

Final Project
Day - 6
Java Application Deployment in Minikube

Pipeline Script:

```
pipeline {
  agent any
  tools { maven "maven" }
  environment {
    DOCKER_CREDENTIALS = credentials('docker_cred')
  }

  stages {
    stage('SCM') {
      steps {
        git branch: 'main', url: 'https://github.com/NITESH-MP/web-app.git'
      }
    }

    stage('Build-clean') {
      steps {
        sh "mvn clean"
      }
    }

    stage('Build-validate') {
      steps {
        sh "mvn validate"
      }
    }
  }
}
```

```
}
```

```
stage('Build-compile') {
```

```
  steps {
```

```
    sh "mvn compile"
```

```
  }
```

```
}
```

```
stage('Build-test') {
```

```
  steps {
```

```
    sh "mvn test"
```

```
  }
```

```
}
```

```
stage('Build-install') {
```

```
  steps {
```

```
    sh "mvn install"
```

```
  }
```

```
}
```

```
stage('Build Docker Image') {
```

```
  steps {
```

```
    script {
```

```
      sh 'docker build -t nithesh04/web-app .'
```

```
    }
```

```
  }
```

```
}
```

```
stage('Push to Docker Hub') {
```

```

steps {
  script {
    docker.withRegistry('https://index.docker.io/v1/', 'docker_cred') {
      sh 'docker push nithesh04/web-app'
    }
  }
}

stage('Deploy App') {
  steps {
    withKubeConfig(
      caCertificate: "",
      clusterName: 'minikube',
      contextName: 'minikube',
      credentialsId: 'kube-cred',
      namespace: 'default',
      restrictKubeConfigAccess: false,
      serverUrl: 'https://192.168.49.2:8443'
    ){
      sh 'kubectl apply -f Deployment.yml --validate=false'
    }
  }
}
}

```

Dashboard > java-application > Configuration

Configure

- General
- Triggers
- Pipeline**
- Advanced

Pipeline script

Script ?

```
63 stage('Deploy App') {
64     steps {
65         withKubeConfig(
66             caCertificate: '',
67             clusterName: 'minikube',
68             contextName: 'minikube',
69             credentialsId: 'kube-cred',
70             namespace: 'default',
71             restrictKubeConfigAccess: false,
72             serverUrl: 'https://192.168.49.2:8443'
73         ) {
74             sh 'kubectl apply -f Deployment.yml --validate=false'
75         }
76     }
77 }
78 }
```

☒ Use Groovy Sandbox ?

[Pipeline Syntax](#)

Advanced

Advanced ▾

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

Dashboard > java-application > Configuration

Configure

- General
- Triggers
- Pipeline**
- Advanced

Pipeline script

Script ?

```
1 pipeline {
2     agent any
3     tools { maven "maven" }
4     environment {
5         DOCKER_CREDENTIALS = credentials('docker_cred')
6     }
7     stages {
8         stage('SCM') {
9             steps {
10                 git branch: 'main', url: 'https://github.com/NITHESH-NP/web-app.git'
11             }
12         }
13         stage('Build-clean') {
14             steps {
15                 sh "mvn clean"
16             }
17         }
18     }
19 }
```

☒ Use Groovy Sandbox ?

[Pipeline Syntax](#)

Advanced

Advanced ▾

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

Deployment File:

apiVersion: apps/v1

kind: Deployment

metadata:

name: my-deploy

labels:

name: my-deploy

spec:

replicas: 1

selector:

matchLabels:

apptype: web-backend

strategy:

type: RollingUpdate

template:

metadata:

labels:

apptype: web-backend

spec:

containers:

- name: web-app

image: nithesh04/web-app

ports:

- containerPort: 9000

apiVersion: v1

kind: Service

metadata:

name: my-service

labels:

app: my-service

spec:

type: NodePort

ports:

- port: 9000

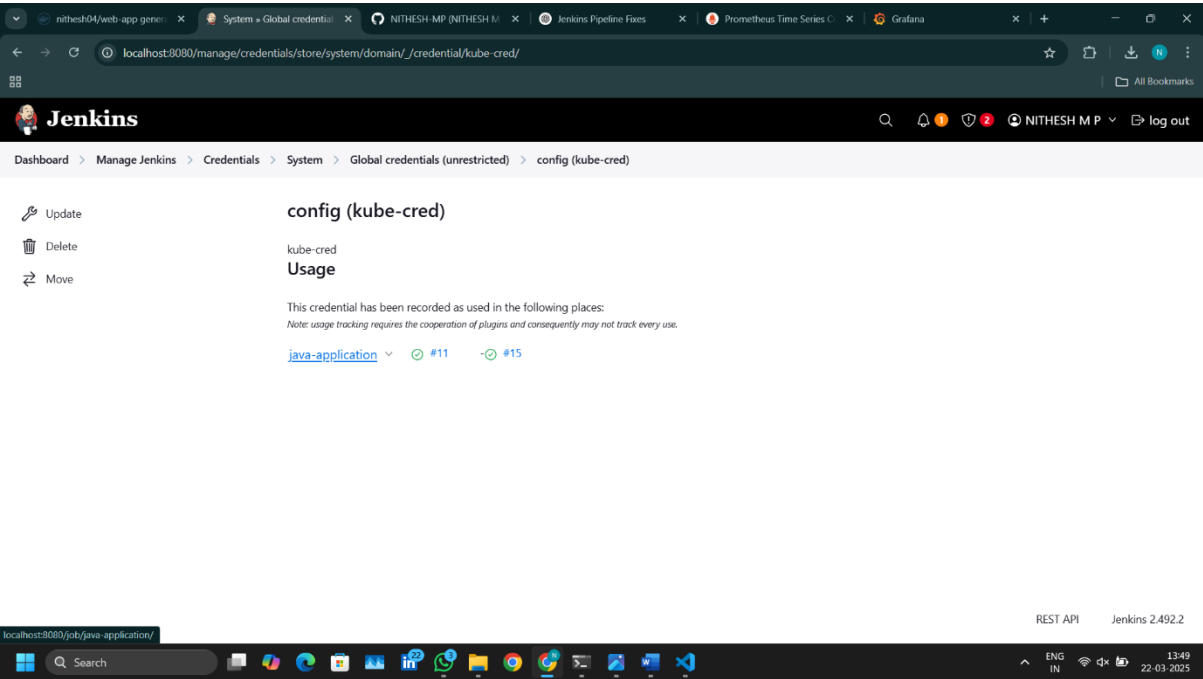
targetPort: 8080

nodePort: 30002

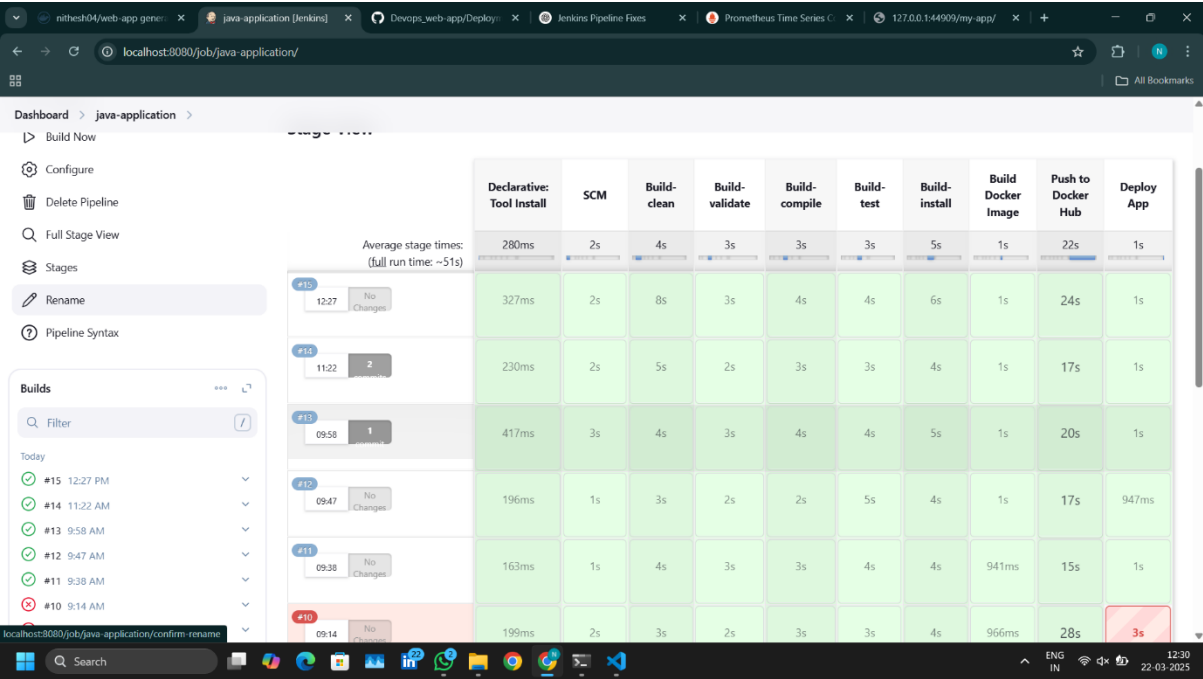
selector:

apptype: web-backend

Credentials:



Stage view:



Status:

The screenshot displays the Jenkins web interface in a browser. The address bar shows the URL `localhost:8080/job/java-application/15/`. The Jenkins logo and navigation links are at the top. The main content area shows the status of build #15, which is successful (indicated by a green checkmark). The build was started by user NITESH M P on March 22, 2025, at 12:27:32 PM. The build duration was 1 min 1 sec. The build was triggered by a Git commit from the repository `https://github.com/NITESH-MP/web-app.git`. The build steps are listed on the left, including Console Output, Edit Build Information, Delete build, Timings, Git Build Data, Pipeline Overview, Pipeline Console, Restart from Stage, Replay, Pipeline Steps, and Workspaces. The build is currently in the 'Status' phase.

Jenkins

Dashboard > java-application > #15

Status ✓ #15 (Mar 22, 2025, 12:27:32 PM) Add description Keep this build forever

Changes

Console Output

Edit Build Information

Delete build '#15'

Timings

Git Build Data

Pipeline Overview

Pipeline Console

Restart from Stage

Replay

Pipeline Steps

Workspaces

Previous Build

Started by user NITESH M P

This run spent:

- 60 ms waiting;
- 1 min 1 sec build duration;
- 1 min 1 sec total from scheduled to completion.

Revision: 2ac861a04c40adb675757182eae4414c0bfcd0d

Repository: <https://github.com/NITESH-MP/web-app.git>

- refs/remotes/origin/main

No changes.

Started 1 hr 11 min ago
Took 1 min 1 sec

Console Output:

The screenshot shows a web browser window displaying the Jenkins console output for a build named 'java-application #15'. The browser's address bar shows the URL 'localhost:8080/job/java-application/15/console'. The Jenkins interface includes a sidebar with navigation options like 'Changes', 'Console Output', 'Edit Build Information', 'Delete build', 'Timings', 'Git Build Data', 'Pipeline Overview', 'Pipeline Console', 'Restart from Stage', 'Replay', 'Pipeline Steps', 'Workspaces', and 'Previous Build'. The main area displays the console output, which starts with 'Started by user: NITESH M P' and shows the pipeline's execution steps, including 'Start of Pipeline', 'node', 'Running on Jenkins in /var/lib/jenkins/workspace/java-application', and 'Masking supported pattern matches of \$DOCKER_CREDENTIALS or \$DOCKER_CREDENTIALS_PSW'. The output also shows the pipeline's configuration, including stages and tools, and ends with a message indicating that the selected Git installation does not exist and the default is being used.

```
Started by user: NITESH M P
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /var/lib/jenkins/workspace/java-application
[Pipeline] {
[Pipeline] withCredentials
Masking supported pattern matches of $DOCKER_CREDENTIALS or $DOCKER_CREDENTIALS_PSW
[Pipeline] {
[Pipeline] stage (hide)
[Pipeline] { (Declarative: Tool Install)
[Pipeline] tool
[Pipeline] envVarsForTool
[Pipeline] }
[Pipeline] // stage
[Pipeline] withEnv
[Pipeline] {
[Pipeline] stage
[Pipeline] { (SCM)
[Pipeline] tool
[Pipeline] envVarsForTool
[Pipeline] withEnv
[Pipeline] {
[Pipeline] git
Selected Git installation does not exist. using Default
The recommended git tool is: NONE
No credentials specified
```

```
Dashboard > java-application > #15

[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] {
[Pipeline] build-clean
[Pipeline] tool
[Pipeline] envVarsFromTool
[Pipeline] withEnv
[Pipeline] {
[Pipeline] sh
+ mvn clean
[INFO] Scanning for projects...
[INFO]
[INFO] -----< com.mycompany.app:my-web >-----
[INFO] Building my-web Maven Webapp 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO]
[INFO] -----[ war ]-----
[INFO]
[INFO] --- clean:3.4.0:clean (default-clean) @ my-web ---
[INFO] deleting /var/lib/jenkins/workspace/java-application/target
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] --- total time: 0.67s ---
[INFO] Finished at: 2025-03-22T12:27:45+05:30
[INFO]
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
```

```
Dashboard > java-application > #15

+ mvn install
[INFO] Scanning for projects...
[INFO]
[INFO] -----< com.mycompany.app:my-web >-----
[INFO] Building my-web Maven Webapp 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO]
[INFO] -----[ war ]-----
[INFO]
[INFO] --- resources:3.3.1:resources (default-resources) @ my-web ---
[INFO] skip non existing resourceDirectory /var/lib/jenkins/workspace/java-application/src/main/resources
[INFO]
[INFO] --- compiler:3.13.0:compile (default-compile) @ my-web ---
[INFO] No sources to compile
[INFO]
[INFO] --- resources:3.3.1:testResources (default-testResources) @ my-web ---
[INFO] skip non existing resourceDirectory /var/lib/jenkins/workspace/java-application/src/test/resources
[INFO]
[INFO] --- compiler:3.13.0:testCompile (default-testCompile) @ my-web ---
[INFO] No sources to compile
[INFO]
[INFO] --- surefire:3.3.0:test (default-test) @ my-web ---
[INFO] No tests to run.
[INFO]
[INFO] --- war:3.4.0:war (default-war) @ my-web ---
[INFO] Packaging webapp
[INFO] Assembling webapp [my-web] in [/var/lib/jenkins/workspace/java-application/target/my-web]
[INFO] Processing war project
[INFO] Copying webapp resources [/var/lib/jenkins/workspace/java-application/src/main/webapp]
```

```
Dashboard > java-application > #15

[Pipeline] withEnv
[Pipeline] {
[Pipeline] withKubeConfig
[Pipeline] {
[Pipeline] sh
+ kubectl apply -f Deployment.yml --validate=false
service/my-service unchanged
[Pipeline] }
[kubernetes-cli] kubectl configuration cleaned up
[Pipeline] // withKubeConfig
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // withCredentials
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS

REST API Jenkins 2.492.2
```

Minikube Service:

```
nithesh@NITESH-MP:~$ sudo vim /etc/prometheus/prometheus.yml

nithesh@NITESH-MP:~$ sudo vim /etc/prometheus/prometheus.yml
nithesh@NITESH-MP:~$ promtool check config /etc/prometheus/prometheus.yml
Checking /etc/prometheus/prometheus.yml
SUCCESS: /etc/prometheus/prometheus.yml is valid prometheus config file syntax

nithesh@NITESH-MP:~$ curl -X POST http://localhost:9090/-/reload
nithesh@NITESH-MP:~$ minikube service my-service
```

NAMESPACE	NAME	TARGET PORT	URL
default	my-service	9000	http://192.168.49.2:30002

Starting tunnel for service my-service.

NAMESPACE	NAME	TARGET PORT	URL
default	my-service		http://127.0.0.1:44909

Opening service default/my-service in default browser...
http://127.0.0.1:44909
Because you are using a Docker driver on linux, the terminal needs to be open to run it.

Output:



The screenshot shows a web browser window with the address bar displaying '127.0.0.1:44909/my-app/'. The page content is 'Hello World!'. The browser's tab bar shows several open tabs, including 'nithesh04/web-app gener...', 'java-application [Jenkins]', 'Devops_web-app/Deploy...', 'Jenkins Pipeline: Fixes', 'Prometheus Time Series C...', and '127.0.0.1:44909/my app/'. The browser's address bar also shows '127.0.0.1:44909/my-app/'.

Hello World!



The screenshot shows a Windows taskbar at the bottom of the screen. It includes the Start button, a search bar, and several pinned application icons: File Explorer, Microsoft Edge, Google Chrome, and others. The system tray on the right shows the language set to 'ENG IN', network status, and the time '12:30' on '22-03-2025'.