RAGULANDIRAN M – 22CSR157 || KONGU ENGINNERING COLLEGE

DAY 2 Tasks – Jenkins freestyle and pipeline project with scm and normal file, Docker compose , Master-Slave in Jenkins

Jenkins:

Jenkins is an open-source automation tool written in Java programming language that allows continuous integration. Jenkins offers a straightforward way to set up a continuous integration or continuous delivery environment for almost any combination of languages and source code repositories using pipelines, as well as automating other routine development tasks.

The following are the main or most popular Jenkins use cases:

Continuous Integration: With Jenkins pipelines, we can achieve CI for both applications and infrastructure as code.

Continuous Delivery: You can set up well-defined and automated application delivery workflows with Jenkins pipelines

Jenkins achieves CI (Continuous Integration) and CD (Continuous Deployment) with the help of plugins. Plugins are used to allow the integration of various DevOps stages. If you want to integrate a particular tool, you must install the plugins for that tool.

ADVANTAGES OF JENKINS:

It is an open-source tool.

It is free of cost.

It does not require additional installations or components. Means it is easy to install.

Easily configurable.

It supports 1000 or more plugins to ease your work. If a plugin does not exist, you can write the script for it and share with community.

It is built in java and hence it is portable.

It is platform independent. It is available for all platforms and different operating systems. Like OS X, Windows, or Linux.

Easy support since its open source and widely used.

Jenkins also supports cloud-based architecture so that we can deploy Jenkins in cloud-based platforms.

Jenkins Script Pipeline (without scm):

```
pipeline {
    agent any
    tools {maven "maven"}
    stages {
        stage('SCM') {
            steps {
                git branch: 'main', url: 'https://github.com/Ragu162004/web-app.git'
            }
        }
        stage('Build') {
            steps {
                sh 'mvn clean package'
            }
        }
        stage('build to images') {
            steps {
                script {
                    sh 'docker build -t ragu162004/webappwsl .'
                }
            }
        }
        stage('push to hub') {
            steps {
                script {
                    withDockerRegistry(credentialsId: 'docker_cred', toolName: 'docker', url:
'https://index.docker.io/v1/') {
                              sh 'docker push ragu162004/webappwsl'
                    }
                }
            } } }
```

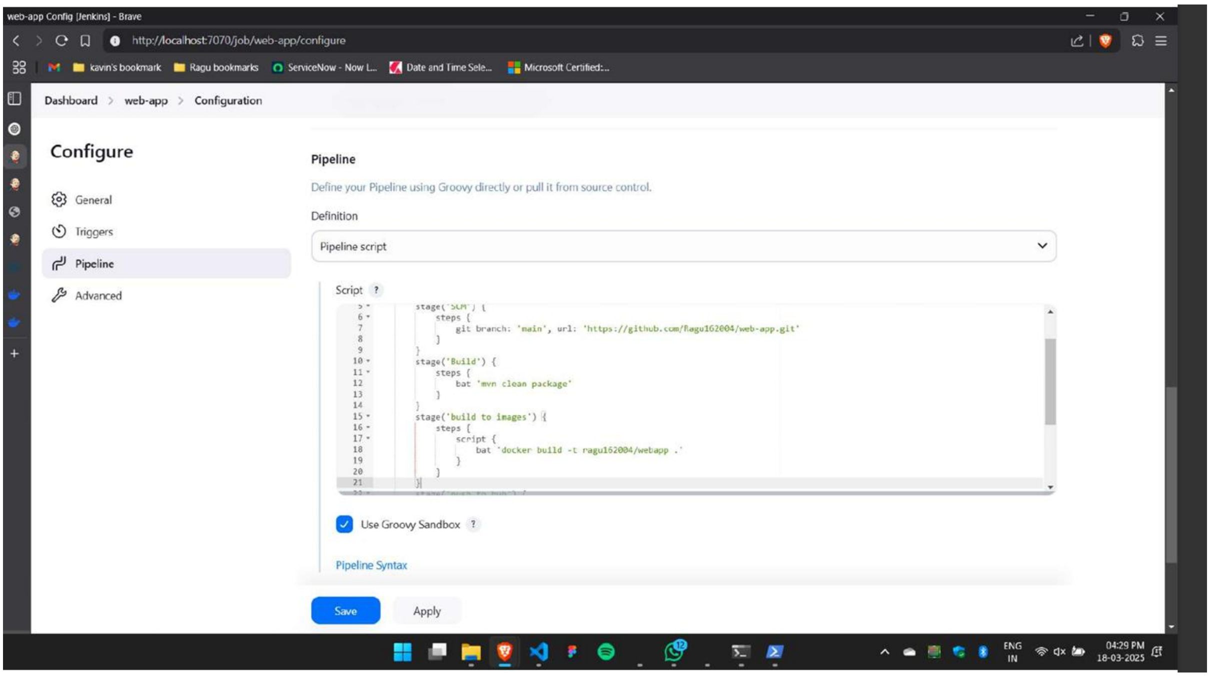
Docker-Compose:

Day 2

Docker compose is used to run multiple images (.yaml file)

Steps in the docker compose

- **- docker-compose up -d**
- **- docker-compose down -d**
- **- docker-compose images**
- **- docker-compose ps**



Pipeline

Define your Pipeline using Groovy directly or pull it from source control.

Definition

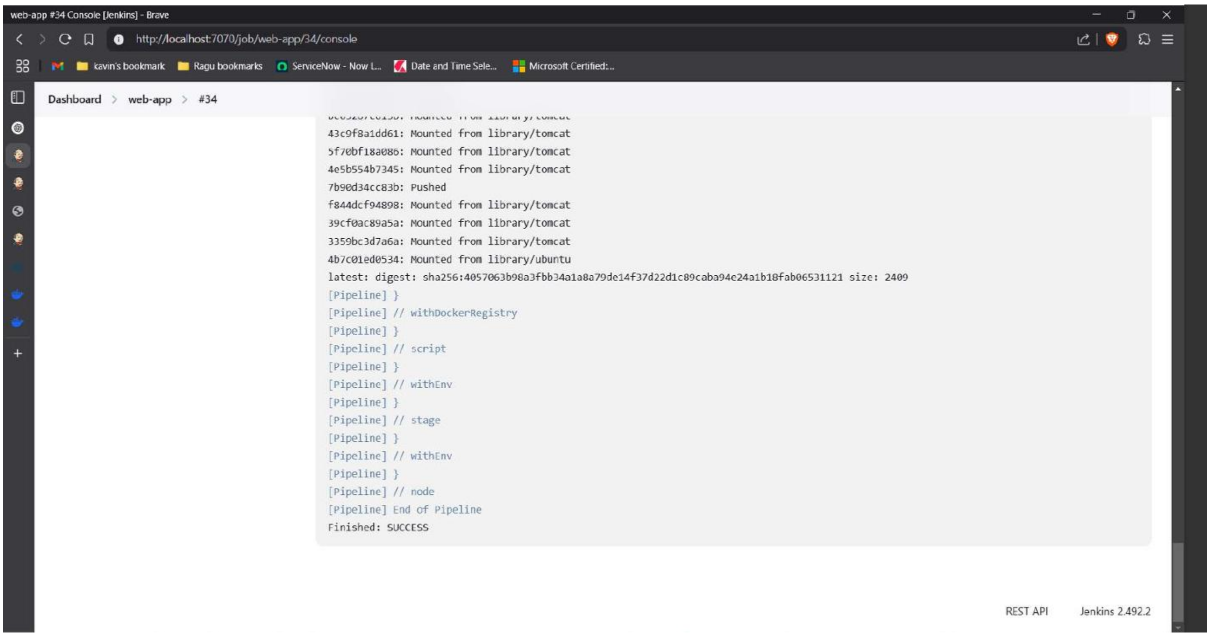
Pipeline script

Script

```
    stage('SCM') {
        steps {
            git branch: 'main', url: 'https://github.com/Ragu162004/web-app.git'
        }
    }
    stage('Build') {
        steps {
            bat 'mvn clean package'
        }
    }
    stage('build to images') {
        steps {
            script {
                bat 'docker build -t ragu162004/webapp .'
            }
        }
    }
```

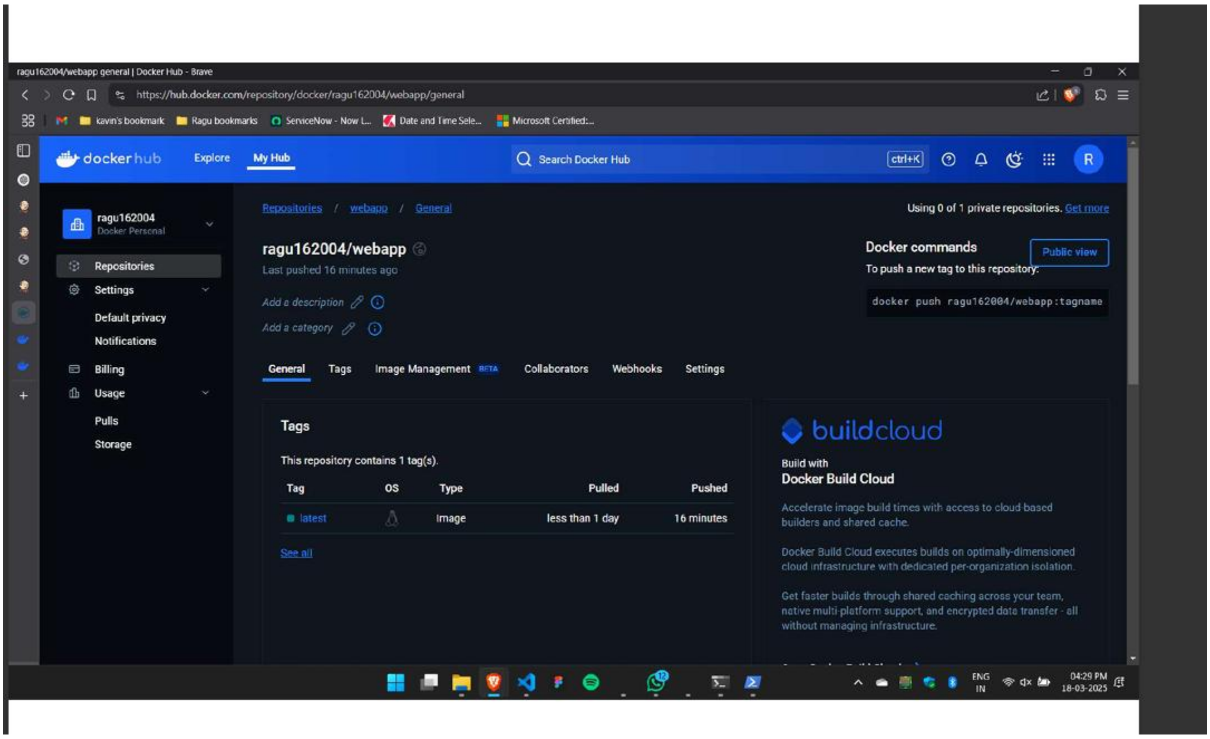
☑ Use Groovy Sandbox

Pipeline Syntax



```
43c9f8a1dd61: Mounted from library/tomcat
5f70bf18a086: Mounted from library/tomcat
4e5b554b7345: Mounted from library/tomcat
7b90d34cc83b: Pushed
f844dcf94898: Mounted from library/tomcat
39cf0ac89a5a: Mounted from library/tomcat
3359bc3d7a6a: Mounted from library/tomcat
4b7c01ed0534: Mounted from library/ubuntu
latest: digest: sha256:4057063b98a3fbb34a1a8a79de14f37d22d1c89caba94e24a1b18fab06531121 size: 2409
[Pipeline] }
[Pipeline] // withDockerRegistry
[Pipeline] }
[Pipeline] // script
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

Docker Hub:



Using 0 of 1 private repositories. Get more

ragu162004/webapp

Last pushed 16 minutes ago

Docker commands

To push a new tag to this repository:

```
docker push ragu162004/webapp:tagname
```

Tags

This repository contains 1 tag(s).

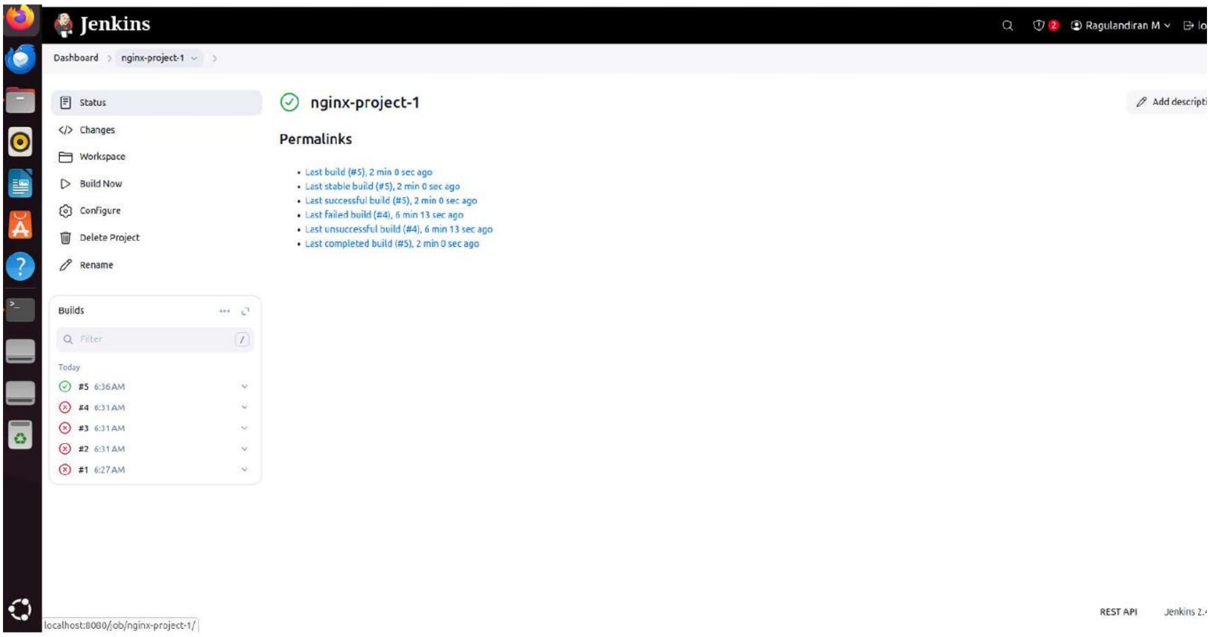
Tag	OS	Type	Pulled	Pushed
latest		Image	less than 1 day	16 minutes

Build with
Docker Build Cloud

Accelerate image build times with access to cloud based builders and shared cache.

Docker Build Cloud executes builds on optimally-dimensioned cloud infrastructure with dedicated per-organization isolation.

Get faster builds through shared caching across your team, native multi-platform support, and encrypted data transfer - all without managing infrastructure.



nginx-project-1

Permalinks

- Last build (#5), 2 min 0 sec ago
- Last stable build (#5), 2 min 0 sec ago
- Last successful build (#5), 2 min 0 sec ago
- Last failed build (#4), 6 min 13 sec ago
- Last unsuccessful build (#4), 6 min 13 sec ago
- Last completed build (#5), 2 min 0 sec ago

Today

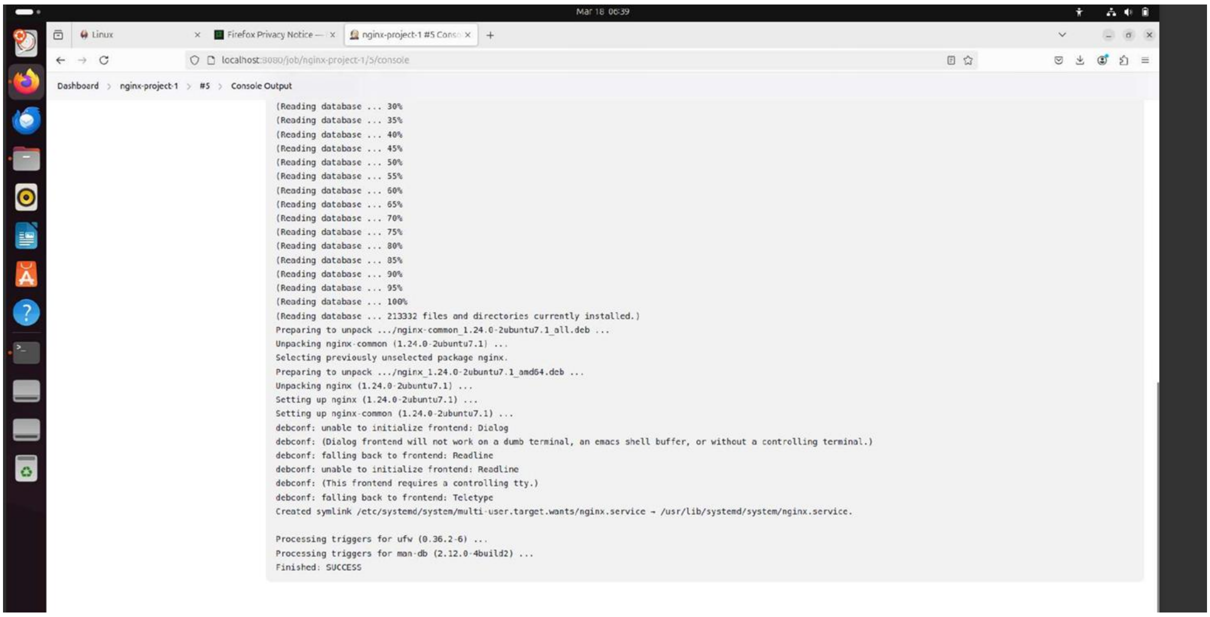
✓ #5 6:36 AM

✗ #4 6:31 AM

✗ #3 6:31 AM

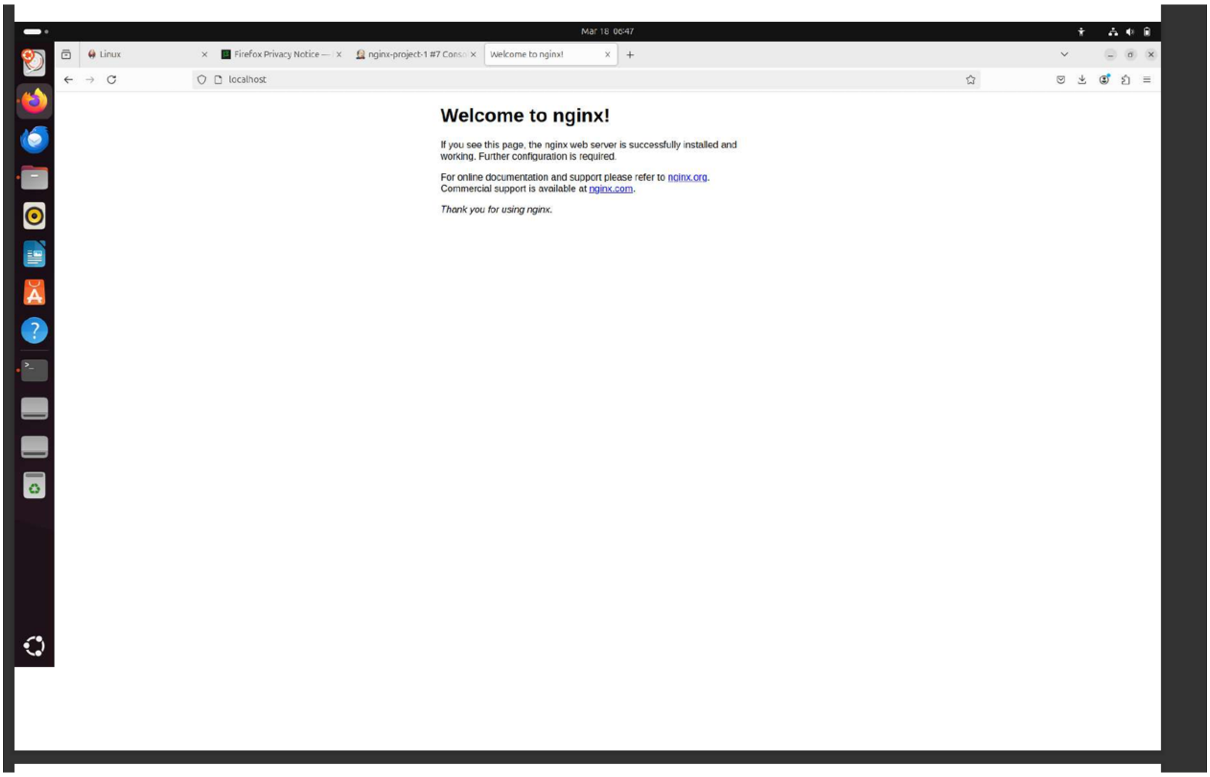
✗ #2 6:31 AM

✗ #1 6:27 AM


Mar 18 06:39
Linux
Firefox Privacy Notice —
nginx-project-1 #5 Conso
localhost:8080/job/nginx-project-1/5/console
Dashboard > nginx-project-1 > #5 > Console Output

```
(Reading database ... 30%
(Reading database ... 35%
(Reading database ... 40%
(Reading database ... 45%
(Reading database ... 50%
(Reading database ... 55%
(Reading database ... 60%
(Reading database ... 65%
(Reading database ... 70%
(Reading database ... 75%
(Reading database ... 80%
(Reading database ... 85%
(Reading database ... 90%
(Reading database ... 95%
(Reading database ... 100%
(Reading database ... 213332 files and directories currently installed.)
Preparing to unpack .../nginx-common_1.24.0-2ubuntu7.1_all.deb ...
Unpacking nginx-common (1.24.0-2ubuntu7.1) ...
Selecting previously unselected package nginx.
Preparing to unpack .../nginx_1.24.0-2ubuntu7.1_amd64.deb ...
Unpacking nginx (1.24.0-2ubuntu7.1) ...
Setting up nginx (1.24.0-2ubuntu7.1) ...
Setting up nginx-common (1.24.0-2ubuntu7.1) ...
debconf: unable to initialize frontend: Dialog
debconf: (Dialog frontend will not work on a dumb terminal, an emacs shell buffer, or without a controlling terminal.)
debconf: falling back to frontend: Readline
debconf: unable to initialize frontend: Readline
debconf: (This frontend requires a controlling tty.)
debconf: falling back to frontend: Teletype
Created symlink /etc/systemd/system/multi-user.target.wants/nginx.service → /usr/lib/systemd/system/nginx.service.

Processing triggers for ufw (0.36.2-6) ...
Processing triggers for man-db (2.12.0-4build2) ...
Finished: SUCCESS
```



Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

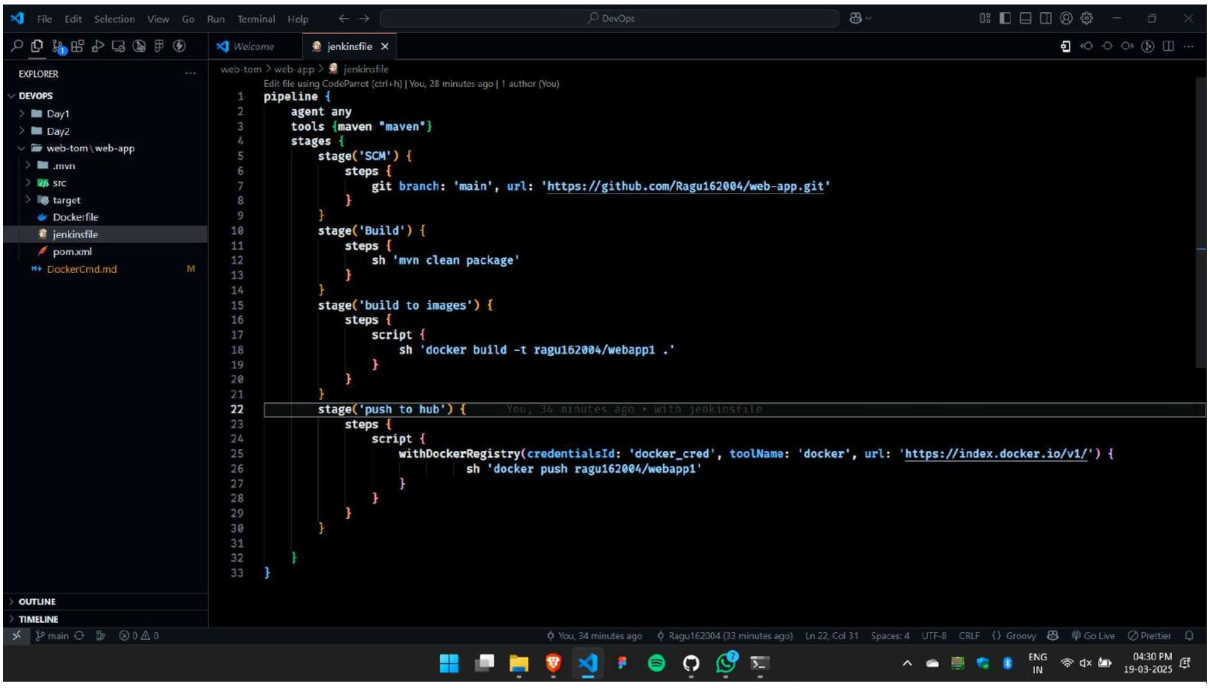
For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.

Pipeline with Scm:

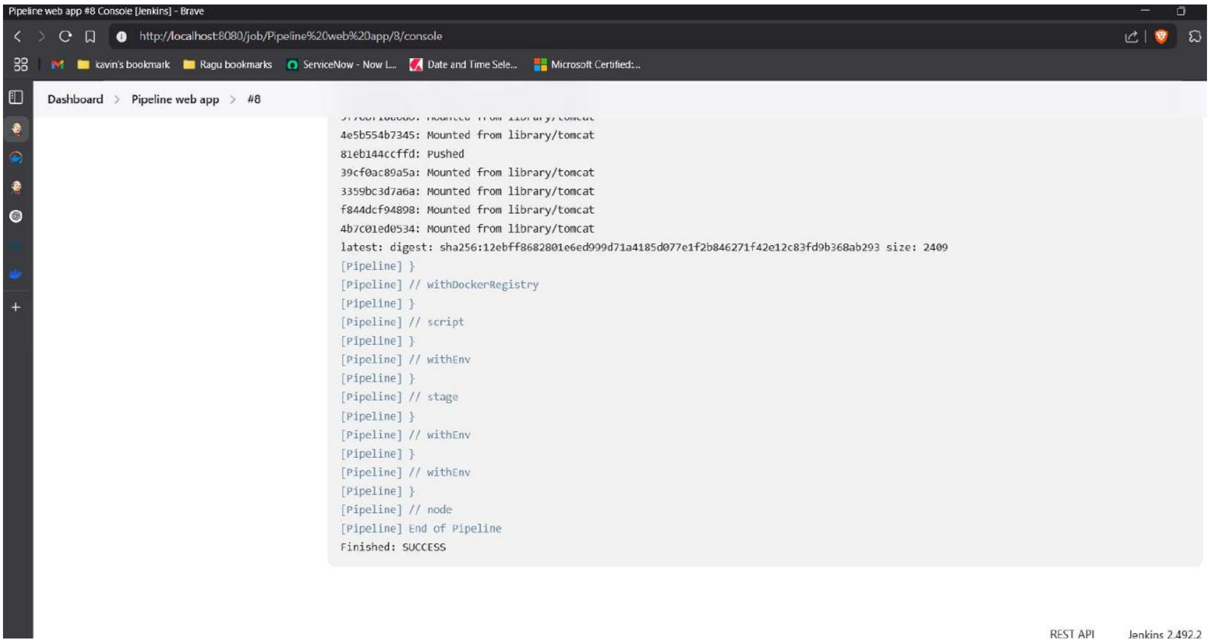
Github: https://github.com/Ragu162004/web-app.git

Jenkinsfile:

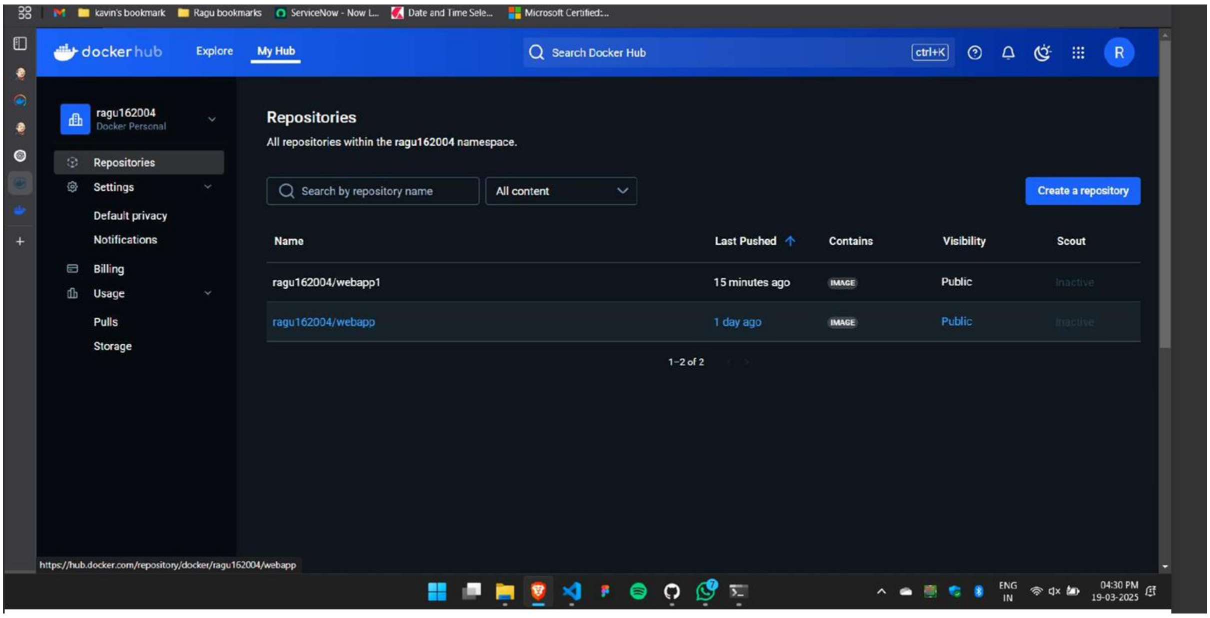


```groovy
pipeline {
    agent any
    tools {maven "maven"}
    stages {
        stage('SCM') {
            steps {
                git branch: 'main', url: 'https://github.com/Ragu162004/web-app.git'
            }
        }
        stage('Build') {
            steps {
                sh 'mvn clean package'
            }
        }
        stage('build to images') {
            steps {
                script {
                    sh 'docker build -t ragu162004/webapp1 .'
                }
            }
        }
        stage('push to hub') {
            steps {
                script {
                    withDockerRegistry(credentialsId: 'docker_cred', toolName: 'docker', url: 'https://index.docker.io/v1/') {
                            sh 'docker push ragu162004/webapp1'
                    }
                }
            }
        }

    }
}
```



```
[illegible]: Mounted from library/tomcat
4e5b554b7345: Mounted from library/tomcat
81eb144ccffd: Pushed
39cf0ac89a5a: Mounted from library/tomcat
3359bc3d7a6a: Mounted from library/tomcat
f844dcf94898: Mounted from library/tomcat
4b7c01ed0534: Mounted from library/tomcat
latest: digest: sha256:12ebff8682801e6ed999d71a4185d077e1f2b846271f42e12c83fd9b368ab293 size: 2409
[Pipeline] }
[Pipeline] // withDockerRegistry
[Pipeline] }
[Pipeline] // script
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```



Repositories

All repositories within the ragu162004 namespace.

Name	Last Pushed ↑	Contains	Visibility	Scout
ragu162004/webapp1	15 minutes ago	IMAGE	Public	Inactive
ragu162004/webapp	1 day ago	IMAGE	Public	Inactive

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