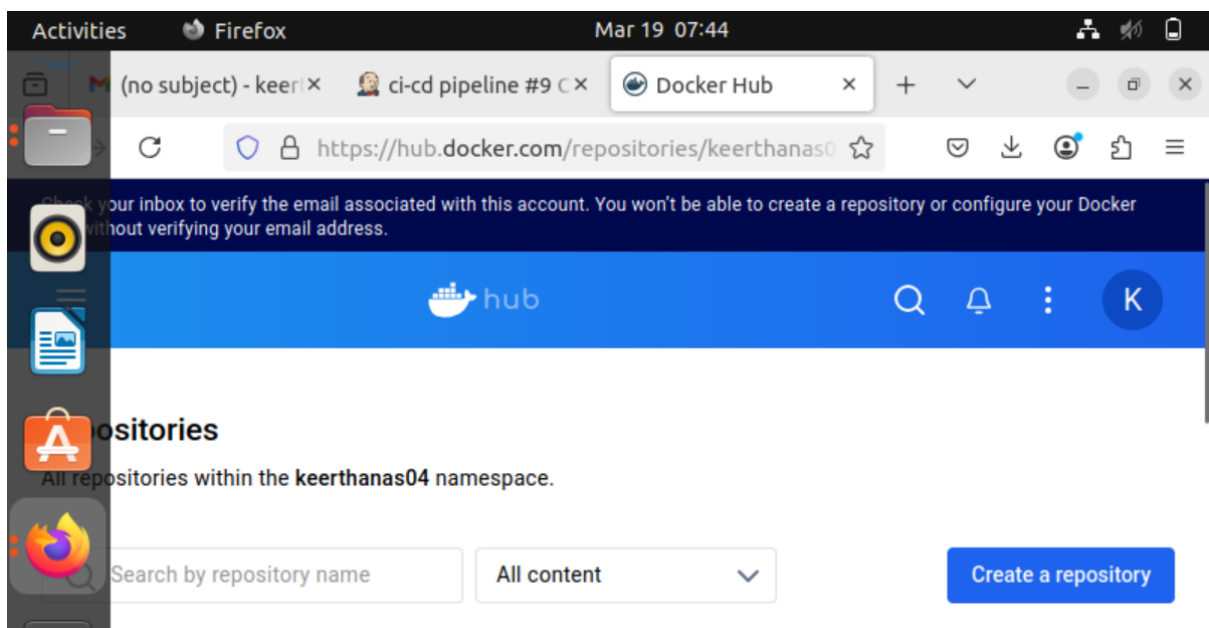


TASK 2:

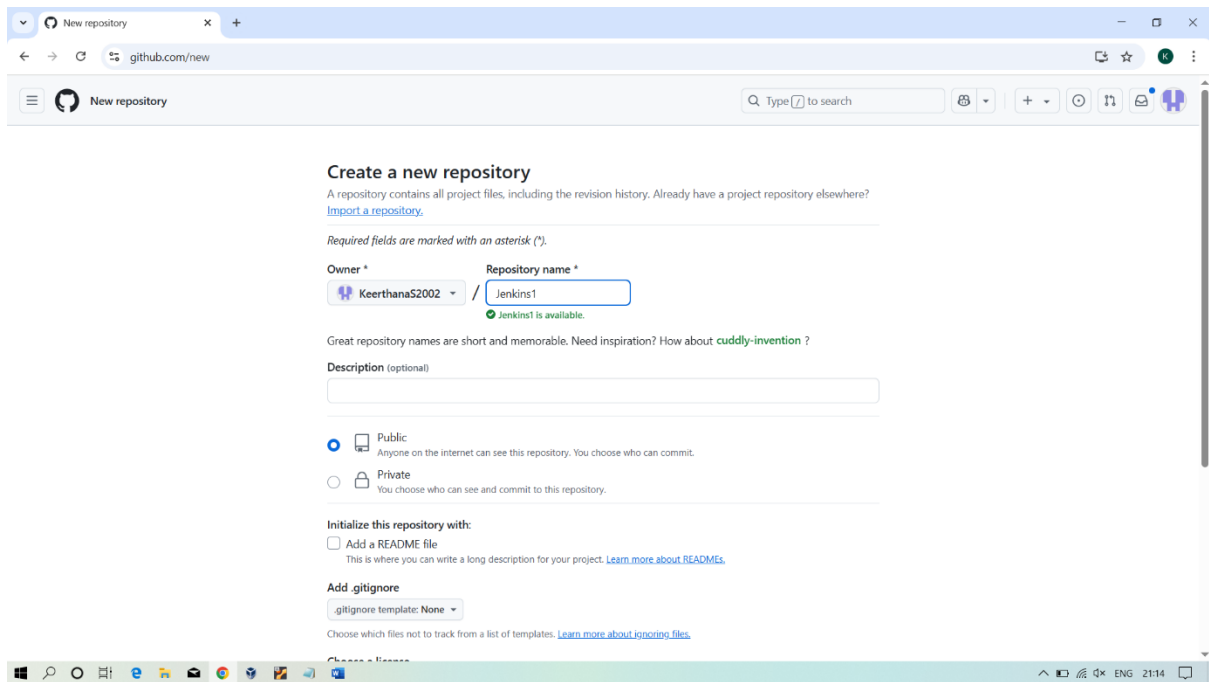
Jenkins-Driven CI/CD Pipeline: Set up a CI/CD pipeline using Jenkins to automate the build, test and push process of a containerized web application. The pipeline integrates GitHub for source control, Docker for containerization and Store in Container registry. (tools: Jenkins, Docker)

Step 1: Create an account in hub.docker.com



Step 2: Create a GitHub Repository

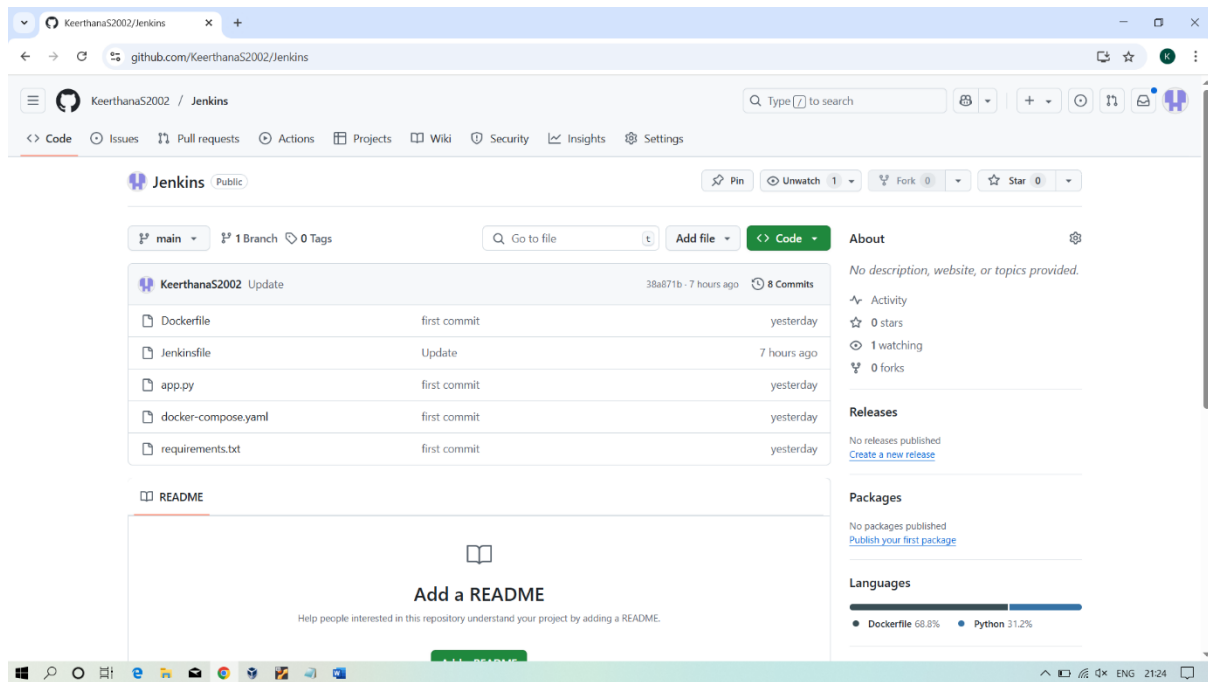
- Login into your GitHub account
- Create a new repository
- Name it as "Jenkins" and select public



Step 3: Add the necessary files in the Jenkins repository

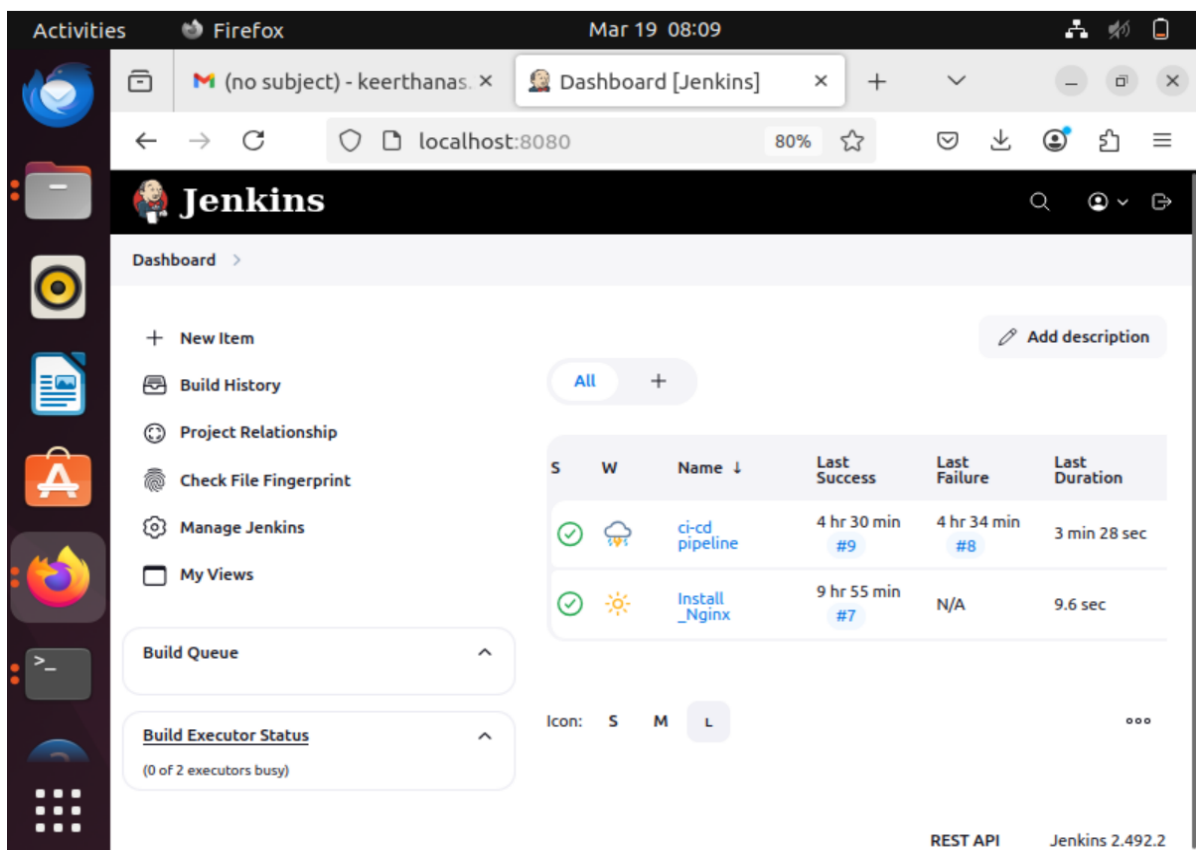
- app.py (Application code)
- Dockerfile (Instructions to build the Docker Image)
- Docker-compose.yml (For container orchestration)
- Jenkinsfile (Defines the pipeline stage)
- Requirements.txt (Dependencies for the application)

```
Activities Terminal Mar 19 07:58
root@ubuntu1: /home/vboxuser/Downloads/Jenkins
vboxuser@ubuntu1:~$ su
Password:
ubuntu1:/home/vboxuser# sudo su
ubuntu1:/home/vboxuser# cd..
cd..: Command not found
root@ubuntu1:/home/vboxuser# cd Downloads/Jenkins
root@ubuntu1:/home/vboxuser/Downloads/Jenkins# git init
Initialized existing Git repository in /home/vboxuser/Downloads/Jenkins/.git/
root@ubuntu1:/home/vboxuser/Downloads/Jenkins# git remote add origin https://github.com/KeerthanaS2002/Jenkins.git
remote origin already exists.
root@ubuntu1:/home/vboxuser/Downloads/Jenkins# git add .
root@ubuntu1:/home/vboxuser/Downloads/Jenkins# git status
On branch main
nothing to be committed:
(use "git restore --staged <file>..." to unstage)
renamed:    jenkinsfile -> jenkinsfile-1
root@ubuntu1:/home/vboxuser/Downloads/Jenkins# git commit -m "success"
[main 53476b2] success
1 file changed, 2 insertions(+), 2 deletions(-)
delete mode 100644 jenkinsfile
create mode 100644 jenkinsfile-1
root@ubuntu1:/home/vboxuser/Downloads/Jenkins# git push -u origin main
Username for 'https://github.com': KeerthanaS2002
Password for 'https://KeerthanaS2002@github.com':
Enumerating objects: 10, done.
Compressing objects: 100% (10/10), done.
Compressing objects: 100% (9/9), done.
```



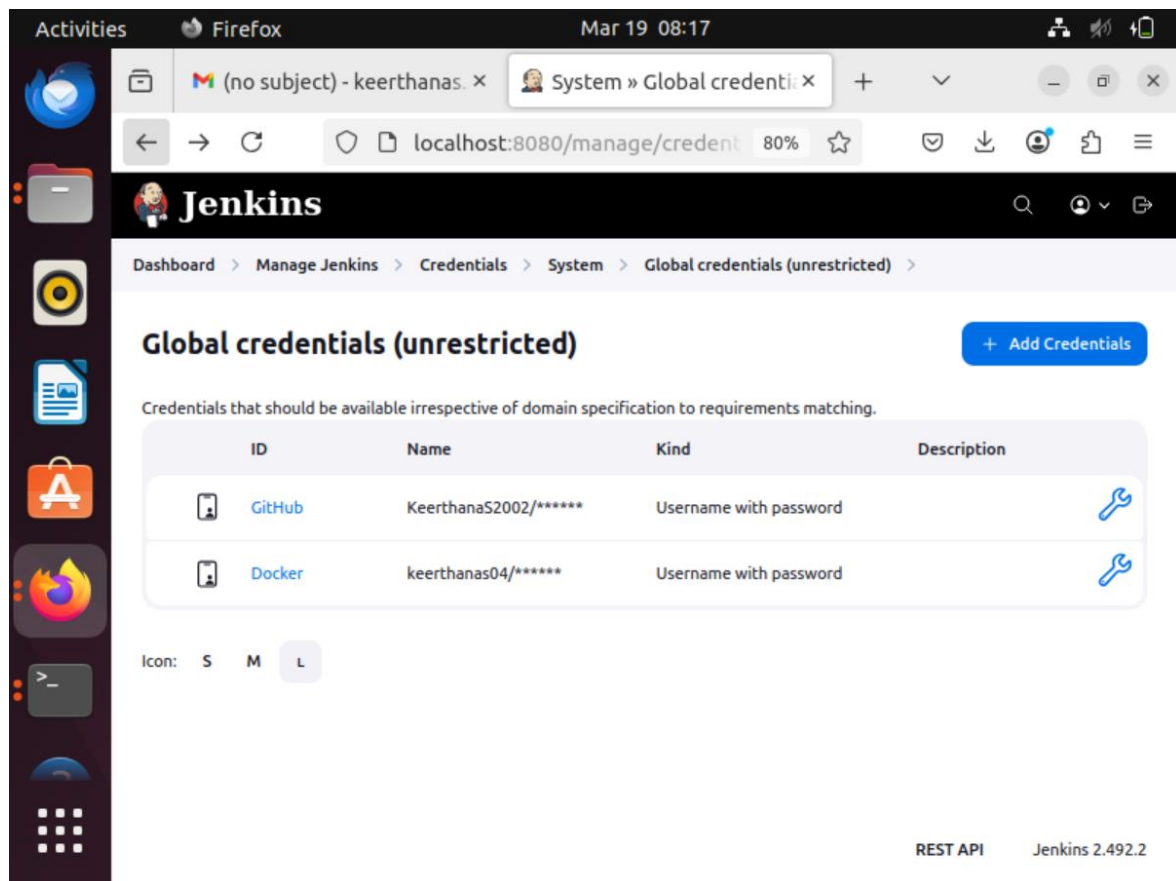
Step 4: Login into your Jenkins account

- Click new item
- Enter a job name (e.g.ci-cd pipeline)
- Select pipeline



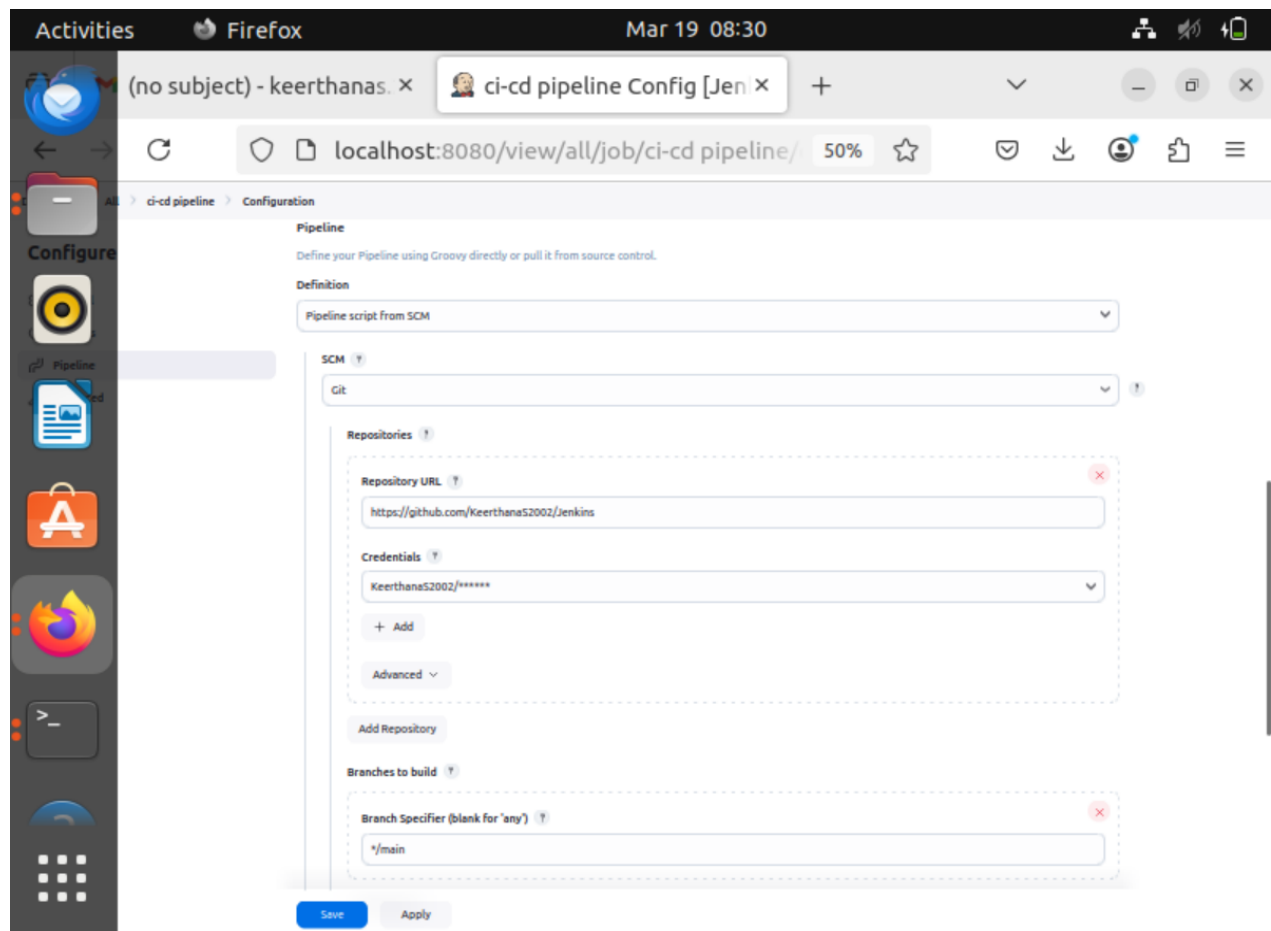
Step 5: Add Credentials to Jenkins

- Goto Manage Jenkins
- Scroll down and go to Security
- Select Credentials
- Click global and select “Add Credentials”
- Add the credential for GitHub and Docker one by one

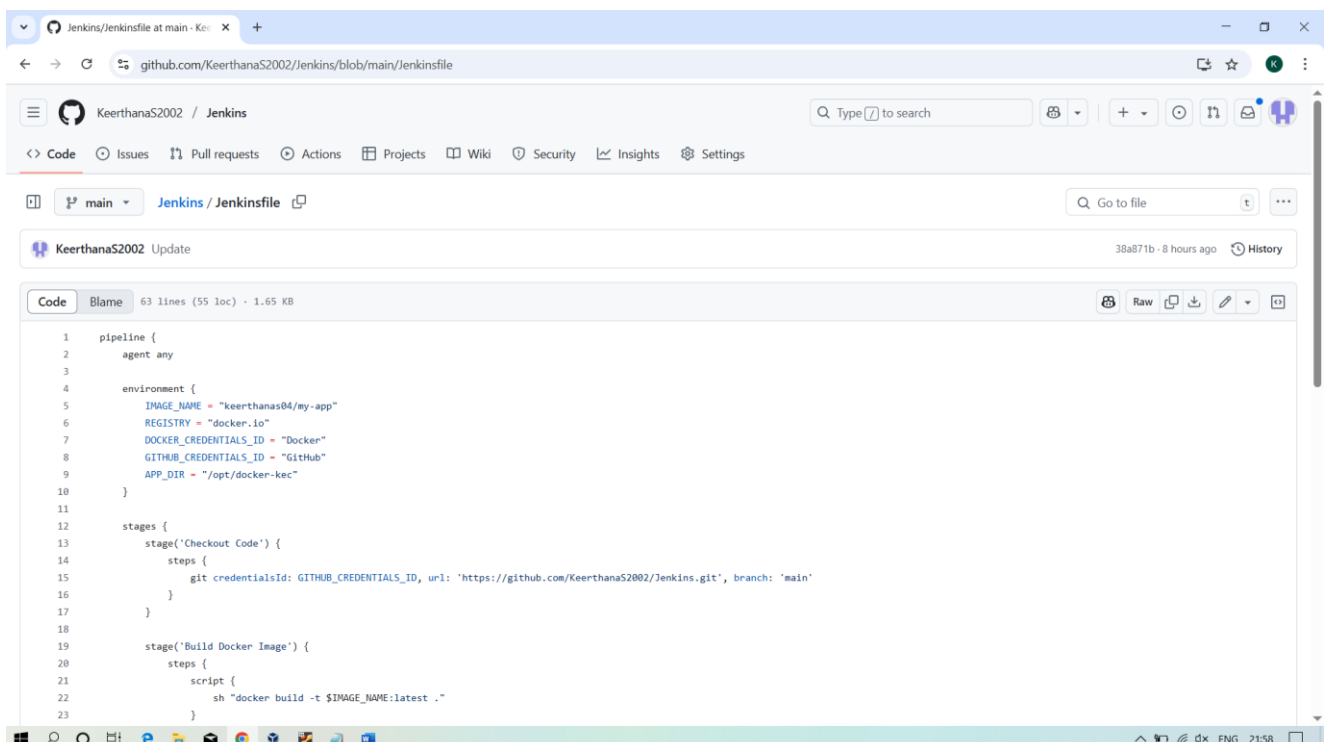


Step 6: Add the GitHub Credentials

- Scroll the pipeline definition
- Select Pipeline Script from SCM
- Choose git
- Enter the GitHub repository “Jenkins” created
- Set branch to /*main
- Click Apply and Save

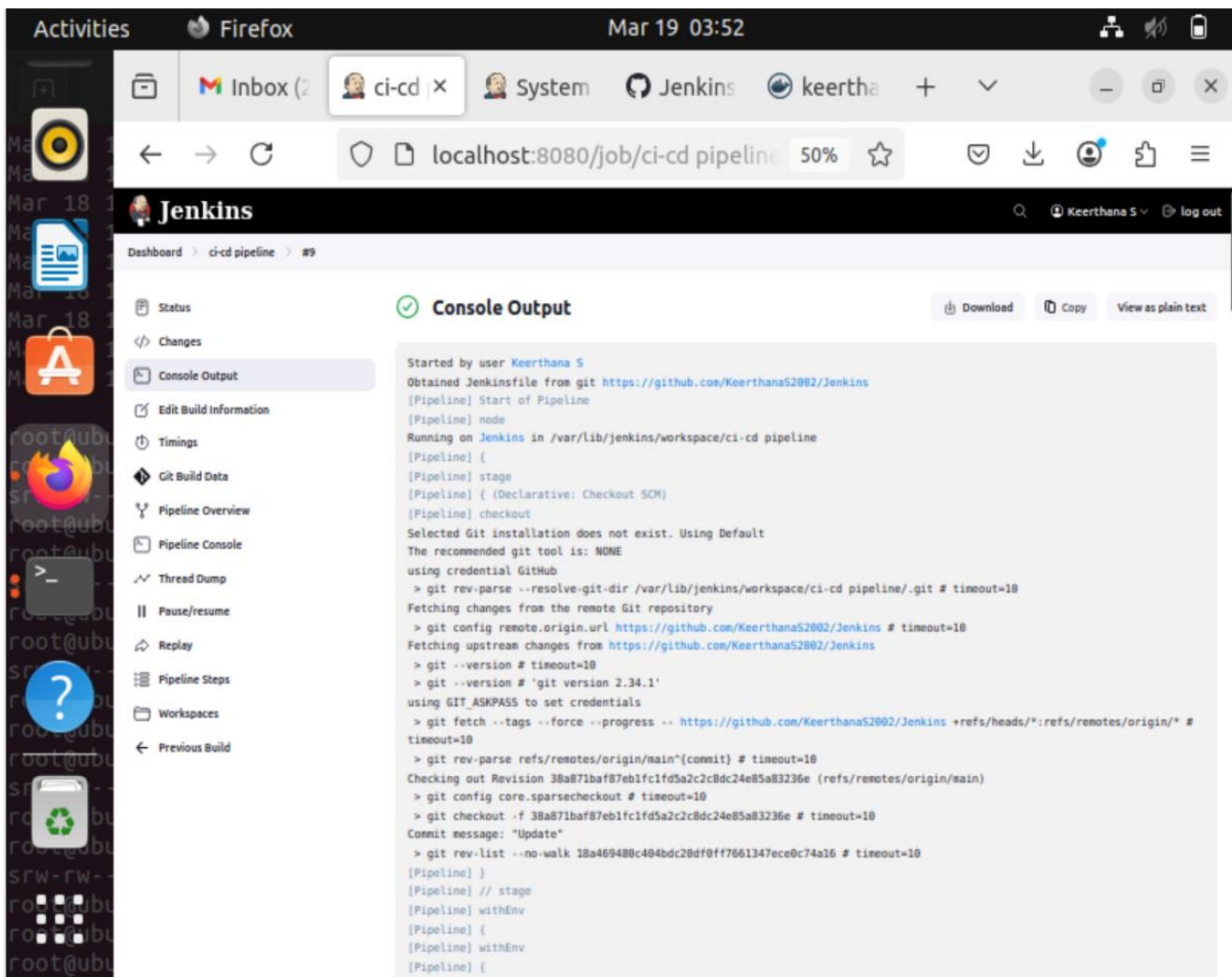


Step 7: Verify whether the credentials in the pipeline definition match the credentials in the “Jenkinsfile” in the GitHub repository.



Step 8: Run the pipeline

- Click Build Now in Jenkins
- View logs under Console Output
- After a successful build, check the Docker registry.



The screenshot shows a web browser window displaying the Jenkins interface. The address bar shows the URL `localhost:8080/job/ci-cd pipeline`. The Jenkins dashboard is visible, with the 'Console Output' tab selected. The console output shows the following steps:

```
Started by user Keerthana S
Obtained Jenkinsfile from git https://github.com/KeerthanaS2002/Jenkins
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /var/lib/jenkins/workspace/ci-cd pipeline
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Declarative: Checkout SCM)
[Pipeline] checkout
Selected Git installation does not exist. Using Default
The recommended git tool is: NONE
using credential GitHub
> git rev-parse --resolve-git-dir /var/lib/jenkins/workspace/ci-cd pipeline/.git # timeout=10
Fetching changes from the remote Git repository
> git config remote.origin.url https://github.com/KeerthanaS2002/Jenkins # timeout=10
Fetching upstream changes from https://github.com/KeerthanaS2002/Jenkins
> git --version # timeout=10
> git --version # 'git version 2.34.1'
using GIT_ASKPASS to set credentials
> git fetch --tags --force --progress -- https://github.com/KeerthanaS2002/Jenkins +refs/heads/*:refs/remotes/origin/* # timeout=10
> git rev-parse refs/remotes/origin/main^{commit} # timeout=10
Checking out Revision 38a871baf87eb1fc1fd5a2c2c8dc24e85a83236e (refs/remotes/origin/main)
> git config core.sparsecheckout # timeout=10
> git checkout -f 38a871baf87eb1fc1fd5a2c2c8dc24e85a83236e # timeout=10
Commit message: "Update"
> git rev-list --no-walk 18a469480c404bdc20df0ff7661347ece0c74a16 # timeout=10
[Pipeline] }
[Pipeline] // stage
[Pipeline] withEnv
[Pipeline] {
[Pipeline] withEnv
[Pipeline] }
```

