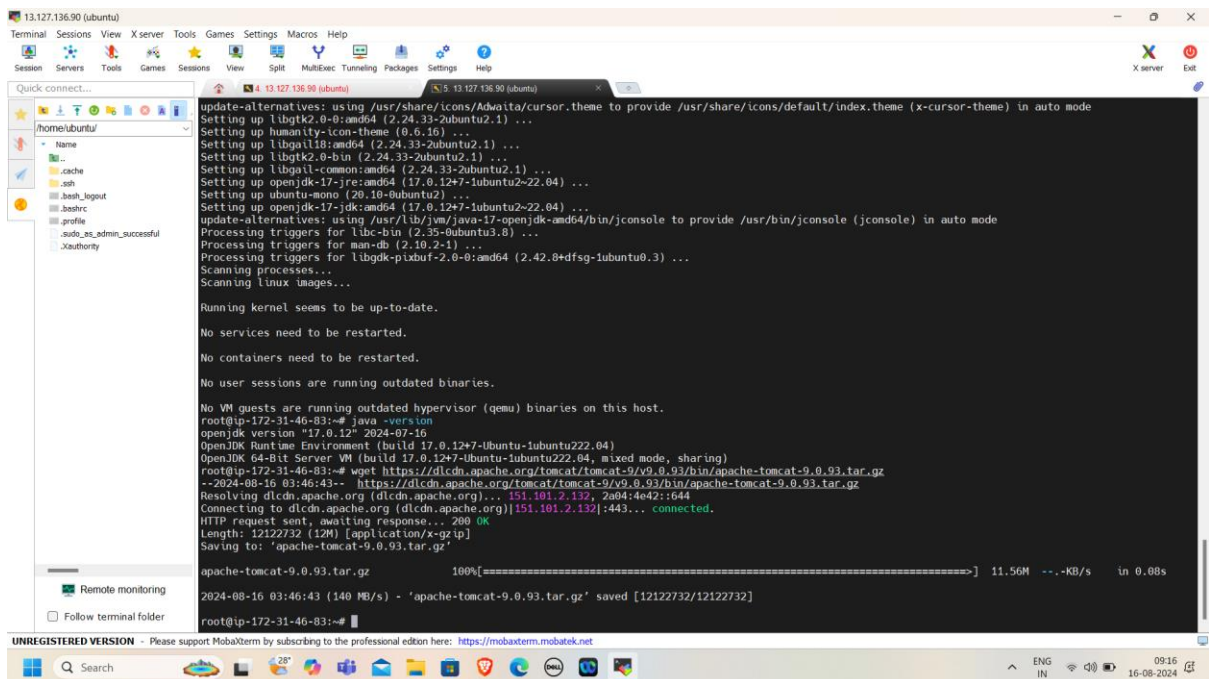
Step 4: to install tomcat go to the official website of tomcat



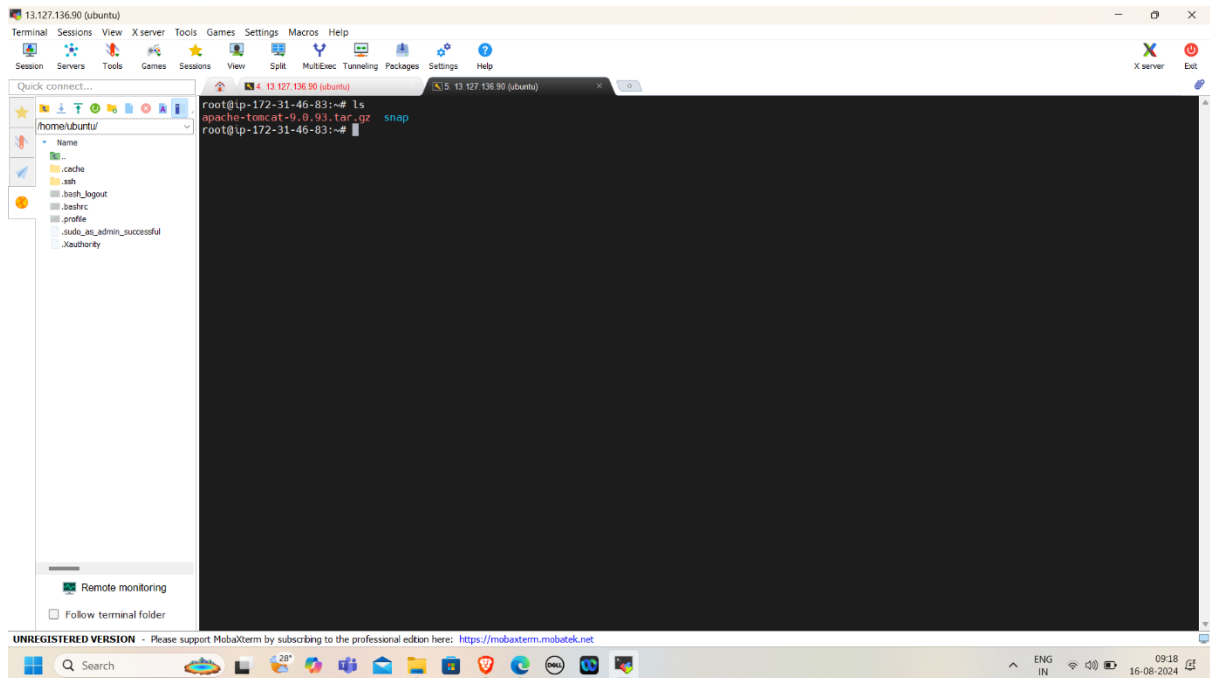
Step 5: for ubuntu we have to right click on tar.gz and copy the link



Step 6: then paste the link by using command “wget link”



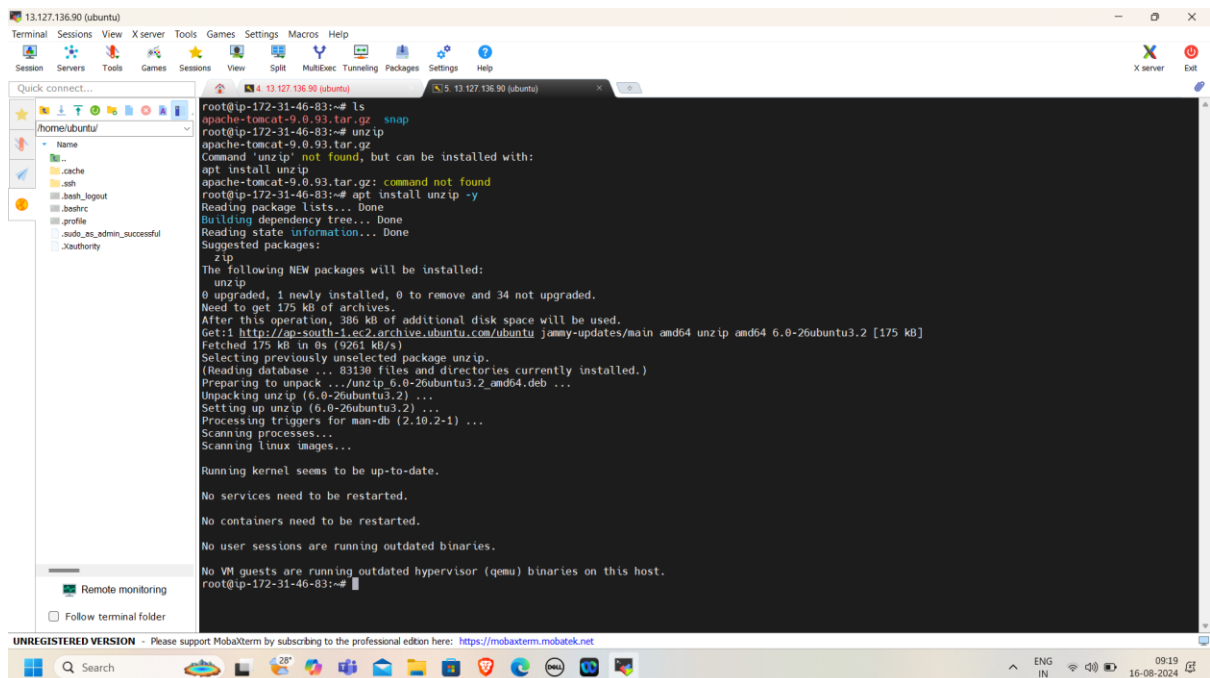
Step 7: give command 'ls' there we can see that zip file



The screenshot shows a MobaXterm window with a terminal session on a remote host (13.127.136.90, ubuntu). The terminal prompt is root@ip-172-31-46-83:~#. The user has entered the command 'ls' and the output is 'apache-tomcat-9.0.93.tar.gz snap'. The left sidebar shows the file explorer for the remote host, and the bottom status bar indicates the application is an unregistered version.

```
root@ip-172-31-46-83:~# ls
apache-tomcat-9.0.93.tar.gz snap
root@ip-172-31-46-83:~#
```

Step 8 : to unzip that we have install unzip by “apt install unzip -y”



The screenshot shows the same MobaXterm window with the terminal session. The user has entered the command 'apt install unzip -y' and the output shows the package being installed. The terminal output includes the following text:

```
root@ip-172-31-46-83:~# ls
apache-tomcat-9.0.93.tar.gz snap
root@ip-172-31-46-83:~# unzip
root@ip-172-31-46-83:~# apt install unzip
Command 'unzip' not found, but can be installed with:
apt install unzip
apache-tomcat-9.0.93.tar.gz: command not found
root@ip-172-31-46-83:~# apt install unzip -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Suggested packages:
unzip
The following NEW packages will be installed:
unzip
0 upgraded, 1 newly installed, 0 to remove and 34 not upgraded.
Need to get 175 kB of archives.
After this operation, 386 kB of additional disk space will be used.
Get:1 http://apt-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 unzip amd64 6.0-26ubuntu3.2 [175 kB]
Fetched 175 kB in 0s (9261 kB/s)
Selecting previously unselected package unzip.
(Reading database ... 83139 files and directories currently installed.)
Preparing to unpack .../unzip.6.0-26ubuntu3.2_amd64.deb ...
Unpacking unzip (6.0-26ubuntu3.2) ...
Setting up unzip (6.0-26ubuntu3.2) ...
Processing triggers for man-db (2.10.2-1) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

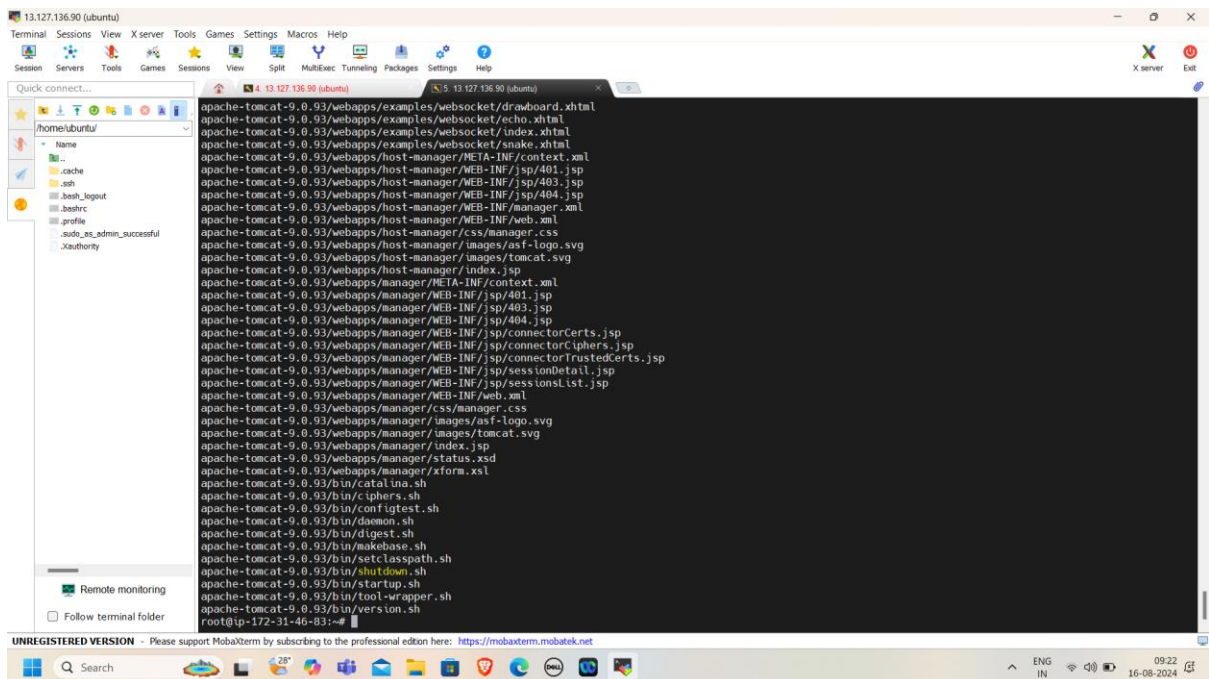
No services need to be restarted.

No containers need to be restarted.

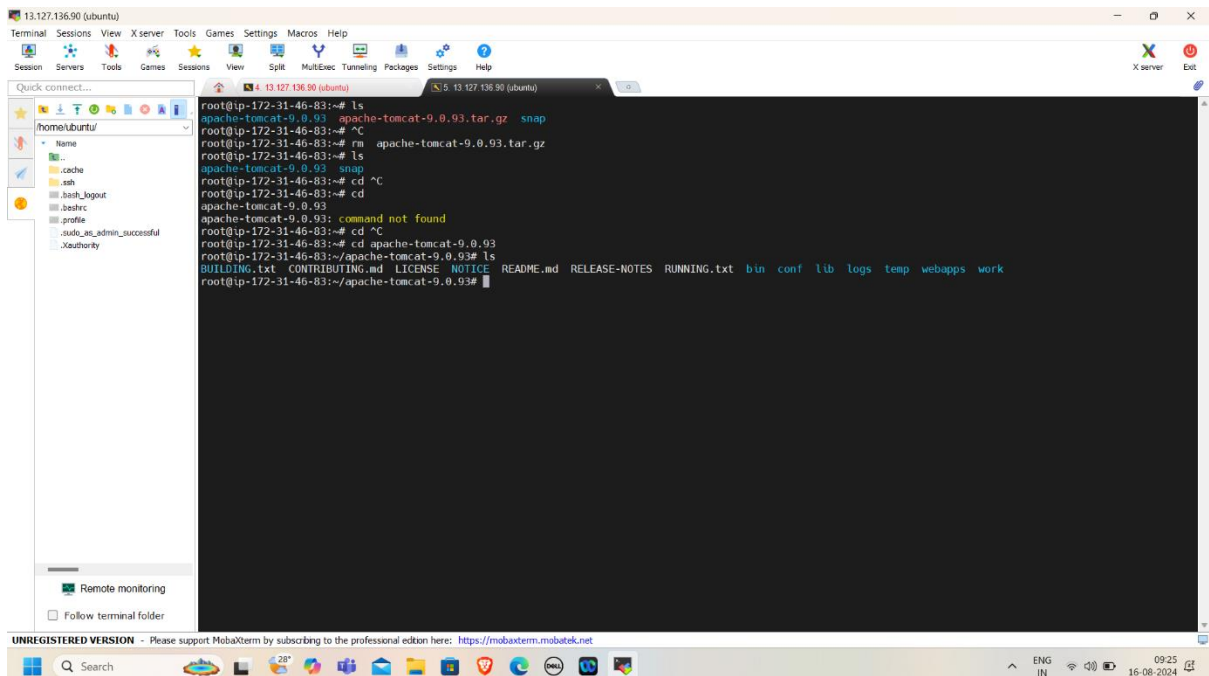
No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-172-31-46-83:~#
```

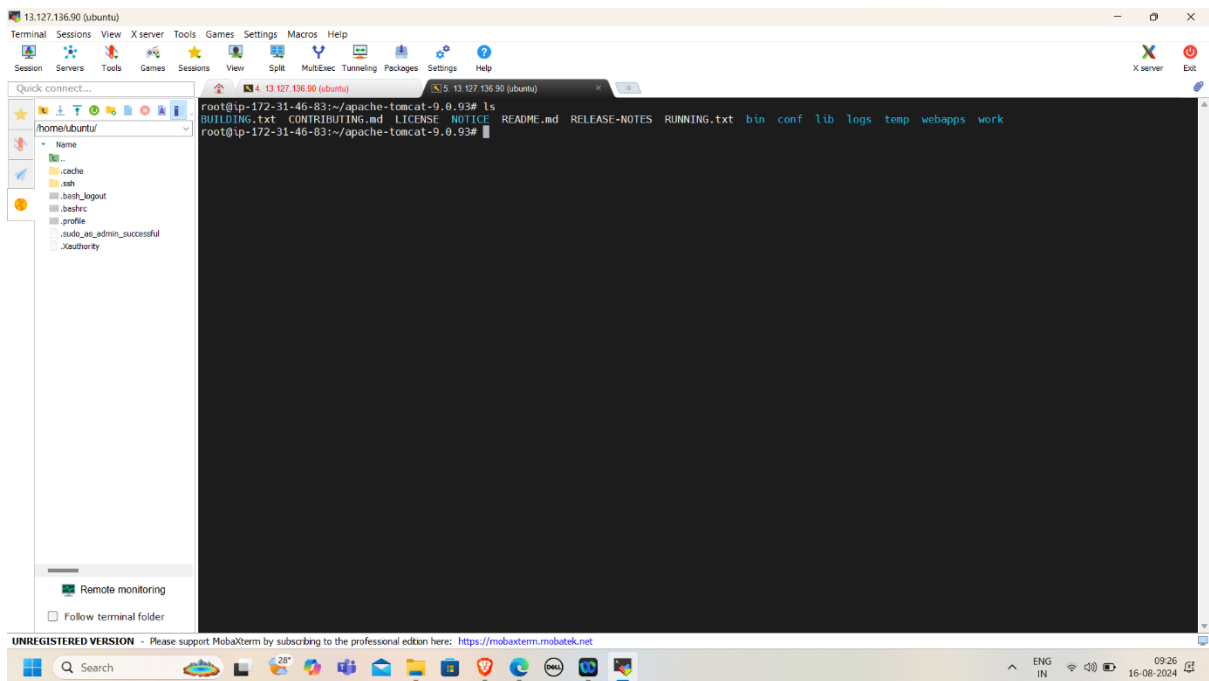

Step 9: here we successfully unzipped the folder



Step 10: now when you give command “ls” now it shows unzip folder and we can remove the zip folder and got to unzip folder by using command “cd foldername”



Step 11: give command ls it shows like this



The screenshot shows a MobaXterm window with a terminal session. The terminal displays the following commands and output:

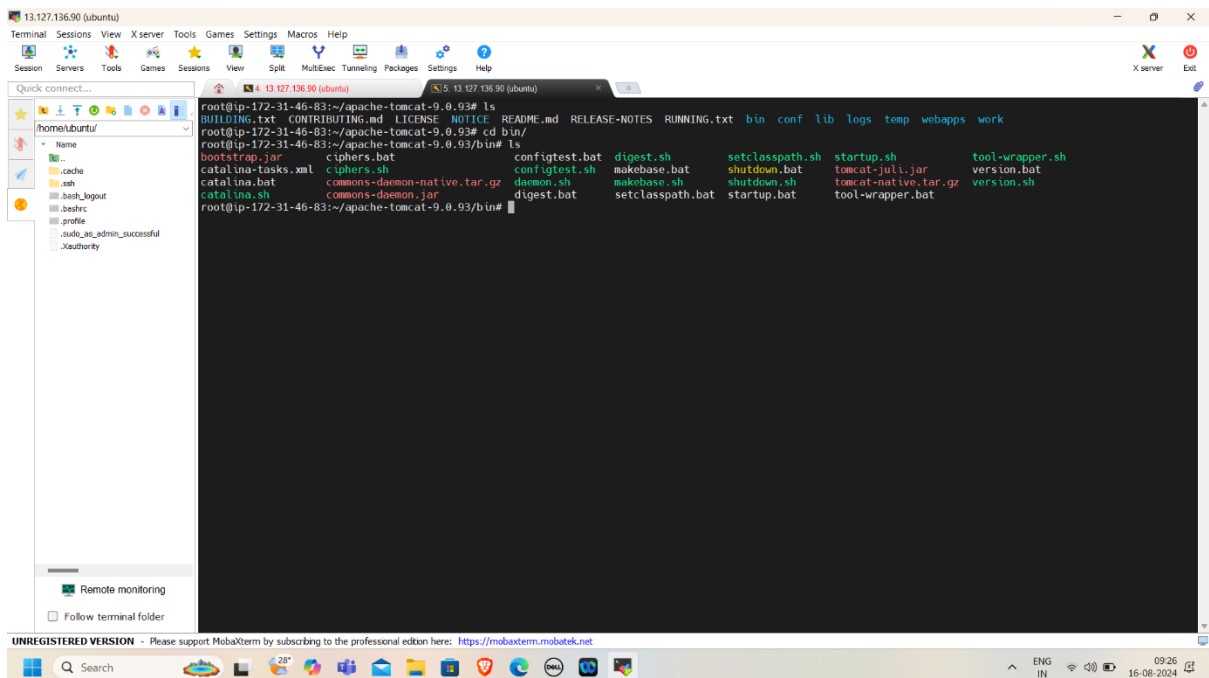
```
root@ip-172-31-46-83:~/apache-tomcat-9.0.93# ls
BUILDING.txt  CONTRIBUTING.md  LICENSE  NOTICE  README.md  RELEASE-NOTES  RUNNING.txt  bin  conf  lib  logs  temp  webapps  work
root@ip-172-31-46-83:~/apache-tomcat-9.0.93#
```

The left sidebar shows the file explorer with the following files:

- home/ubuntu
- cache
- ssh
- .bash_logout
- .bashrc
- .profile
- .sudo_as_admin_successful
- .Xauthority

The bottom status bar indicates the terminal is running on an unregistered version of MobaXterm, with a link to the professional edition: <https://mobaxterm.mobatek.net>.

Step 12: give command “cd bin/” to move to bin and give ls command



The screenshot shows a MobaXterm window with a terminal session. The terminal displays the following commands and output:

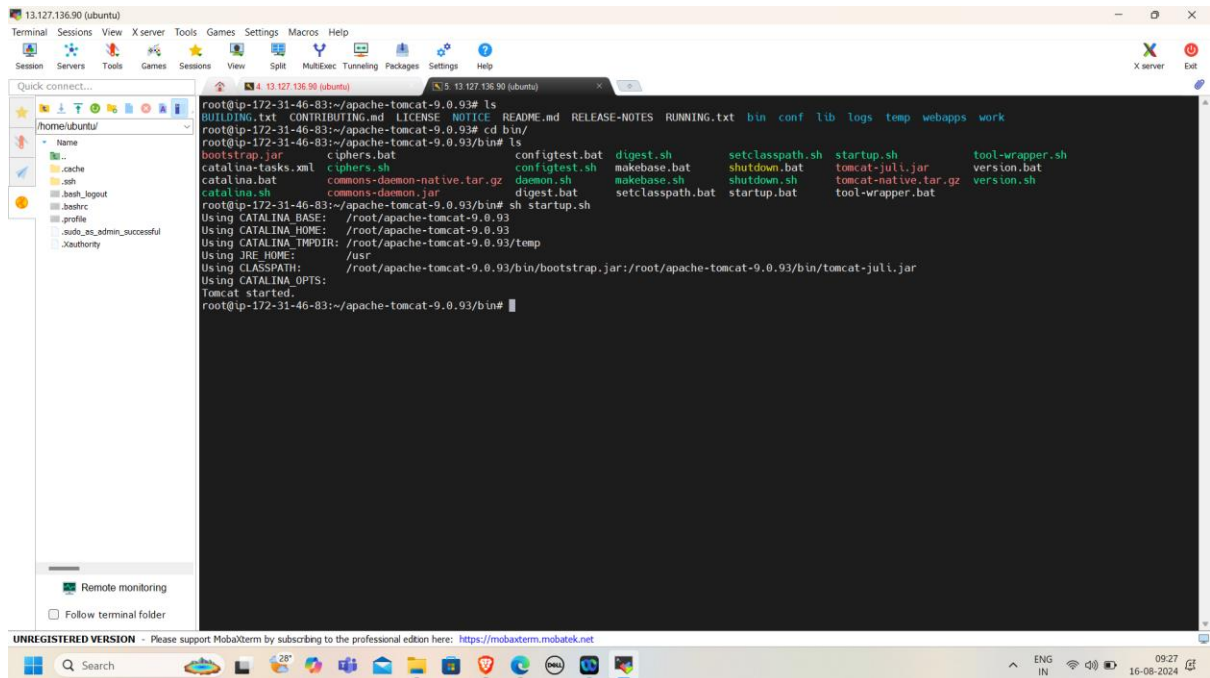
```
root@ip-172-31-46-83:~/apache-tomcat-9.0.93# ls
BUILDING.txt  CONTRIBUTING.md  LICENSE  NOTICE  README.md  RELEASE-NOTES  RUNNING.txt  bin  conf  lib  logs  temp  webapps  work
root@ip-172-31-46-83:~/apache-tomcat-9.0.93# cd bin/
root@ip-172-31-46-83:~/apache-tomcat-9.0.93/bin# ls
bootstrap.jar  catalina.bat  catalina.sh  commons-daemon.jar  commons-daemon-native.tar.gz  configtest.bat  configtest.sh  daemon.sh  digest.bat  digest.sh  makebase.bat  makebase.sh  setclasspath.bat  setclasspath.sh  shutdown.bat  shutdown.sh  startup.bat  startup.sh  tomcat-juli.jar  tomcat-native.tar.gz  tool-wrapper.bat  tool-wrapper.sh  version.bat  version.sh
root@ip-172-31-46-83:~/apache-tomcat-9.0.93/bin#
```

The left sidebar shows the file explorer with the following files:

- home/ubuntu
- cache
- ssh
- .bash_logout
- .bashrc
- .profile
- .sudo_as_admin_successful
- .Xauthority

The bottom status bar indicates the terminal is running on an unregistered version of MobaXterm, with a link to the professional edition: <https://mobaxterm.mobatek.net>.

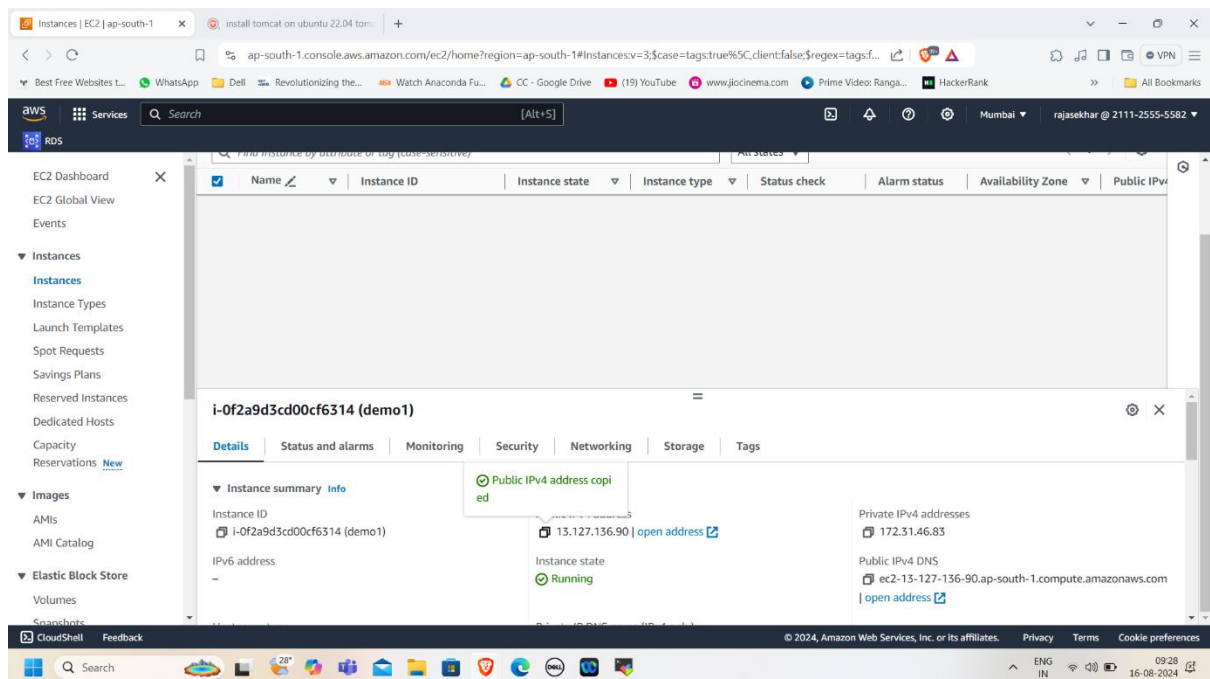
Step 13: to start the tomcat server give the command “sh startup.sh”



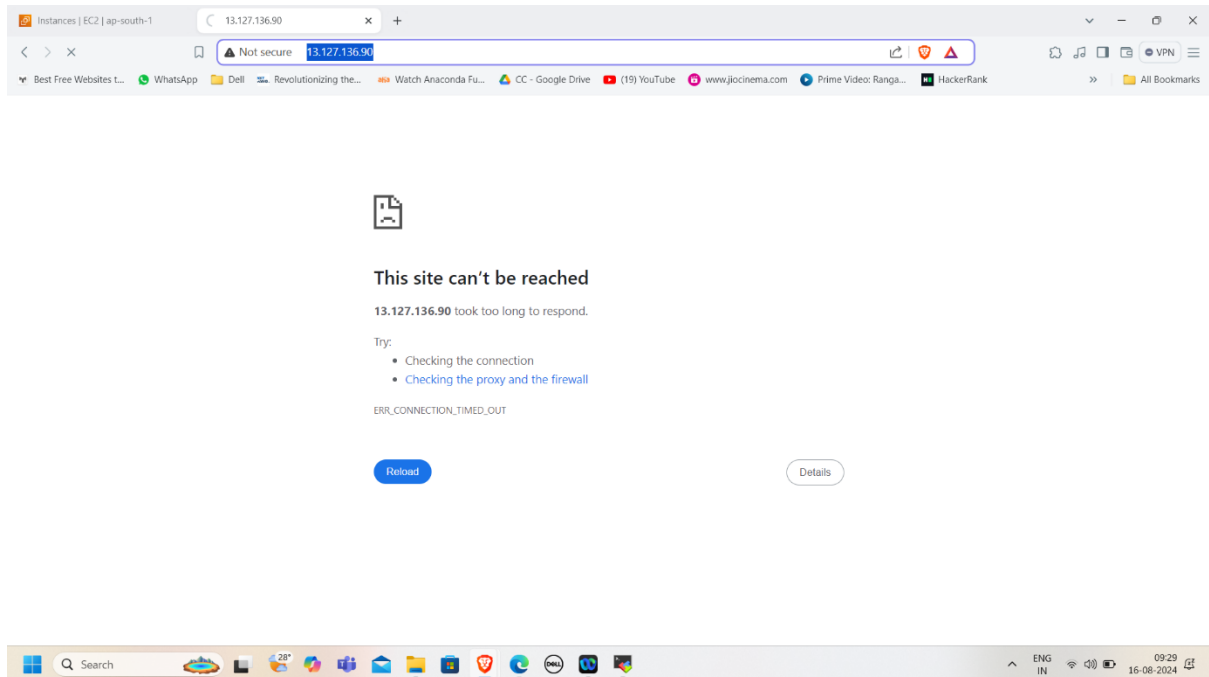
The screenshot shows a terminal window with the following commands and output:

```
root@ip-172-31-46-83:~/apache-tomcat-9.0.93# ls
BUILDING.txt  CONTRIBUTING.md  LICENSE  NOTICE  README.md  RELEASE-NOTES  RUNNING.txt  bin  conf  lib  logs  temp  webapps  work
root@ip-172-31-46-83:~/apache-tomcat-9.0.93# cd bin/
root@ip-172-31-46-83:~/apache-tomcat-9.0.93/bin# ls
bootstrap.jar  ciphers.sh  configtest.bat  digest.sh  setclasspath.sh  startup.sh  tool-wrapper.sh
catalina.bat  commons-daemon-native.tar.gz  daemon.sh  makebase.sh  shutdown.bat  tomcat-juli.jar  version.bat
catalina.sh  commons-daemon.jar  digest.bat  setclasspath.bat  startup.bat  tomcat-native.tar.gz  version.sh
Using CATALINA_BASE:   /root/apache-tomcat-9.0.93
Using CATALINA_HOME:   /root/apache-tomcat-9.0.93
Using CATALINA_TMPDIR: /root/apache-tomcat-9.0.93/temp
Using JRE_HOME:        /usr
Using CLASSPATH:        /root/apache-tomcat-9.0.93/bin/bootstrap.jar:/root/apache-tomcat-9.0.93/bin/tomcat-juli.jar
Tomcat started.
root@ip-172-31-46-83:~/apache-tomcat-9.0.93/bin#
```

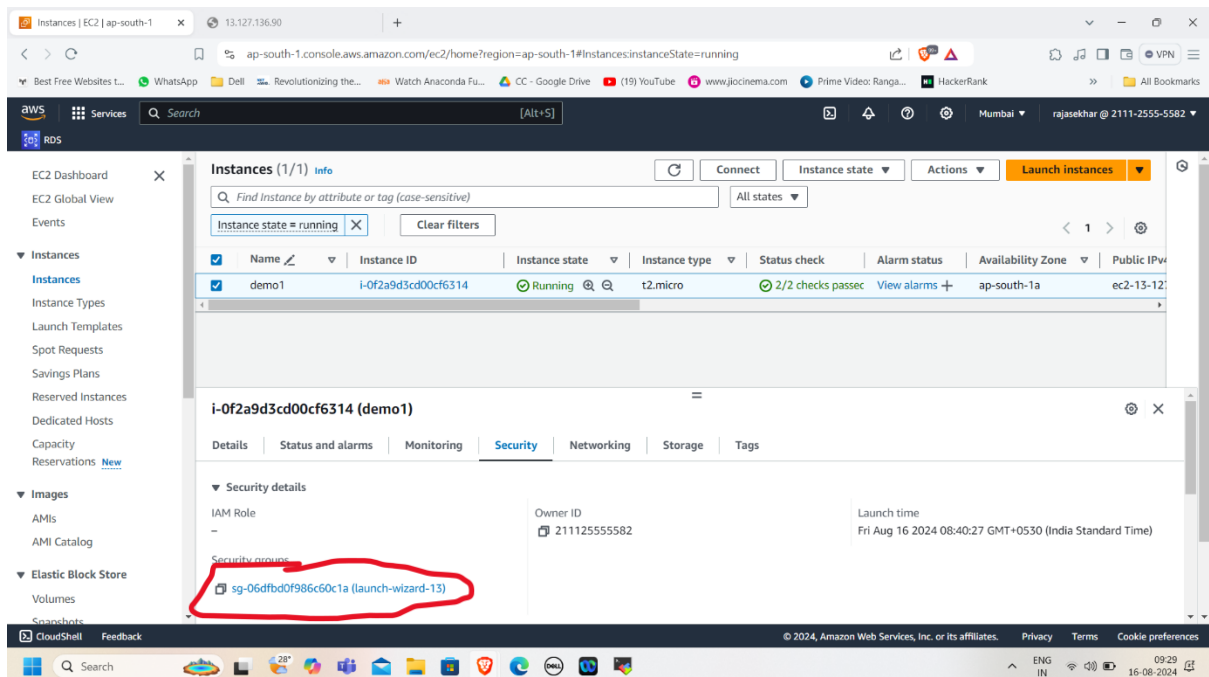
Step 14: then go to aws console copy the public ip adress



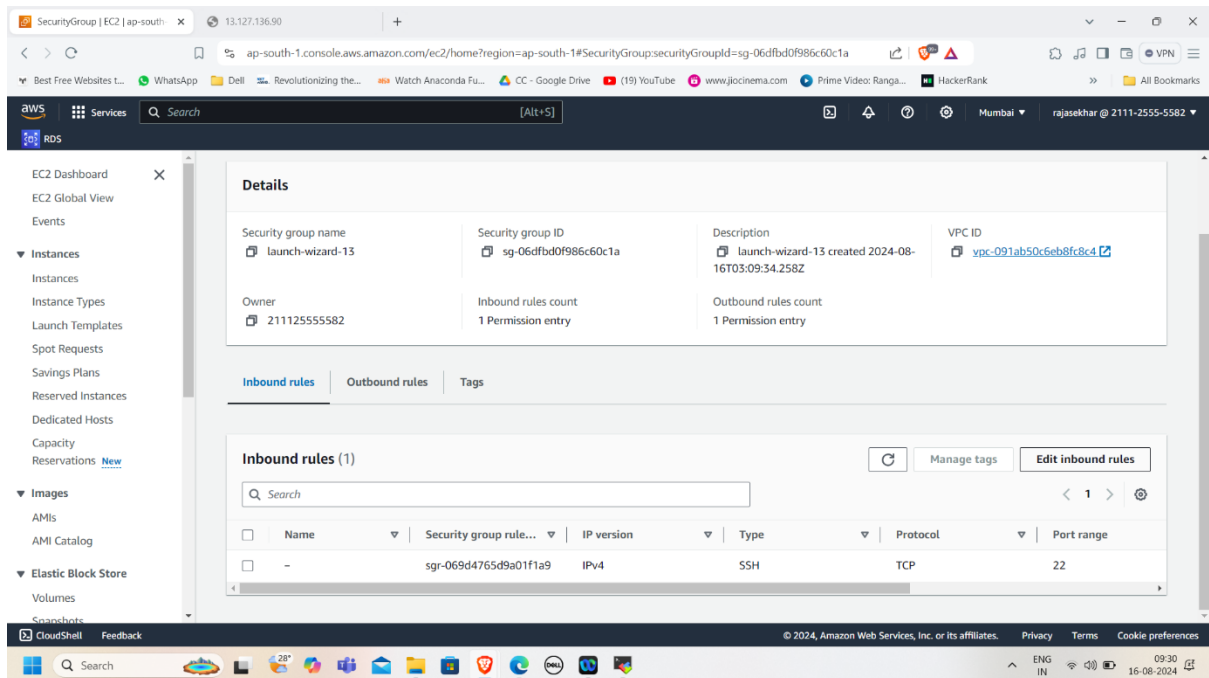
Step 15 : paste that in browser ,it doesn't work.



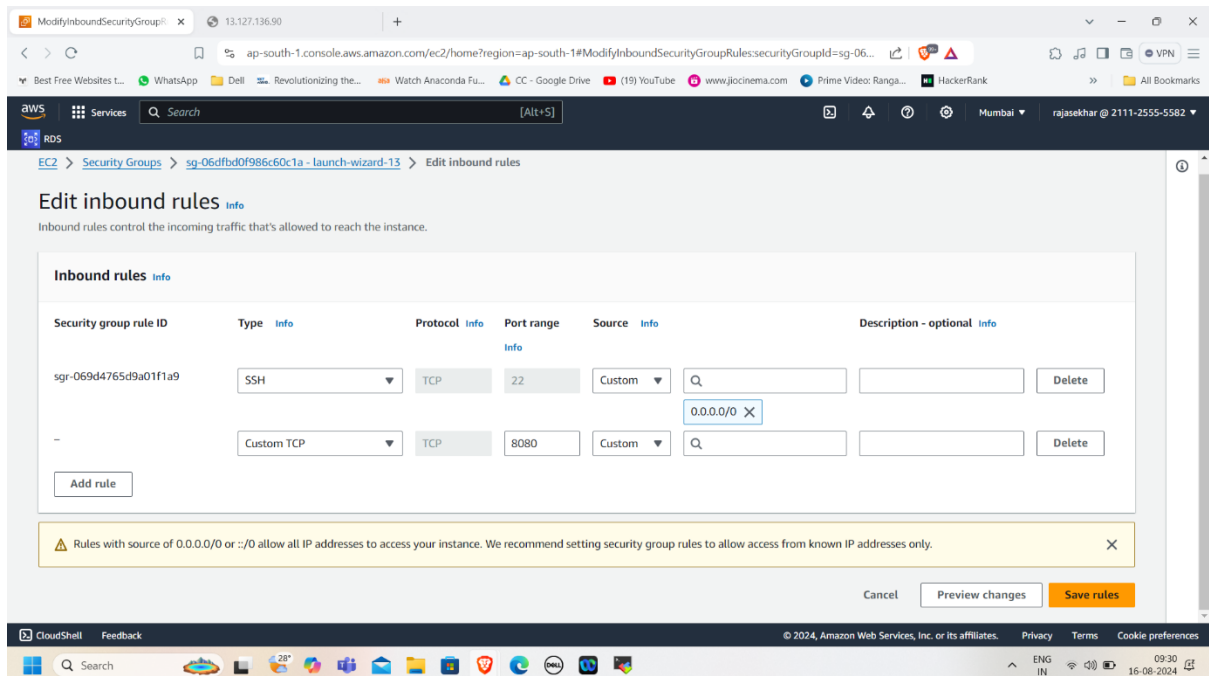
Step 16: then go to security and click on security groups link



Step 17: edit the inbound rules with port 8080



Step 18: click on add rule and give port number and click on save rules



Step 19: give the public ipv4 address:8080, we can successfully access tomcat server in browser.

