

# FINAL PROJECT

## DAY - 6

### JAVA APPLICATION DEPLOYMENT IN MINIKUBE

#### Pipeline script

```
pipeline {
  agent any

  stages {
    stage('SCM') {
      steps {
        git branch: 'main', url: 'https://github.com/Ananth1501/app.git'
      }
    }

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

    stage('Build Docker Image') {
      steps {
        script {
          sh 'docker build -t ananth1501/simpleapplication .'
        }
      }
    }

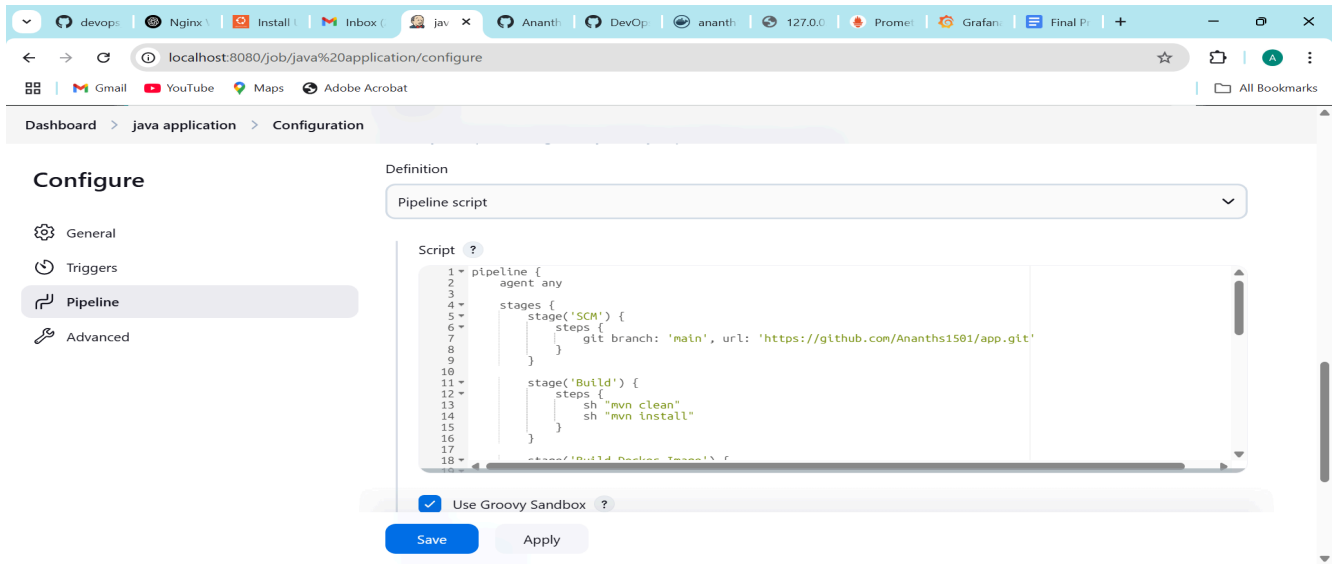
    stage('Push to Docker Hub') {
      steps {
        script {
          withDockerRegistry(credentialsId: 'Docker_credentials', url:
'https://index.docker.io/v1/') {
            sh 'docker push ananth1501/simpleapplication'
          }
        }
      }
    }
  }
}
```

```

    }
  }

  stage('Deploy App') {
    steps {
      withKubeConfig(
        caCertificate: "",
        clusterName: 'minikube',
        contextName: 'minikube',
        credentialsId: 'myminikube',
        namespace: "",
        restrictKubeConfigAccess: false,
        serverUrl: 'https://192.168.39.226:8443'
      ) {
        sh 'sudo apply -f deploy.yaml --validate=false'
      }
    }
  }
}

```



## Creating credentials

devops | Nginx | Install | Inbox | Sy: x | Ananth | DevOp | ananth | 127.0.0 | Promet | Grafan | Final P | +

localhost:8080/manage/credentials/store/system/domain/\_/

Google | Gmail | YouTube | Maps | Adobe Acrobat | All Bookmarks

Jenkins

ANANTHAKUMAR | log out

Dashboard > Manage Jenkins > Credentials > System > Global credentials (unrestricted) >

Global credentials (unrestricted)

+ Add Credentials

Credentials that should be available irrespective of domain specification to requirements matching.

ID	Name	Kind	Description
Docker_cred	ANANTH/*****	Username with password	
Docker_credentials	ananth1501/*****	Username with password	
myminikube	config	Secret file	

Icon: S M L

4

Search

ENG IN | 1:57 PM | 3/22/2025

Stage view

dev | Nginx | Install | Inbox | x | Ana | Dev | ana | 127 | Pro | Gra | Fin | KEC | Dev | final | +

localhost:8080/job/java%20application/

Google | Gmail | YouTube | Maps | Adobe Acrobat | All Bookmarks

Dashboard > java application >

#18 9:09 AM

#17 9:07 AM

#16 9:06 AM

#15 8:57 AM

#14 8:54 AM

#13 8:53 AM

#12 8:52 AM

#11 8:51 AM

#10 8:50 AM

#9 8:49 AM

#8 8:47 AM

#7 8:45 AM

#6 8:44 AM

#5 8:08 AM

#4 8:08 AM

#3 8:07 AM

#16 14:36 No Changes

#15 14:27 No Changes

#14 14:24 No Changes

#13 14:23 No Changes

#12 14:22 No Changes

#11 14:21 No Changes

	1s	8s	1s	25s
	1s	8s	1s	27s
				244ms failed

4

Search

ENG IN | 2:03 PM | 3/22/2025

Dashboard >

+ New Item  
Build History  
Project Relationship  
Check File Fingerprint  
Manage Jenkins  
My Views

Build Queue  
No builds in the queue.

Build Executor Status 0/2

AB +

S	W	Name	Last Success	Last Failure	Last Duration
✓	☁	java	2 hr 41 min #21	2 hr 43 min #20	23 sec
✓	☀	maven	2 days 22 hr #1	N/A	47 sec
✓	☁	simpletomcat	2 days 20 hr #16	2 days 20 hr #15	2 min 5 sec

REST API Jenkins 2.452.2

localhost:8080/job/simpletomcatapplication/10/console

Dashboard > simpletomcatapplication > #10

```

5f700f16a000: Layer already exists
bc05267c613b: Layer already exists
4e5b554b7345: Layer already exists
3359bc3d7a6a: Layer already exists
4b7c01ed0534: Layer already exists
39cf0ac89a5a: Layer already exists
f844dcf94898: Layer already exists
72309828aa8d: Pushed
latest: digest: sha256:471dcbf35b981fcd704744d17ea1fe795a83ee87ae06902165c92b5001bcdce5 size: 2409
[Pipeline] }
[Pipeline] // withDockerRegistry
[Pipeline] }
[Pipeline] // script
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS

```

## MINIKUBE COMMANDS:

Start & Stop Minikube

sh

CopyEdit

minikube start # Start Minikube cluster

minikube start --driver=docker # Start with Docker driver

minikube status # Check cluster status

minikube stop # Stop Minikube

minikube delete # Delete the cluster

Configure Minikube

sh

## CopyEdit

minikube config set memory 4096 # Set memory to 4GB

minikube config set cpus 2

The screenshot shows a terminal window and a web browser. The terminal window displays the output of minikube commands, including enabling the metrics-server addon, applying a deployment, and starting a tunnel for the my-service. The web browser shows the Prometheus dashboard with the 'Graph' tab selected. The dashboard displays a query for 'Evaluation time' and shows 'No data queried yet'.

```
anant@DESKTOP-LQBQG2D: ~$ minikube addons enable metrics-server
Using image docker.io/kubernetes/dashboard:v2.7.0
Some dashboard features require the metrics-server addon. To enable all features please run:

minikube addons enable metrics-server

Enabled addons: default-storageclass, storage-provisioner, dashboard
Done! kubect is now configured to use "minikube" cluster and "default" namespace by default
anant@DESKTOP-LQBQG2D: ~$ ls
app  deploy.yaml  devops_tasks  docker-compose.yaml  minikube-linux-amd64  pod.yaml  simple-web-app
anant@DESKTOP-LQBQG2D: ~$ kubectl apply -f deploy.yaml
deployment.apps/my-deploy configured
service/my-service unchanged
anant@DESKTOP-LQBQG2D: ~$ kubectl service my-service
error: unknown command "service" for "kubectl"
anant@DESKTOP-LQBQG2D: ~$ 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://127.0.0.1:38853

Opening service default/my-service in default browser...  
http://127.0.0.1:38853  
Because you are using a Docker driver on linux, the terminal needs to be open to run it.

The web browser shows the Prometheus dashboard with the 'Graph' tab selected. The dashboard displays a query for 'Evaluation time' and shows 'No data queried yet'.

Remove Panel

Add Panel

```
ananth@DESKTOP-LQBQG2D:~$ sudo systemctl enable prometheus
sudo systemctl start prometheus
sudo systemctl status prometheus
journalctl -u prometheus -f --no-pager
Created symlink /etc/systemd/system/multi-user.target.wants/prometheus.service → /etc/systemd/system/prometheus.service.
● prometheus.service - Prometheus
   Loaded: loaded (/etc/systemd/system/prometheus.service; enabled; preset: enabled)
   Active: active (running) since Sat 2025-03-22 06:41:17 UTC; 25ms ago
   Main PID: 17582 (prometheus)
     Tasks: 5 (limit: 9428)
    Memory: 3.3M ( )
    CGroup: /system.slice/prometheus.service
            └─17582 /usr/local/bin/prometheus --config.file=/etc/prometheus/prometheus.yml --storage.t

Mar 22 06:41:17 DESKTOP-LQBQG2D prometheus[17582]: ts=2025-03-22T06:41:17.236Z caller=head.go:681 level>
Mar 22 06:41:17 DESKTOP-LQBQG2D prometheus[17582]: ts=2025-03-22T06:41:17.236Z caller=head.go:689 level>
Mar 22 06:41:17 DESKTOP-LQBQG2D prometheus[17582]: ts=2025-03-22T06:41:17.236Z caller=head.go:760 level>
Mar 22 06:41:17 DESKTOP-LQBQG2D prometheus[17582]: ts=2025-03-22T06:41:17.236Z caller=head.go:797 level>
Mar 22 06:41:17 DESKTOP-LQBQG2D prometheus[17582]: ts=2025-03-22T06:41:17.238Z caller=main.go:1045 leve>
Mar 22 06:41:17 DESKTOP-LQBQG2D prometheus[17582]: ts=2025-03-22T06:41:17.238Z caller=main.go:1048 leve>
Mar 22 06:41:17 DESKTOP-LQBQG2D prometheus[17582]: ts=2025-03-22T06:41:17.238Z caller=main.go:1229 leve>
Mar 22 06:41:17 DESKTOP-LQBQG2D prometheus[17582]: ts=2025-03-22T06:41:17.239Z caller=main.go:1266 leve>
Mar 22 06:41:17 DESKTOP-LQBQG2D prometheus[17582]: ts=2025-03-22T06:41:17.239Z caller=main.go:1009 leve>
Mar 22 06:41:17 DESKTOP-LQBQG2D prometheus[17582]: ts=2025-03-22T06:41:17.239Z caller=manager.go:1009 l>
Lines 1-19/19 (END)
```

```
prometheus-2.47.1.linux-amd64/NOTICE
prometheus-2.47.1.linux-amd64/prometheus.yml
prometheus-2.47.1.linux-amd64/consoles/
prometheus-2.47.1.linux-amd64/consoles/prometheus.html
prometheus-2.47.1.linux-amd64/consoles/prometheus-overview.html
prometheus-2.47.1.linux-amd64/consoles/node-cpu.html
prometheus-2.47.1.linux-amd64/consoles/index.html.example
prometheus-2.47.1.linux-amd64/consoles/node.html
prometheus-2.47.1.linux-amd64/consoles/node-disk.html
prometheus-2.47.1.linux-amd64/consoles/node-overview.html
prometheus-2.47.1.linux-amd64/promtool
prometheus-2.47.1.linux-amd64/console_libraries/
prometheus-2.47.1.linux-amd64/console_libraries/prom.lib
prometheus-2.47.1.linux-amd64/console_libraries/menu.lib
prometheus-2.47.1.linux-amd64/prometheus
ananth@DESKTOP-LQBQG2D:~/prometheus-2.47.1.linux-amd64$ cd
rm -rf prometheus-2.47.1.linux-amd64.tar.gz
prometheus --version
D, revision: c4d1a8beff37cc004f1dc4ab9d2e73193f51aaeb)
  build user: root@4829330363be
  build date: 20231004-10:31:16
  go version: go1.21.1
  platform: linux/amd64
  tags: netgo,builtinassets,stringlabels
ananth@DESKTOP-LQBQG2D:~$ sudo vim /etc/systemd/system/prometheus.service
ananth@DESKTOP-LQBQG2D:~$ sudo systemctl enable prometheus
```

```
Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/6838921/2f9b7b37-63a0-428b-adb5-0294482fd743?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20250322%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20250322T063406Z&X-Amz-Expires=300&X-Amz-Signature=90c0d5d222406c94d5d5fccce0fd075509a2288c4b7aee36a25c4b61eb1ee260&X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dprometheus-2.47.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream [following]
--2025-03-22 06:34:07-- https://objects.githubusercontent.com/github-production-release-asset-2e65be/6838921/2f9b7b37-63a0-428b-adb5-0294482fd743?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20250322%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20250322T063406Z&X-Amz-Expires=300&X-Amz-Signature=90c0d5d222406c94d5d5fccce0fd075509a2288c4b7aee36a25c4b61eb1ee260&X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dprometheus-2.47.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.108.133, 185.199.109.133, 185.199.110.133, ...
Connecting to objects.githubusercontent.com (objects.githubusercontent.com)|185.199.108.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 95713066 (91M) [application/octet-stream]
Saving to: 'prometheus-2.47.1.linux-amd64.tar.gz'

prometheus-2.47.1.linux-amd64.tar 100%[=====] 91.28M  2.41MB/s   in 33s

2025-03-22 06:34:39 (2.73 MB/s) - 'prometheus-2.47.1.linux-amd64.tar.gz' saved [95713066/95713066]

prometheus-2.47.1.linux-amd64/
```

```
-r, --system          create a system account
-R, --root CHROOT_DIR directory to chroot into
-P, --prefix PREFIX_DIR prefix directory where are located the /etc/* files
-s, --shell SHELL     login shell of the new account
-u, --uid UID         user ID of the new account
-U, --user-group      create a group with the same name as the user
-Z, --selinux-user SEUSER use a specific SEUSER for the SELinux user mapping
--extrausers         Use the extra users database

ananth@DESKTOP-LQBQG2D:~$ sudo useradd \
--system \
--no-create-home \
--shell /bin/false prometheus
ananth@DESKTOP-LQBQG2D:~$ sudo useradd --system --no-create-home --shell /bin/false prometheus
useradd: user 'prometheus' already exists
ananth@DESKTOP-LQBQG2D:~$ wget https://github.com/prometheus/prometheus/releases/download/v2.47.1/prometheus-2.47.1.linux-amd64.tar.gz
tar -xvf prometheus-2.47.1.linux-amd64.tar.gz
sudo mkdir -p /data /etc/prometheus
cd prometheus-2.47.1.linux-amd64/
sudo mv prometheus promtool /usr/local/bin/
sudo mv consoles/ console_libraries/ /etc/prometheus/
sudo mv prometheus.yml /etc/prometheus/prometheus.yml
sudo chown -R prometheus:prometheus /etc/prometheus/ /data/
--2025-03-22 06:34:06-- https://github.com/prometheus/prometheus/releases/download/v2.47.1/prometheus-2.47.1.linux-amd64.tar.gz
```

```
deployment.apps "my-deploy" deleted
ananth@DESKTOP-LQBQG2D:~$ sudo useradd --system --no-create-home --shell /bin/false promethe
us
useradd: Warning: missing or non-executable shell '/bin/false prometheus'
Usage: useradd [options] LOGIN
        useradd -D
        useradd -D [options]

Options:
        --badname          do not check for bad names
        -b, --base-dir BASE_DIR  base directory for the home directory of the
                                new account
        --btrfs-subvolume-home  use BTRFS subvolume for home directory
        -c, --comment COMMENT  GECOS field of the new account
        -d, --home-dir HOME_DIR  home directory of the new account
        -D, --defaults        print or change default useradd configuration
        -e, --expiredate EXPIRE_DATE  expiration date of the new account
        -f, --inactive INACTIVE  password inactivity period of the new account
        -F, --add-subids-for-system  add entries to sub[uid]id even when adding a system user
        -g, --gid GROUP        name or ID of the primary group of the new
                                account
        -G, --groups GROUPS    list of supplementary groups of the new
                                account
        -h, --help            display this help message and exit
        -k, --skel SKEL_DIR    use this alternative skeleton directory
        -K, --key KEY=VALUE    override /etc/login.defs defaults
```

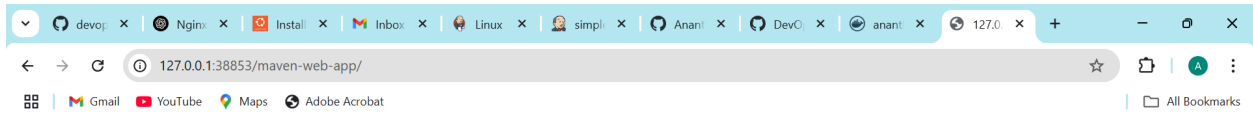
```
account
list of supplementary groups of the new
account
-h, --help            display this help message and exit
-k, --skel SKEL_DIR    use this alternative skeleton directory
-K, --key KEY=VALUE    override /etc/login.defs defaults
-l, --no-log-init      do not add the user to the lastlog and
                        faillog databases
-m, --create-home      create the user's home directory
-M, --no-create-home   do not create the user's home directory
-N, --no-user-group     do not create a group with the same name as
                        the user
-o, --non-unique        allow to create users with duplicate
                        (non-unique) UID
-p, --password PASSWORD  encrypted password of the new account
-r, --system           create a system account
-R, --root CHROOT_DIR   directory to chroot into
-P, --prefix PREFIX_DIR  prefix directory where are located the /etc/* files
-s, --shell SHELL       login shell of the new account
-u, --uid UID          user ID of the new account
-U, --user-group        create a group with the same name as the user
-Z, --selinux-user SEUSER  use a specific SEUSER for the SELinux user mapping
--extrausers           Use the extra users database

ananth@DESKTOP-LQBQG2D:~$ kubectl delete -all --all
error: unknown shorthand flag: 'a' in -all
```



```
ananth@DESKTOP-LQBQG2D: x + v
Opening service default/my-service in default browser...
👉 http://127.0.0.1:38853
! Because you are using a Docker driver on linux, the terminal needs to be open to run it.
^C 🖱️ Stopping tunnel for service my-service.
ananth@DESKTOP-LQBQG2D:~$ sudo useradd \
--system \
--no-create-home \
--shell /bin/false prometheus
[sudo] password for ananth:
useradd: Warning: missing or non-executable shell '/bin/false prometheus'
Usage: useradd [options] LOGIN
        useradd -D
        useradd -D [options]

Options:
--badname          do not check for bad names
-b, --base-dir BASE_DIR  base directory for the home directory of the
                        new account
--btrfs-subvolume-home  use BTRFS subvolume for home directory
-c, --comment COMMENT  GECOS field of the new account
-d, --home-dir HOME_DIR  home directory of the new account
-D, --defaults          print or change default useradd configuration
-e, --expiredate EXPIRE_DATE  expiration date of the new account
-f, --inactive INACTIVE  password inactivity period of the new account
-F, --add-subids-for-system  add entries to sub[uid]id even when adding a system user
-g, --gid GROUP          name or ID of the primary group of the new
```



**Hello World!**

