

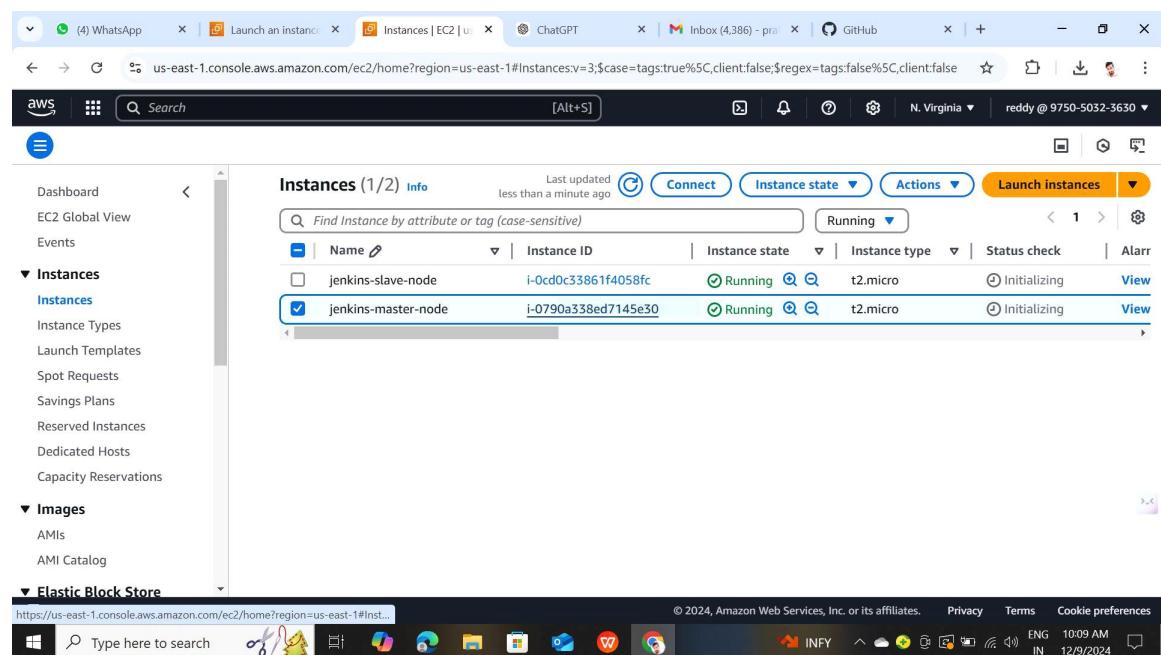
**REDDY PRAKASH**

## **Assignments Continuous Integration Using Jenkins:**

### **1. L1 - Create Jenkins Master-Slave Configurations**

**and Create a workspace in Jenkins Slave Node**

**using Jenkins Free-style project**

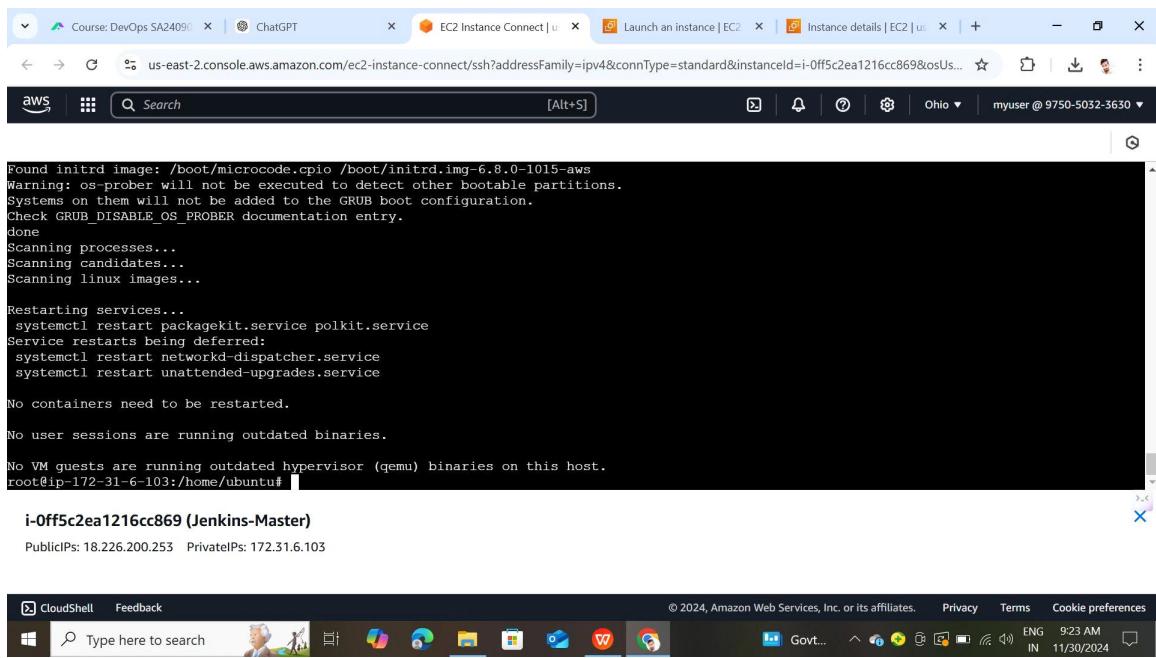


The screenshot shows the AWS EC2 Instances page. The left sidebar has sections for Dashboard, EC2 Global View, Events, Instances (selected), Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images, AMIs, and Elastic Block Store. The main content area displays 'Instances (1/2) Info' with a 'Last updated' timestamp of 'less than a minute ago'. There are 'Connect', 'Instance state', 'Actions', and 'Launch instances' buttons. A search bar and a filter for 'Running' instances are present. Two instances are listed:

Name	Instance ID	Instance state	Instance type	Status check	Action
jenkins-slave-node	i-0cd0c33861f4058fc	Running	t2.micro	Initializing	<a href="#">View</a>
<input checked="" type="checkbox"/> jenkins-master-node	i-0790a338ed7145e30	Running	t2.micro	Initializing	<a href="#">View</a>

The bottom of the screen shows the Windows taskbar with various pinned icons and the system tray.

- Successfully launch two instance with name jenkins-slave-node and master-node



```
Found initrd image: /boot/microcode.cpio /boot/initrd.img-6.8.0-1015-aws
Warning: os-prober will not be executed to detect other bootable partitions.
Systems on them will not be added to the GRUB boot configuration.
Check GRUB_DISABLE_OS_PROBER documentation entry.
done
Scanning processes...
Scanning candidates...
Scanning linux images...

Restarting services...
systemctl restart packagekit.service polkit.service
Service restarts being deferred:
systemctl restart networkd-dispatcher.service
systemctl restart unattended-upgrades.service

No containers need to be restarted.

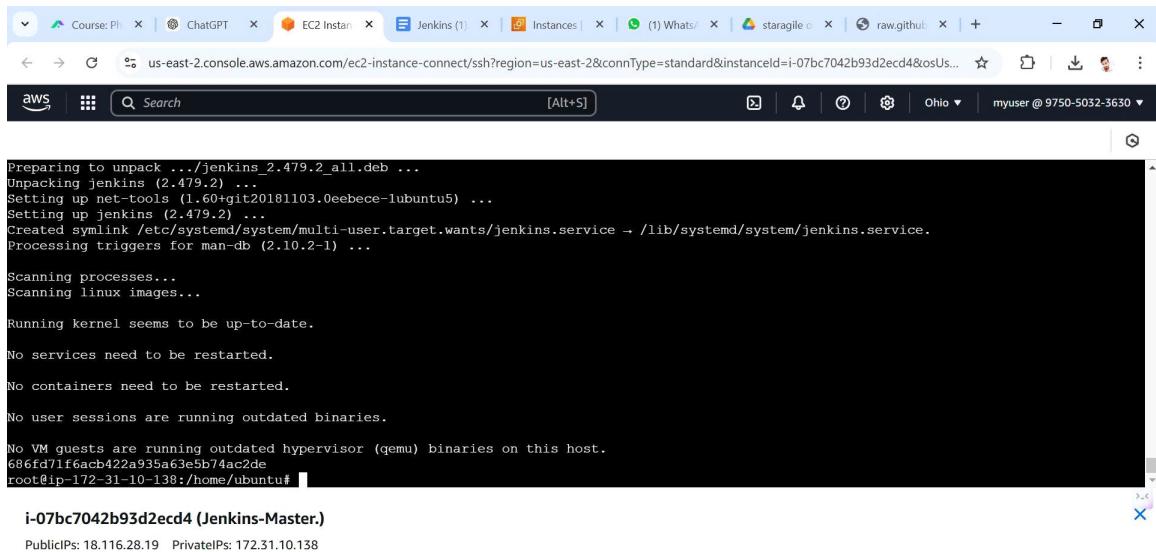
No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-172-31-6-103:/home/ubuntu#
```

i-Off5c2ea1216cc869 (Jenkins-Master)  
Public IPs: 18.226.200.253 Private IPs: 172.31.6.103



- Successfully install the jenkins in master



```
Preparing to unpack .../jenkins_2.479.2_all.deb ...
Unpacking jenkins (2.479.2) ...
Setting up net-tools (1.60+git20181103.0eebece~lubuntu5) ...
Setting up jenkins (2.479.2) ...
Created symlink /etc/systemd/system/multi-user.target.wants/jenkins.service → /lib/systemd/system/jenkins.service.
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.

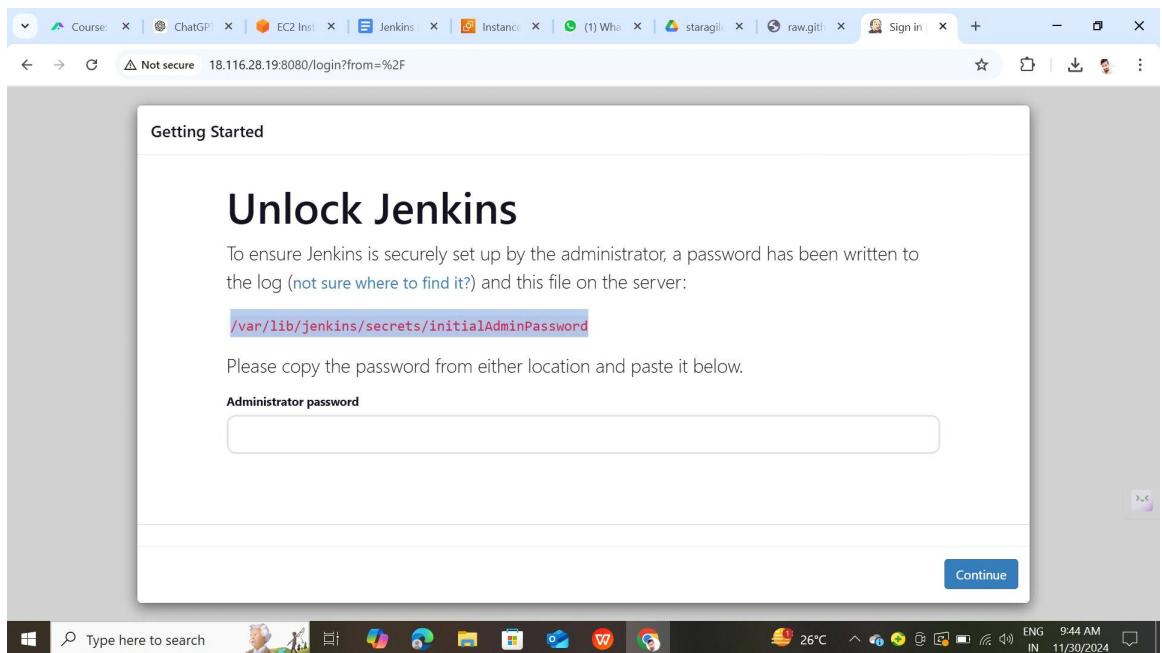
No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
686fd71f6acb422a93ba63e5b74ac2de
root@ip-172-31-10-138:/home/ubuntu#
```

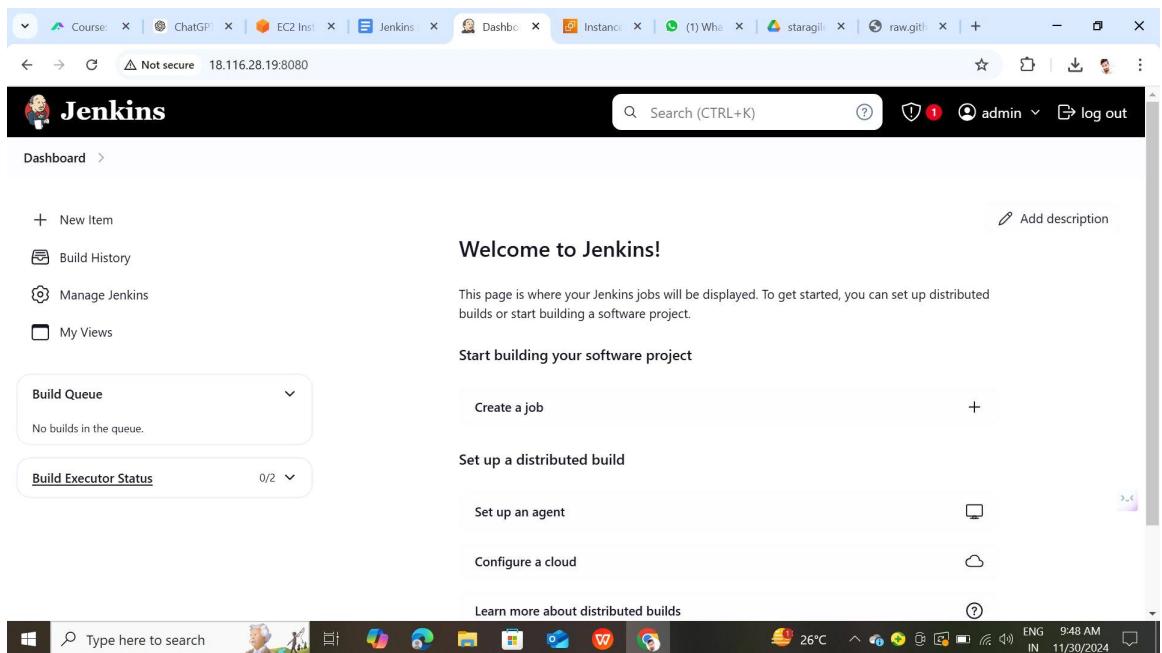
i-07bc7042b93d2ecd4 (Jenkins-Master.)  
Public IPs: 18.116.28.19 Private IPs: 172.31.10.138



- after install to password for login into jenkins



- Successfully access jenkins with port 8080 through internet



- Successfully login into jenkins home page through password

Jenkins

Nodes

Build Queue

No builds in the queue.

Build Executor Status

Built-In Node 0/2

agent1 0/1

S	Name	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space	Response Time
	agent1	Linux (amd64)	In sync	4.22 GiB	0 B	4.22 GiB	60ms
	Built-In Node	Linux (amd64)	In sync	3.83 GiB	0 B	3.83 GiB	0ms

Icon: S M L

Legend

REST API Jenkins 2.479.2

create a node with name agent1

Jenkins

Dashboard > Nodes > agent1

Status

Agent agent1

Delete Agent

Configure

Build History

Load Statistics

Script Console

Log

System Information

Disconnect

Build Executor Status 0/1

Add description

Mark this node temporarily offline

Monitoring Data

Labels

testlabel

Projects tied to agent1

None

REST API Jenkins 2.479.2

create a job name agent

The screenshot shows the Jenkins configuration interface for a job named 'myfirstjob'. The 'General' tab is selected. At the top right, there is an 'Enabled' toggle switch which is turned on (blue). Below it, there is a 'Description' field which is currently empty. Underneath the description field, there are three checkboxes: 'Discard old builds', 'GitHub project', and 'This project is parameterized'. The 'GitHub project' checkbox is checked. At the bottom of the page are two buttons: 'Save' and 'Apply'.

This screenshot shows the same Jenkins configuration page for 'myfirstjob'. The 'General' tab is still selected. A new checkbox, 'Restrict where this project can be run', has been checked. Below this checkbox, there is a 'Label Expression' input field containing the value 'testlabel'. A note below the input field states: 'Label testlabel matches 1 node. Permissions or other restrictions provided by plugins may further reduce that list.' At the bottom of the page are 'Save' and 'Apply' buttons.

•restrict where this project can be run through general

The screenshot shows a Jenkins job build status page. The URL is 54.147.18.211:8080/job/myfirstjob/1. The main content area displays the build summary for build #1, which was started by user admin on Dec 9, 2024, at 6:31:00 AM. It took 0.66 sec on agent1. The build status is green. The build log output is empty, indicated by the message '</> No changes.' A sidebar on the left lists options like Status, Changes, Console Output, Edit Build Information, Delete build '#1', and Timings.

Successfully build the project for create  
workspace

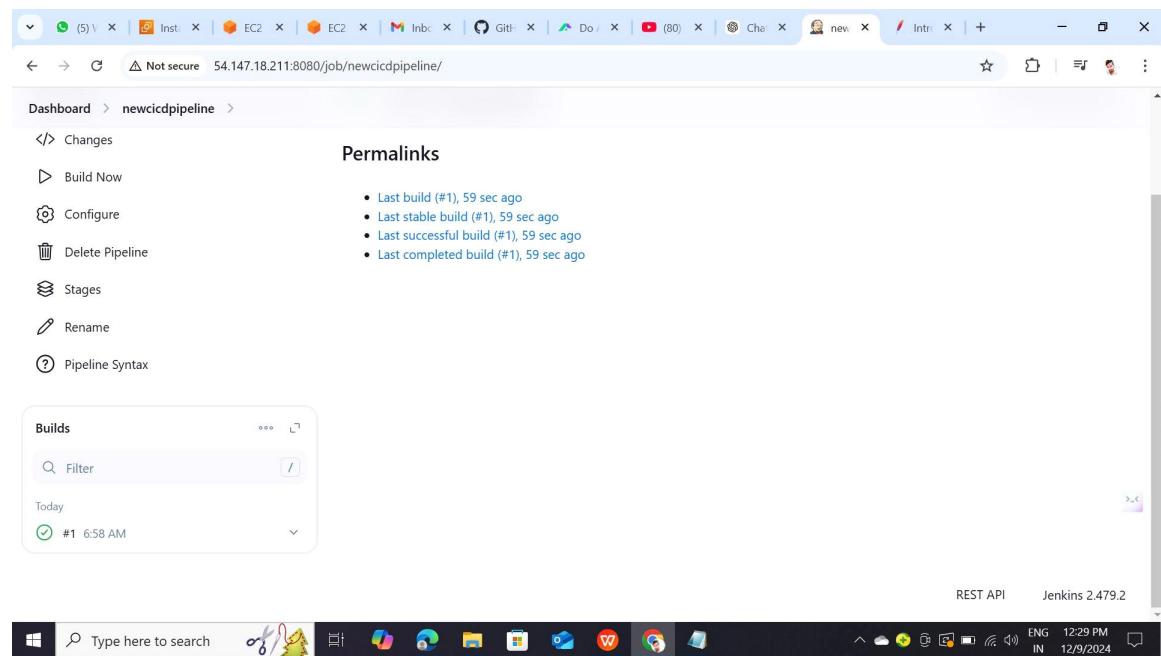
The screenshot shows the Jenkins console output for build #3. The URL is 54.147.18.211:8080/job/myfirstjob/3/console. The main content area displays the build log output, which includes the command 'echo hello world' and the response 'hello world'. The build status is green. The sidebar on the left lists options like Status, Changes, Console Output, Edit Build Information, Delete build '#3', and Timings.

above figure we say the console output

## 2. L2 - Create CICD Pipeline to Clone and Build

### Java Maven Web Application

we already create EC2 instance and connect to console and install jenkins at previous step now we continue furture



- Successfully login into jenkins and create job with name  
newcicdpipeline

The screenshot shows the Jenkins Pipeline Overview page for Build #1. The pipeline stages are: Start, stage1 : git chec..., stage 2 :compile..., stage 3: run the ..., stage4: package, and End. All stages are marked with green checkmarks, indicating they have completed successfully. The 'Details' panel on the right shows: Manually run by admin, Started 2 min 23 sec ago, Queued 7 ms, and Took 46 sec. The Jenkins version is 2.479.2. The taskbar at the bottom shows various application icons.

- now we successfully build the job with the help of scroove script

The screenshot shows the Jenkins Console Output page for Build #1. The left sidebar includes links for Status, Changes, Console Output (which is selected), Edit Build Information, Delete build '1', Timings, Git Build Data, Pipeline Overview, Pipeline Console, Restart from Stage, and Replay. The main area displays the console output, which includes a message about skipping a large log file and then shows the progress of downloading the '1.5.6.jar' file from central repository. The taskbar at the bottom shows various application icons.

The screenshot shows a Windows desktop environment. At the top, there is a taskbar with various icons. Below the taskbar, a browser window is open to a Jenkins job named 'newcicdpipeline'. The page displays the build log for build #1, which shows the following output:

```
(2.5 kB at 227 kB/s)
[1;34mINFO[m] Packaging webapp
[1;34mINFO[m] Assembling webapp [addressbook] in
[/home/ubuntu/workspace/newcicdpipeline/target/addressbook]
[1;34mINFO[m] Processing war project
[1;34mINFO[m] Building war: /home/ubuntu/workspace/newcicdpipeline/target/addressbook.war
[1;34mINFO[m] [1m-----
[1;34mINFO[m] [1;32mBUILD SUCCESS[m
[1;34mINFO[m] [1m-----
[1;34mINFO[m] Total time: 8.803 s
[1;34mINFO[m] Finished at: 2024-12-09T06:58:53Z
[1;34mINFO[m] [1m-----
[Pipeline]
[Pipeline] // stage
[Pipeline]
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

At the bottom right of the browser window, it says 'Jenkins 2.479.2'. The taskbar also shows the system tray with network, battery, and date/time information.

- we say the console out successfully build the project

### 3. L3 - Create CICD Pipeline to Deploy the Maven

#### Web Application in Tomcat Server

The screenshot shows the AWS EC2 Instances page. On the left, there's a navigation sidebar with options like Dashboard, EC2 Global View, Events, Instances (selected), Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images, AMIs, and AMI Catalog. The main content area is titled 'Instances (1/1) Info' and shows one instance: 'master-node' (Instance ID: i-00f107f3f9b30d1b5). The instance is listed as 'Running' with an 't2.micro' instance type and an 'Initializing' status check. At the top right, there are buttons for 'Launch instances' and other actions.

- Successfully launch the instance with name master-node

The screenshot shows the AWS CloudShell terminal. The session title is 'i-00f107f3f9b30d1b5 (master-node)'. The terminal output shows:

```
Restarting services...
Service restarts being deferred:
/etc/needrestart/restart.d/dbus.service
systemctl restart networkd-dispatcher.service
systemctl restart systemd-logind.service
systemctl restart unattended-upgrades.service

No containers need to be restarted.

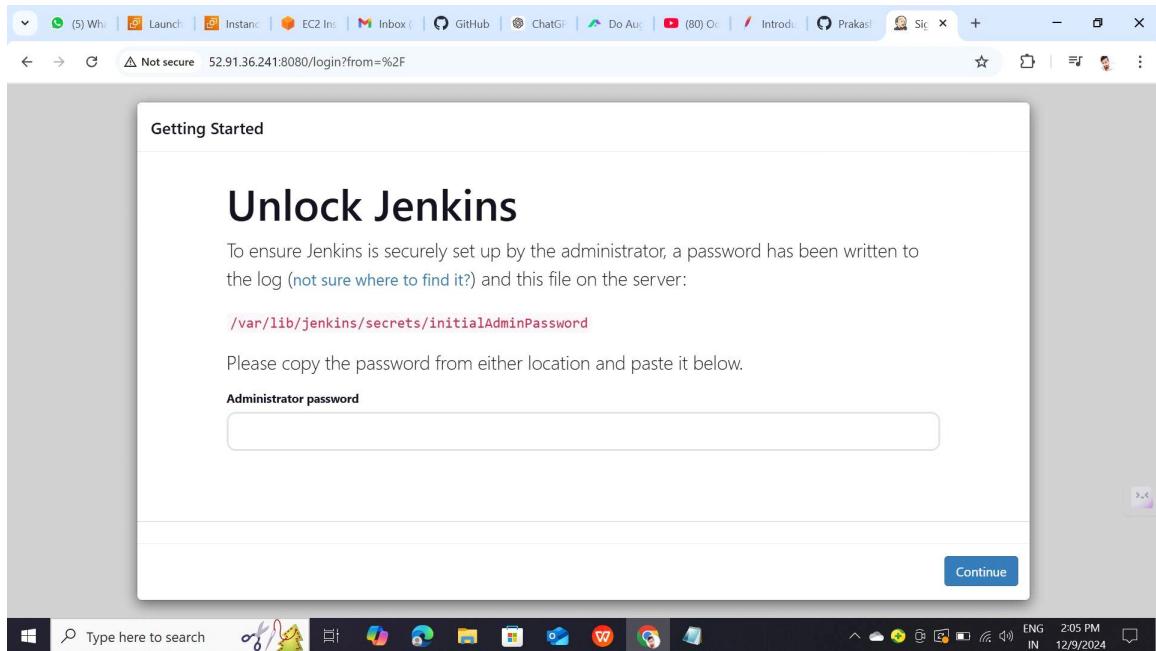
User sessions running outdated binaries:
ubuntu @ session #4: sshd[1502]
ubuntu @ user manager service: systemd[1857]

No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-172-31-16-193:/home/ubuntu# java -version
openjdk version "11.0.25" 2024-10-15
OpenJDK Runtime Environment (build 11.0.25+9-post-Ubuntu-1ubuntu124.04)
OpenJDK 64-Bit Server VM (build 11.0.25+9-post-Ubuntu-1ubuntu124.04, mixed mode, sharing)
root@ip-172-31-16-193:/home/ubuntu#
```

At the bottom, it says 'Public IPs: 54.235.16.242 Private IPs: 172.31.16.193'.

- install java and update default packages

- install jenkins and tomcate service with port 8080



- successfully access jenkins with port 80

```

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.
8b37e91a11944568a0b4b085bf76fb0
root@ip-172-31-19-87:/home/ubuntu# sudo apt-get install maven -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Reading state information... Done
maven is already the newest version (3.8.7-2).
0 upgraded, 0 newly installed, 0 to remove and 40 not upgraded.
root@ip-172-31-19-87:/home/ubuntu# mvn -version
Apache Maven 3.8.7
Maven home: /usr/share/maven
Java version: 17.0.13, vendor: Ubuntu, runtime: /usr/lib/jvm/java-17-openjdk-amd64
Default locale: en, platform encoding: UTF-8
OS name: "linux", version: "6.8.0-1018-aws", arch: "amd64", family: "unix"
root@ip-172-31-19-87:/home/ubuntu#

```

**i-016a9d6cf46f5f4ba (new-1)**

Public IPs: 52.91.36.241 Private IPs: 172.31.19.87



•install maven application and tomcate for build package in a single executable .war file

The screenshot shows the Jenkins Pipeline configuration page for a job named 'Maven-CI-CD'. The 'General' tab is selected. The 'Enabled' switch is turned on. The 'Description' field is empty. Below it, there are three checkboxes: 'Discard old builds', 'Do not allow concurrent builds', and 'Do not allow the pipeline to resume if the controller restarts'. At the bottom, there are 'Save' and 'Apply' buttons.



The screenshot shows the Jenkins Pipeline configuration page for a job named 'Maven-CI-CD'. The 'Pipeline' tab is selected. In the SCM section, 'Git' is chosen as the provider. The 'Repository URL' is set to 'https://github.com/Prakashreddy68/addressbook-cicd-project'. The 'Credentials' dropdown is currently empty ('- none -'). There are 'Save' and 'Apply' buttons at the bottom.

- create a job and add git uri for help to make automation

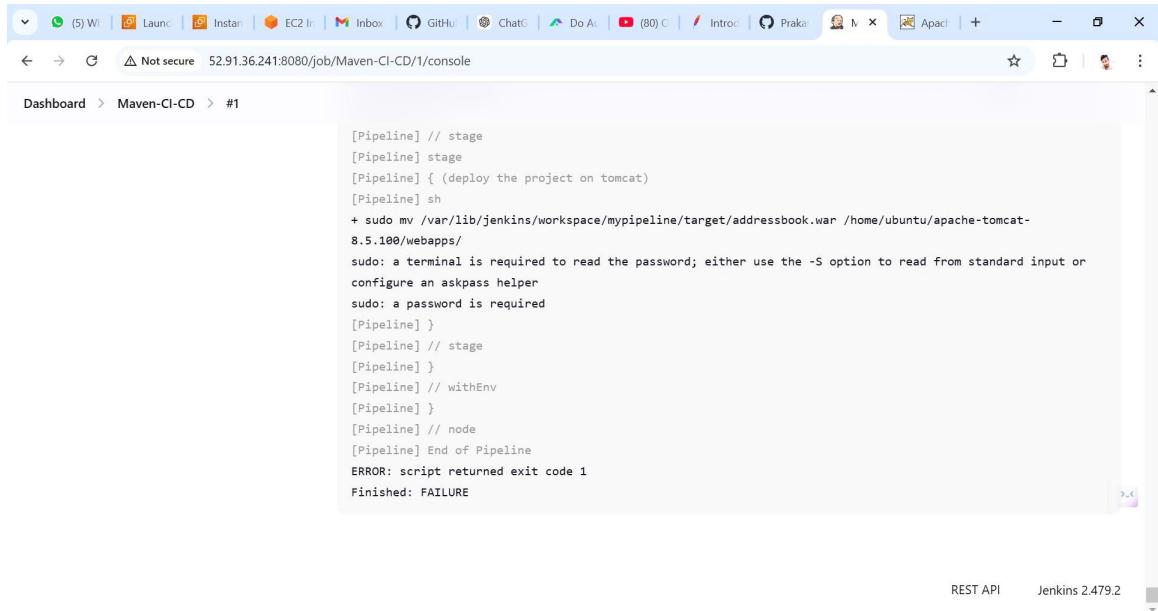
The screenshot shows the Jenkins 'Builds' page for the 'Maven-CI-CD' job. It displays a list of builds:

- Last build (#1), 1 min 45 sec ago
- Last failed build (#1), 1 min 45 sec ago
- Last unsuccessful build (#1), 1 min 45 sec ago
- Last completed build (#1), 1 min 45 sec ago

A 'Build Now' button is located on the left side of the page. The Jenkins version '2.479.2' and 'REST API' link are visible at the bottom.

- we unable to build the job due so permission denied

- to overcame the trouble

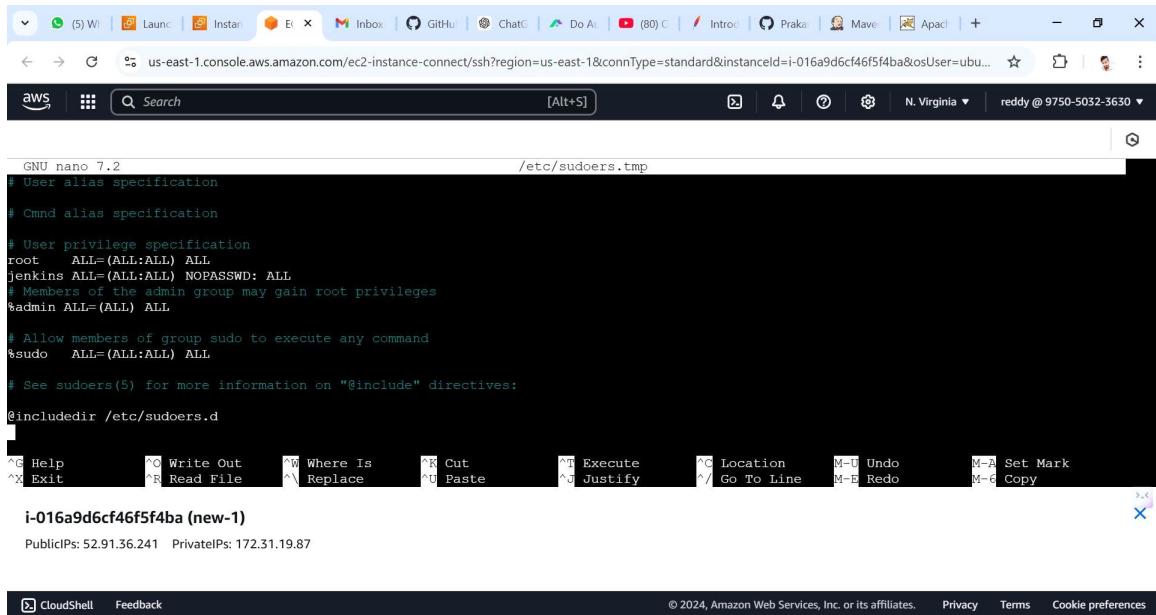


The screenshot shows a web browser window with multiple tabs open at the top. The active tab is titled "52.91.36.241:8080/job/Maven-CI-CD/1/console". The page content displays Jenkins pipeline logs for job #1. The logs show a series of commands being executed:

```
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (deploy the project on tomcat)
[Pipeline] sh
+ sudo mv /var/lib/jenkins/workspace/mypipeline/target/addressbook.war /home/ubuntu/apache-tomcat-8.5.100/webapps/
sudo: a terminal is required to read the password; either use the -S option to read from standard input or
configure an askpass helper
sudo: a password is required
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
ERROR: script returned exit code 1
Finished: FAILURE
```

At the bottom right of the browser window, there are links for "REST API" and "Jenkins 2.479.2".

- above figure we saw the sudo permission of the file we change type  
file permission



```

GNU nano 7.2                               /etc/sudoers.tmp

# User alias specification

# Cmnd alias specification

# User privilege specification
root    ALL=(ALL:ALL) ALL
jenkins ALL=(ALL:ALL) NOPASSWD: ALL
# Members of the admin group may gain root privileges
%admin  ALL=(ALL) ALL

# Allow members of group sudo to execute any command
%sudo   ALL=(ALL:ALL) ALL

# See sudoers(5) for more information on "@include" directives:
@includedir /etc/sudoers.d

```

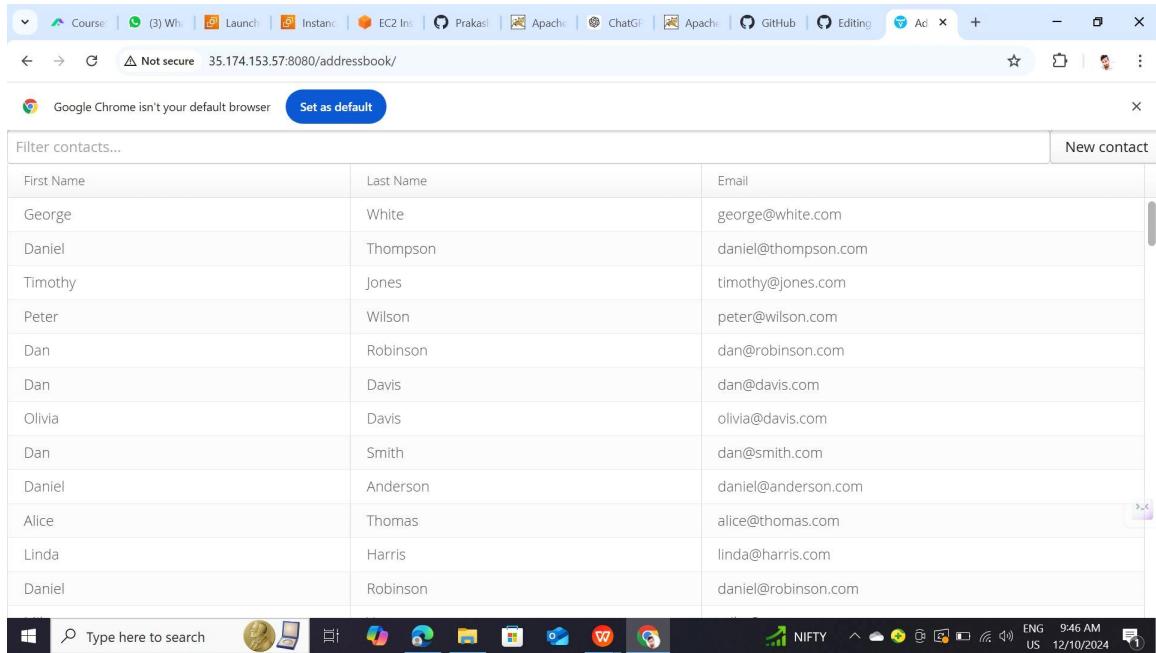
i-016a9d6cf46f5f4ba (new-1)

Public IPs: 52.91.36.241 Private IPs: 172.31.19.87

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

- Jenkins ALL = (ALL:ALL) NOPASSWD: ALL

- with is command we gave sudo permission to file



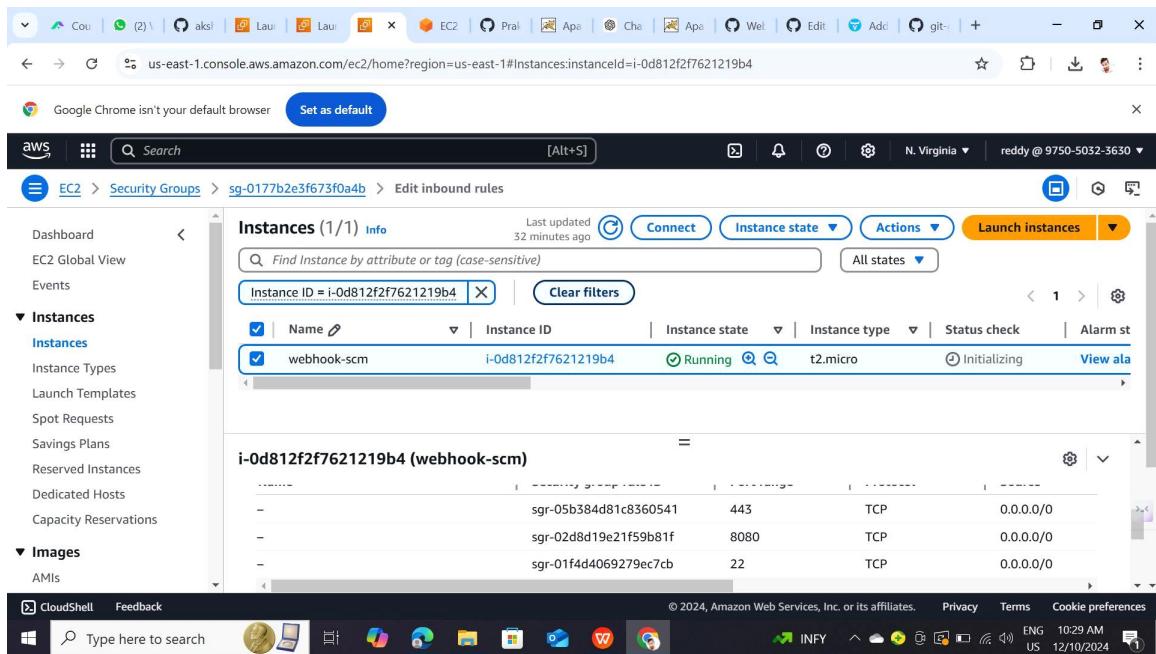
First Name	Last Name	Email
George	White	george@white.com
Daniel	Thompson	daniel@thompson.com
Timothy	Jones	timothy@jones.com
Peter	Wilson	peter@wilson.com
Dan	Robinson	dan@robinson.com
Dan	Davis	dan@davis.com
Olivia	Davis	olivia@davis.com
Dan	Smith	dan@smith.com
Daniel	Anderson	daniel@anderson.com
Alice	Thomas	alice@thomas.com
Linda	Harris	linda@harris.com
Daniel	Robinson	daniel@robinson.com

- we saw successfully launch the project with port 8080 through internet

## 4. L4 - Automate the CICD Pipeline using GitHub

### webhook and Poll-SCM

- Automate the CICD Pipeline using GitHub webhook



- Successfully launch the instance with name webhook-scm

```
Setting up net-tools (2.10-0.lubuntu4) ...
Setting up jenkins (2.479.2) ...
Created symlink /etc/systemd/system/multi-user.target.wants/jenkins.service → /usr/lib/systemd/system/jenkins.service.
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.
c61df1bbc9db41cb9ece2bf7222a8805
root@ip-172-31-82-87:/home/ubuntu#
```

i-0d812f2f7621219b4 (webhook-scm)  
Public IPs: 54.236.189.238 Private IPs: 172.31.82.87



- Successfully install jenkins in the webhook machine

The Jenkins dashboard shows a single job named "webhook". The job status is "Last Success" at "3 min 31 sec" ago, with the last build number "#1". The "Last Failure" status is "N/A". The "Last Duration" is "3.8 sec". The "Build Queue" section indicates "No builds in the queue". The "Build Executor Status" section shows "0/2" executors available. The top navigation bar includes links for "CloudShell", "Feedback", "Privacy", "Terms", and "Cookie preferences". The bottom taskbar shows various application icons and the system clock.

- create a job with name webhook

Configure

None

Git ?

General

Source Code Management

Build Triggers

Build Environment

Build Steps

Post-build Actions

Repository URL ?  
https://github.com/Prakashreddy68/git-github-assignment

Credentials ?  
- none -

+ Add

Advanced ▾

Save Apply

- Add the git repo with source code management add git

Trigger builds remotely (e.g., from scripts) ?

Build after other projects are built ?

Build periodically ?

GitHub hook trigger for GITscm polling ?

Poll SCM ?

General

Source Code Management

Build Triggers

Build Environment

Build Steps

Post-build Actions

Delete workspace before build starts

Use secret text(s) or file(s) ?

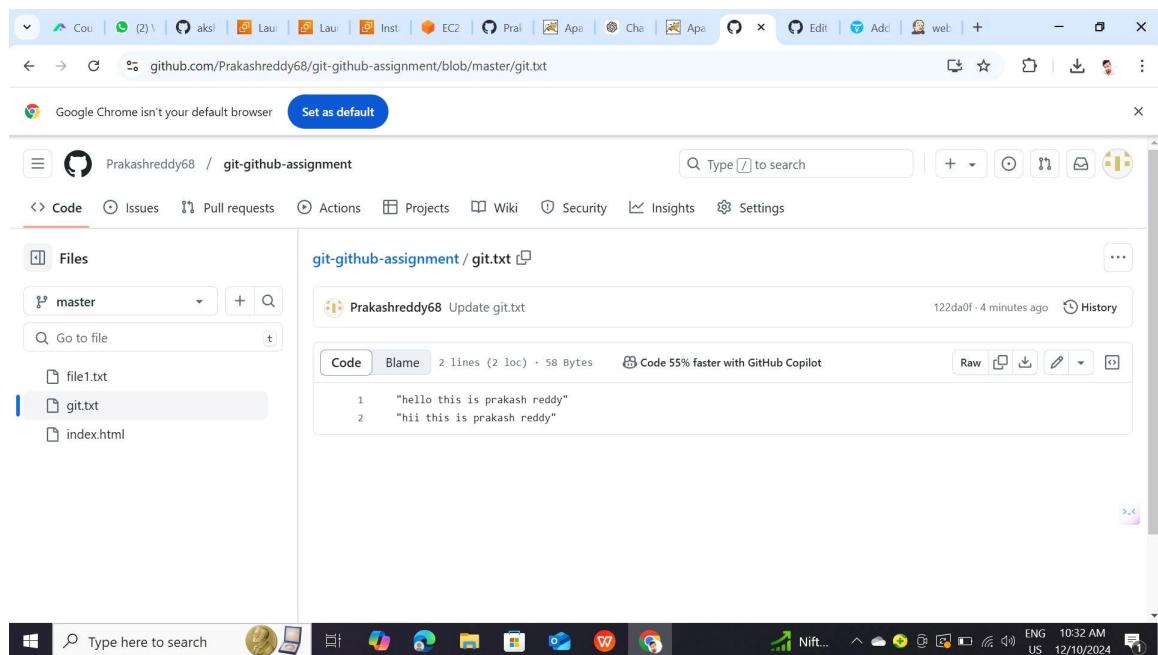
Add timestamps to the Console Output

Inspect build log for published build scans

Terminate a build if it's stuck

Save Apply

- activate the github hook triggers for changes fetch form repo to jenkins



- after change the file in remote repo and commit change then we saw the this chnages reflect the jenkins or not

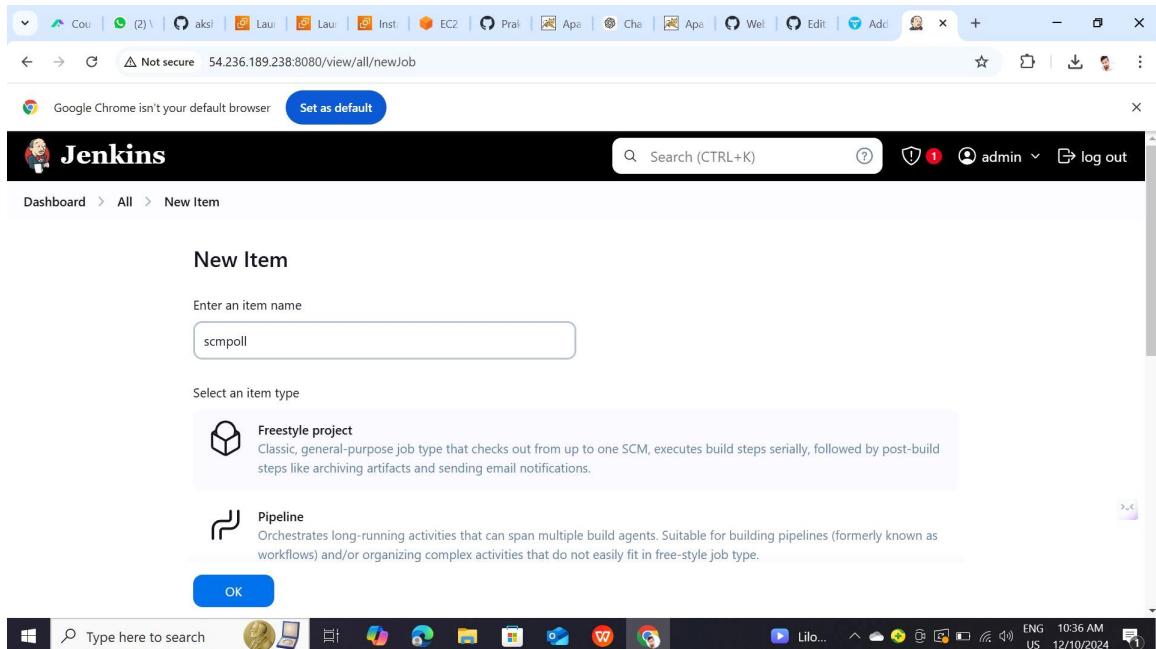
The screenshot shows a Jenkins webhook build #2 page. The build was started by user 'admin' at 5:02:13 AM on Dec 10, 2024. It took 0.34 seconds. The build information includes a revision (122da0f56ede9c2904f734b542bed46c3be46f81) and a repository link (<https://github.com/Prakashreddy68/git-github-assignment>). A note indicates that the build spent 9 ms waiting, 0.34 sec on the build duration, and 0.35 sec total from scheduled to completion. The changes section shows a single commit: '1. Update git.txt (details / githubweb)'. The Jenkins interface has a dark theme.

•we successfully the change the we saw the change

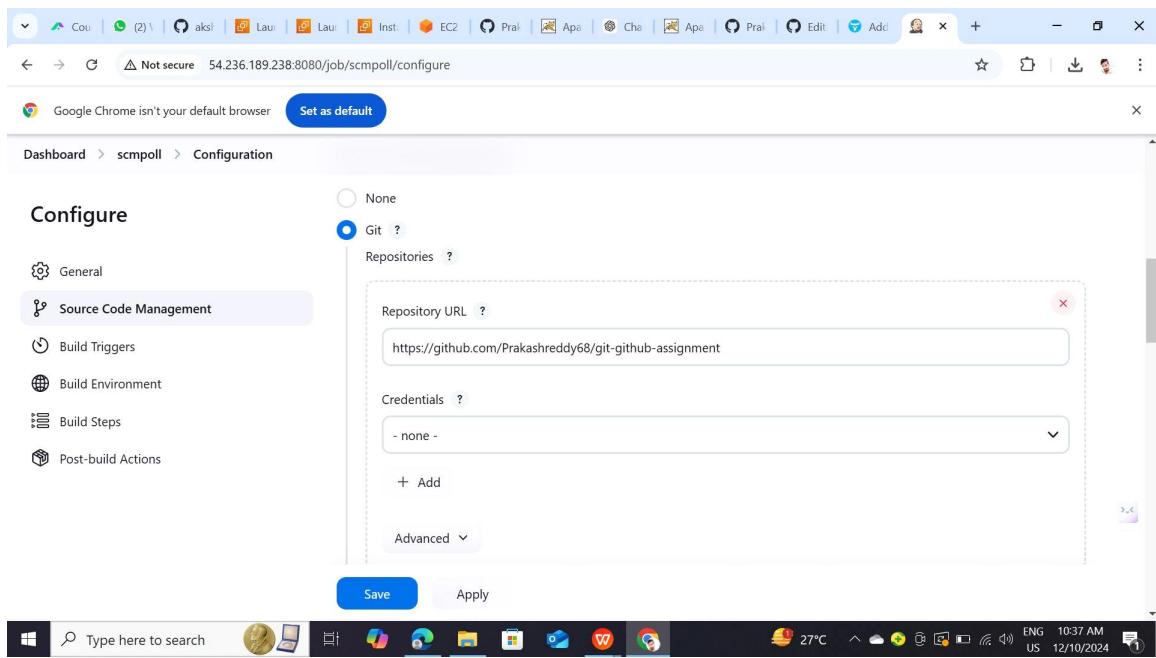
The screenshot shows a GitHub commit page for a file named 'git.txt'. The commit message is 'Update git.txt'. The commit hash is e37c155a0983d92c507ae786166f5578f322013c, and it has 1 parent commit 122da0f. The commit details show four lines of code: line 1: 'hello this is prakash reddy', line 2: 'hii this is prakash reddy', line 3: '+ "this is dear"', and line 4: '+'. There are 2 additions and 0 deletions. A comment section is present, and a note says 'You're not receiving notifications from this thread.' The GitHub interface has a light theme.

•above figure we saw the changes commit recent build

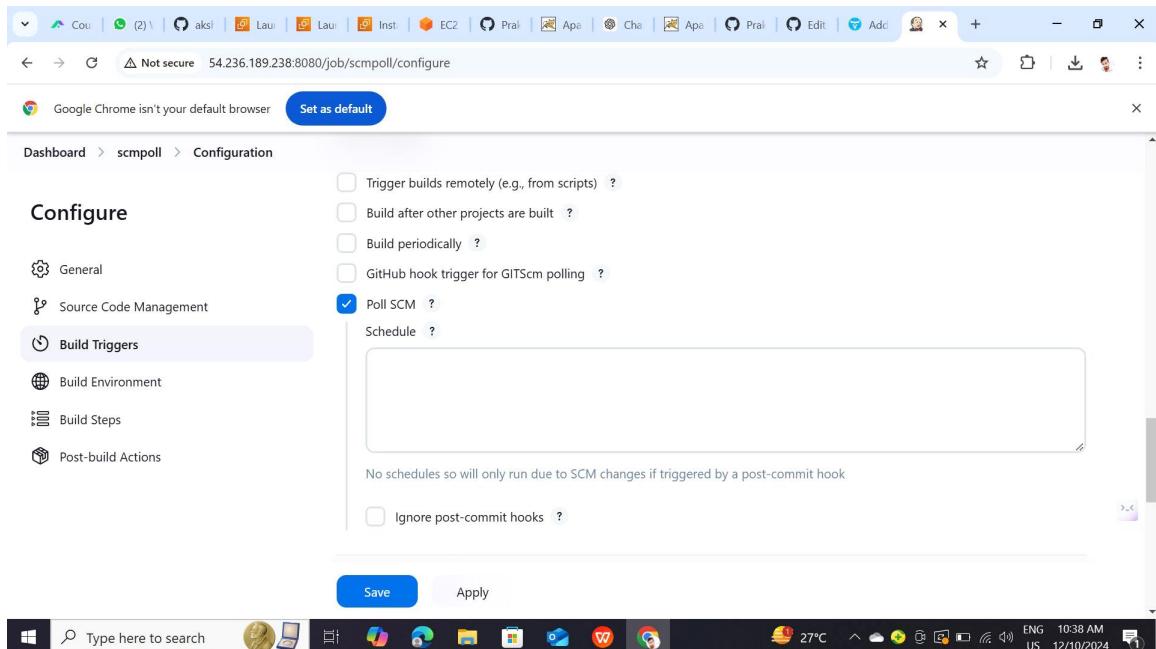
- Automate the CICD Pipeline using Poll- SCM



- create freestyle project with name scmpoll



- we add git repo for access project commits



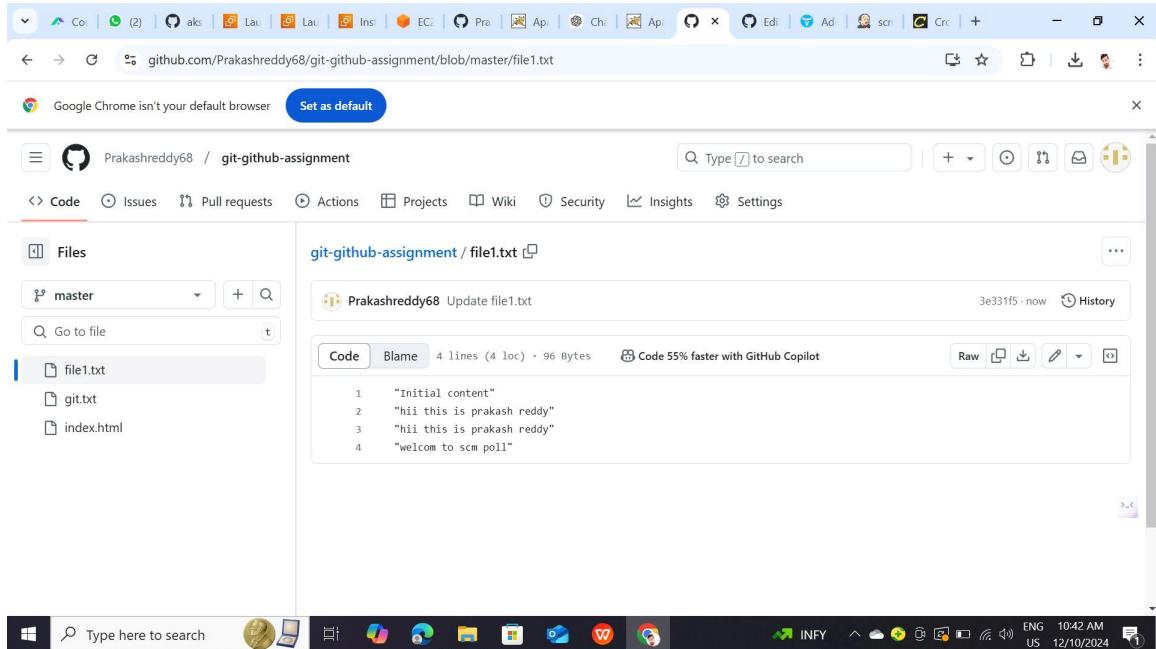
- activate the poll scm for automate the change fletch for certain time

The screenshot shows a Jenkins configuration page for a job named 'scmpoll'. The left sidebar has a 'Build Triggers' section selected. Under 'Poll SCM', there is a 'Schedule' field containing '\*\*\*\*\*'. A warning message below it says: '⚠ Do you really mean "every minute" when you say "\*\*\*\*\*"? Perhaps you meant "H \* \* \* \*" to poll once per hour'. The page includes 'Save' and 'Apply' buttons at the bottom.

•we set fetch time every 1min we saw the above figure

The screenshot shows a Jenkins build summary for build #1. The build status is green with a checkmark, indicating it was successful on December 10, 2024, at 5:11:08 AM. It was started by user 'admin'. The build took 0.18 seconds. The Git commit information shows revision e37c155a0983d92c507ae786166f5578f322013c from the repository https://github.com/Prakashreddy68/git-github-assignment. The build log output is empty, stating 'No changes.'

- successfully build the job in first build



- go to remote repo and made change and commit the changes

Dashboard > scmpoll >

- Build Now
- Configure
- Delete Project
- Git Polling Log
- Rename

Builds

Build	Time
#2	5:13 AM
#1	5:11 AM

REST API Jenkins 2.479.2

•then we can automatically fetch the data from github for every 1min

Dashboard > scmpoll > #2

Status #2 (Dec 10, 2024, 5:13:08 AM)

Started by an SCM change Started 40 sec ago Took 0.2 sec

Revision: 3e31f5954b3544d2b7595ed8266690bcf97e911  
Repository: https://github.com/Praakashreddy68/git-github-assignment

Changes

1. Update file1.txt (details / githubweb)

Changes

1. Update file1.txt (details / githubweb)

REST API Jenkins 2.479.2

- Successfully receive the change every 1 min form git repo

**THANK YOU**



