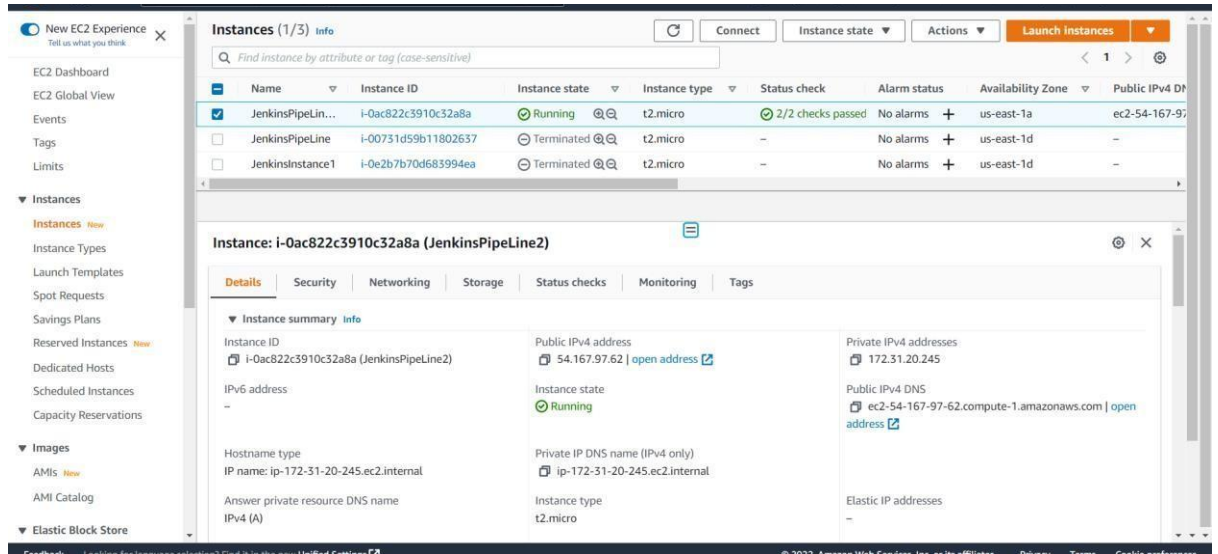


PHASE 5

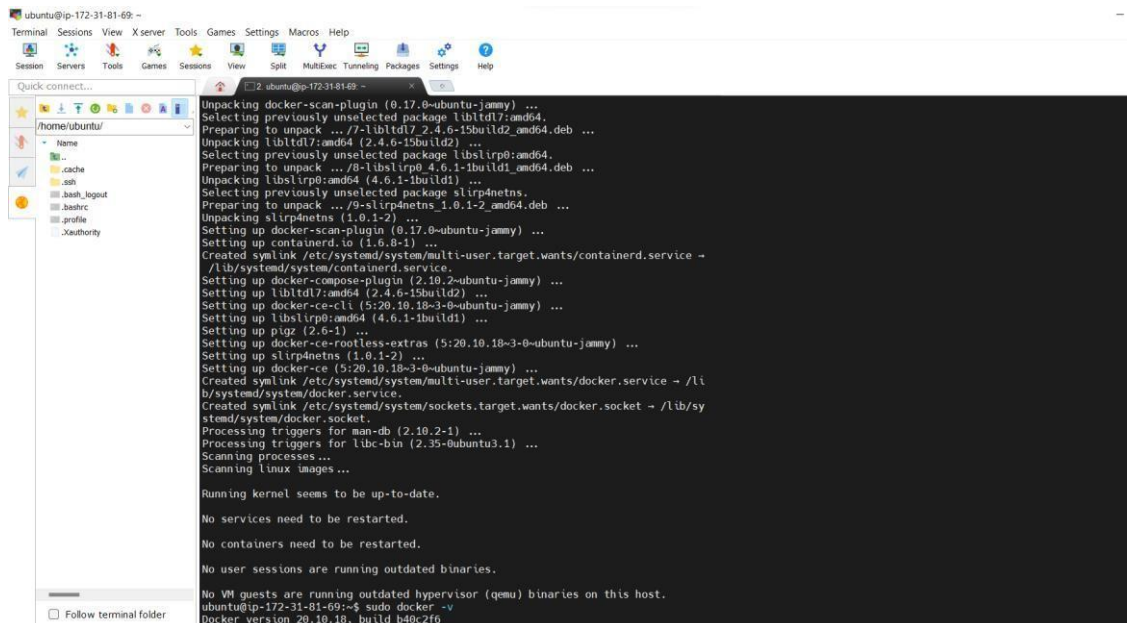
PRACTICE PROJECT 4

SETTING UP JENKINS PIPELINE TO DEPLOY DOCKER SWARM SOURCE CODE

- Create an Instance:



- Install Docker



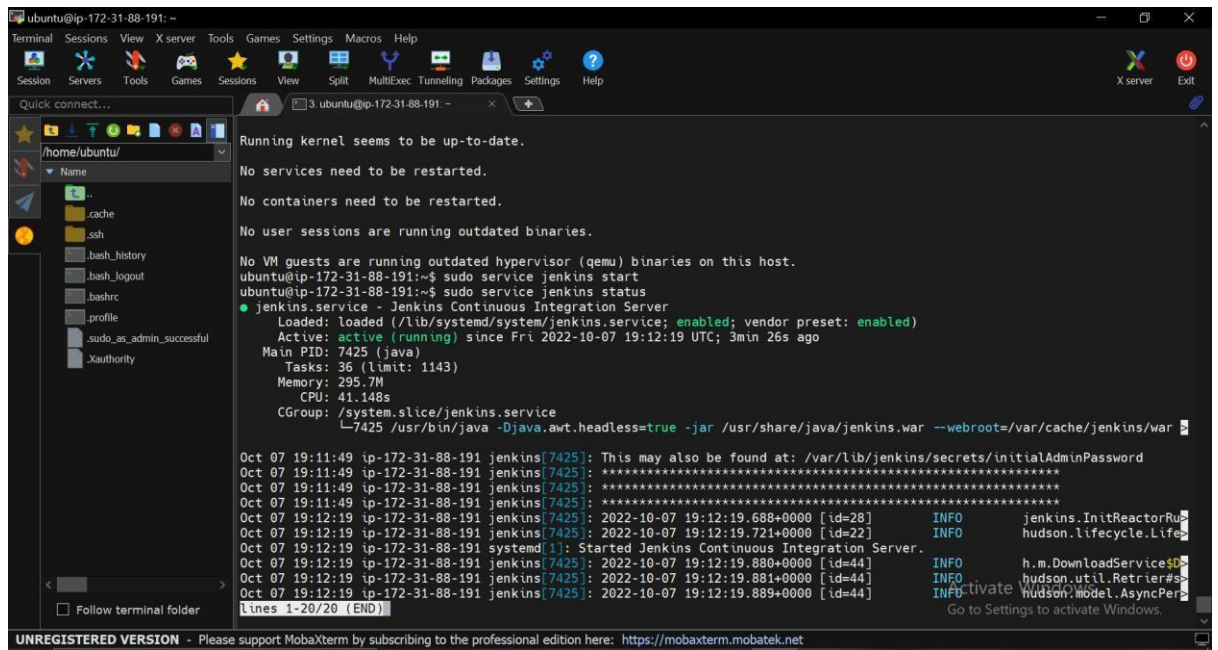
- **Install Java version 11:**

```
ubuntu@ip-172-31-81-69: ~  
Terminal Sessions View Xserver Tools Games Settings Macros Help  
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help  
Quick connect...  
/home/ubuntu/  
Name  
..  
..cache  
..ssh  
..bash_logout  
..bashrc  
..profile  
..Xauthority  
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jcmd to provide /usr/bin/jcmd (jcmd) in auto mode  
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jdb to provide /usr/bin/jdb (jdb) in auto mode  
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jdeps to provide /usr/bin/jdeps (jdeps) in auto mode  
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jfr to provide /usr/bin/jfr (jfr) in auto mode  
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jimage to provide /usr/bin/jimage (jimage) in auto mode  
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jinfo to provide /usr/bin/jinfo (jinfo) in auto mode  
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jlink to provide /usr/bin/jlink (jlink) in auto mode  
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jmap to provide /usr/bin/jmap (jmap) in auto mode  
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jmod to provide /usr/bin/jmod (jmod) in auto mode  
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jps to provide /usr/bin/jps (jps) in auto mode  
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jrunscript to provide /usr/bin/jrunscript (jrunscript) in auto mode  
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jshell to provide /usr/bin/jshell (jshell) in auto mode  
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jstack to provide /usr/bin/jstack (jstack) in auto mode  
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jstat to provide /usr/bin/jstat (jstat) in auto mode  
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jstated to provide /usr/bin/jstated (jstated) in auto mode  
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jtool to provide /usr/bin/jtool (jtool) in auto mode  
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jvisualvm to provide /usr/bin/jvisualvm (jvisualvm) in auto mode  
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jconsole to provide /usr/bin/jconsole (jconsole) in auto mode  
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jhsdb to provide /usr/bin/jhsdb (jhsdb) in auto mode  
Setting up default-jre (2:11-72build2) ...  
Setting up default-jdk-headless (2:11-72build2) ...  
Setting up openjdk-11-jdk-headless (11.0.16+8-post-Ubuntu-0ubuntu122.04) ...  
Setting up default-jdk (2:11-72build2) ...  
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.  
ubuntu@ip-172-31-81-69:~$ java --version  
openjdk 11.0.16 2022-07-19  
OpenJDK Runtime Environment (build 11.0.16+8-post-Ubuntu-0ubuntu122.04)  
OpenJDK 64-Bit Server VM (build 11.0.16+8-post-Ubuntu-0ubuntu122.04, mixed mode, sharing)  
ubuntu@ip-172-31-81-69:~$
```

- **Install maven:**

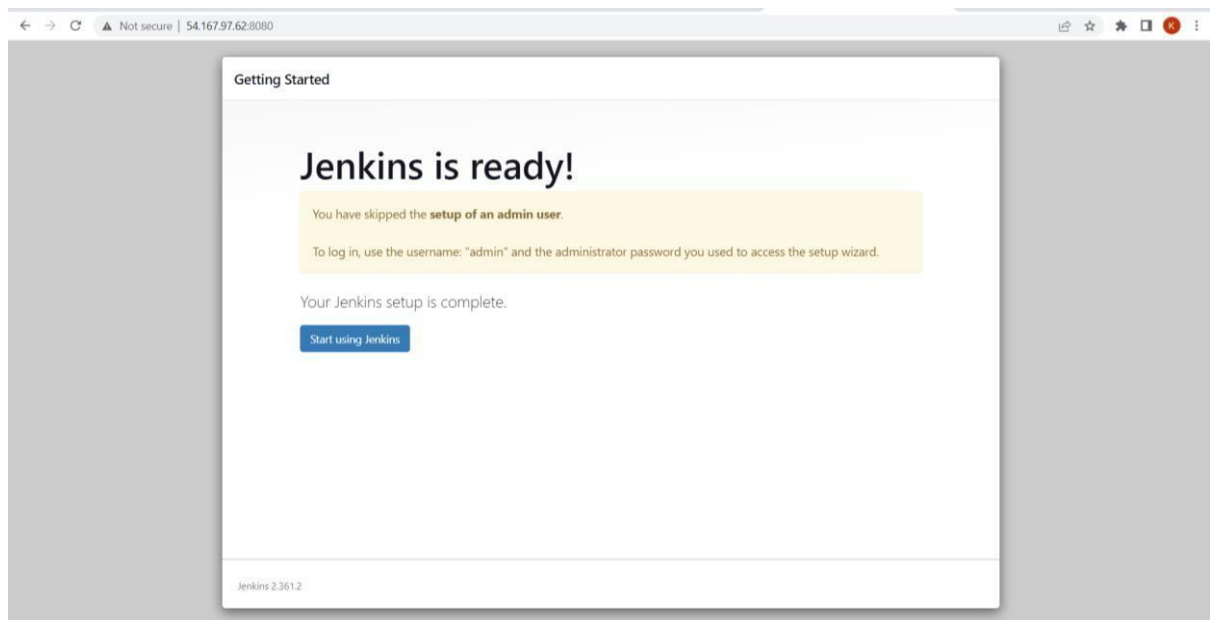
```
ubuntu@ip-172-31-81-69: ~  
Terminal Sessions View Xserver Tools Games Settings Macros Help  
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help  
Quick connect...  
/home/ubuntu/  
Name  
..  
..cache  
..ssh  
..bash_logout  
..bashrc  
..profile  
..Xauthority  
Setting up libcommons-cli-java (1.4-2) ...  
Setting up libplexus-component-annotations-java (2.1.0-1) ...  
Setting up libplexus-cipher-java (1.8-2) ...  
Setting up libgeronimo-annotation-1.3-spec-java (1.3-1) ...  
Setting up libgeronimo-interceptor-3.0-spec-java (1.0.1-4fakesync) ...  
Setting up libapache-pom-java (1.8-1) ...  
Setting up libatinject-jsr330-api-java (1.0+ds1-5) ...  
Setting up libplexus-interpolation-java (1.26-1) ...  
Setting up libplexus-sec-dispatcher-java (1.4-4) ...  
Setting up libwagon-http-shaded-java (3.3.4-1) ...  
Setting up libcdi-api-java (1.2-3) ...  
Setting up libhawtjni-runtime-java (1.17-1) ...  
Setting up libwagon-provider-api-java (3.3.4-1) ...  
Setting up libmaven-parent-java (3.1-2) ...  
Setting up libcommons-parent-java (43-1) ...  
Setting up libsisu-inject-java (0.3.4-2) ...  
Setting up libsisu-plexus-java (0.3.4-3) ...  
Setting up libmaven-resolver-java (1.4.2-3build1) ...  
Setting up libguava-java (29.0-6) ...  
Setting up libcommons-lang3-java (3.11-1) ...  
Setting up libjansi-native-java (1.8-1) ...  
Setting up libwagon-file-java (3.3.4-1) ...  
Setting up libcommons-io-java (2.11.0-2) ...  
Setting up libguice-java (4.2.3-2) ...  
Setting up libjansi-java (1.18-1) ...  
Setting up libmaven-shared-utils-java (3.3.0-1) ...  
Setting up libmaven3-core-java (3.6.3-5) ...  
Setting up maven (3.6.3-5) ...  
update-alternatives: using /usr/share/maven/bin/mvn to provide /usr/bin/mvn (mvn) in auto mode  
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.  
ubuntu@ip-172-31-81-69:~$
```

- Install Jenkins



The terminal window shows the installation and startup of Jenkins on an Ubuntu system. The user runs `sudo service jenkins start` and `sudo service jenkins status`. The status output indicates that Jenkins is active and running. The logs show the Jenkins Continuous Integration Server starting up, with various INFO messages from the `jenkins.InitReactorRun` and `hudson.lifecycle.Lifecycle` classes. The logs also show the `h.m.DownloadService` and `hudson.util.Retrier` classes. The terminal window is titled `ubuntu@ip-172-31-88-191: ~` and has a menu bar with options like Terminal, Sessions, View, X server, Tools, Games, Settings, Macros, Help, and a toolbar with icons for Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, and Help. The left sidebar shows the file explorer with the `/home/ubuntu/` directory selected. The bottom status bar indicates the terminal is running on an `UNREGISTERED VERSION` of MobaXterm.

```
ubuntu@ip-172-31-88-191: ~  
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.  
ubuntu@ip-172-31-88-191:~$ sudo service jenkins start  
ubuntu@ip-172-31-88-191:~$ sudo service jenkins status  
● jenkins.service - Jenkins Continuous Integration Server  
   Loaded: loaded (/lib/systemd/system/jenkins.service; enabled; vendor preset: enabled)  
   Active: active (running) since Fri 2022-10-07 19:12:19 UTC; 3min 26s ago  
     Main PID: 7425 (java)  
       Tasks: 36 (limit: 1143)  
      Memory: 295.7M  
         CPU: 41.148s  
    CGroup: /system.slice/jenkins.service  
            └─7425 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war --webroot=/var/cache/jenkins/war  
  
Oct 07 19:11:49 ip-172-31-88-191 jenkins[7425]: This may also be found at: /var/lib/jenkins/secrets/initialAdminPassword  
Oct 07 19:11:49 ip-172-31-88-191 jenkins[7425]: *****  
Oct 07 19:11:49 ip-172-31-88-191 jenkins[7425]: *****  
Oct 07 19:11:49 ip-172-31-88-191 jenkins[7425]: *****  
Oct 07 19:12:19 ip-172-31-88-191 jenkins[7425]: 2022-10-07 19:12:19.688+0000 [id=28] INFO jenkins.InitReactorRun  
Oct 07 19:12:19 ip-172-31-88-191 jenkins[7425]: 2022-10-07 19:12:19.721+0000 [id=22] INFO hudson.lifecycle.Life  
Oct 07 19:12:19 ip-172-31-88-191 systemd[1]: Started Jenkins Continuous Integration Server.  
Oct 07 19:12:19 ip-172-31-88-191 jenkins[7425]: 2022-10-07 19:12:19.880+0000 [id=44] INFO h.m.DownloadService$D  
Oct 07 19:12:19 ip-172-31-88-191 jenkins[7425]: 2022-10-07 19:12:19.881+0000 [id=44] INFO hudson.util.Retrier#s  
Oct 07 19:12:19 ip-172-31-88-191 jenkins[7425]: 2022-10-07 19:12:19.889+0000 [id=44] INFO hudson.model.AsyncPer  
Go to Settings to activate Windows.  
lines 1-20/20 (END)  
UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: https://mobaxterm.mobatek.net
```



- Create Jenkins Pipeline:

The image shows two screenshots of the Jenkins web interface. The top screenshot displays the 'Configuration' page for a Jenkins Pipeline. The 'Definition' section is set to 'Pipeline script'. The 'Script' field contains a Groovy pipeline script with three stages: 'App build', 'Image build', and 'Container build'. Each stage has a single step with an echo command. The 'Use Groovy Sandbox' checkbox is checked. The bottom screenshot shows the Jenkins dashboard for the 'JenkinsPipeline' job. The 'Build Now' button is highlighted. The 'Stage View' shows a table of stage times for a build that completed on Oct 8, 2022. The 'Build History' section shows the build status as 'Success'.

Configuration

Definition

Pipeline script

Script

```
1 pipeline{
2   agent any
3
4   stages{
5     stage('App build'){
6       steps{
7         echo 'App Initiated'
8       }
9     }
10    stage('Image build'){
11      steps{
12        echo 'Image build successful'
13      }
14    }
15    stage('Container build'){
16      steps{
17        echo 'Container build successful'
18      }
19    }
20  }
21 }
```

☒ Use Groovy Sandbox

[Pipeline Syntax](#)

[Save](#) [Apply](#)

Jenkins

Search (CTRL+K)

admin log out

Dashboard > JenkinsPipeline

Status

Changes

Build Now

Configure

Delete Pipeline

Full Stage View

Rename

Pipeline Syntax

Build History trend

Filter builds...

#1 Oct 8, 2022, 9:48 AM

Atom feed for all Atom feed for failures

Pipeline JenkinsPipeline

Pipeline Jenkins

[Edit description](#)

[Disable Project](#)

Stage View

Average stage times:
(Average full run time: ~5s)

	App build	Image build	Container build	App run
#1	332ms	129ms	101ms	143ms

Permalinks

REST API Jenkins 2.361.2

```
Started by user admin
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /var/lib/jenkins/workspace/JenkinsPipeLine
[Pipeline] {
[Pipeline] stage
[Pipeline] { (App build)
[Pipeline] echo
App Intiated
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Image build)
[Pipeline] echo
Image build successful
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Container build)
[Pipeline] echo
Container build successful
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (App run)
[Pipeline] echo
App running successfully
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```