

The process automates the steps to:

1. **Build** a Java app using Maven.
2. **Create** a Docker image containing the app.
3. **Push** the image to a container registry (like DockerHub).
4. **Deploy** the image to a Kubernetes cluster.

Required Files

- **Dockerfile**: Defines how the Docker image is built.
- **deployment.yaml**: Kubernetes deployment configuration.
- **Jenkinsfile**: Automates the CI/CD pipeline.

Jenkins Pipeline Steps

Checkout Code → Clone the GitHub repository.

Build with Maven → Run `mvn clean package -DskipTests`.

Build Docker Image `docker build -t ekartimage -f docker/Dockerfile .`

Push Image to DockerHub → Authenticate and push using

```
>> docker login -u makanesha -p <token>

>> docker tag ekartimage makanesha/guvi:latest

>> docker push makanesha/guvi:latest
```

Deploy to Kubernetes Run

```
>> minikube start

>> kubectl create deployment ekartdep2 --image=
makanesha/guvi:latest --port=8070

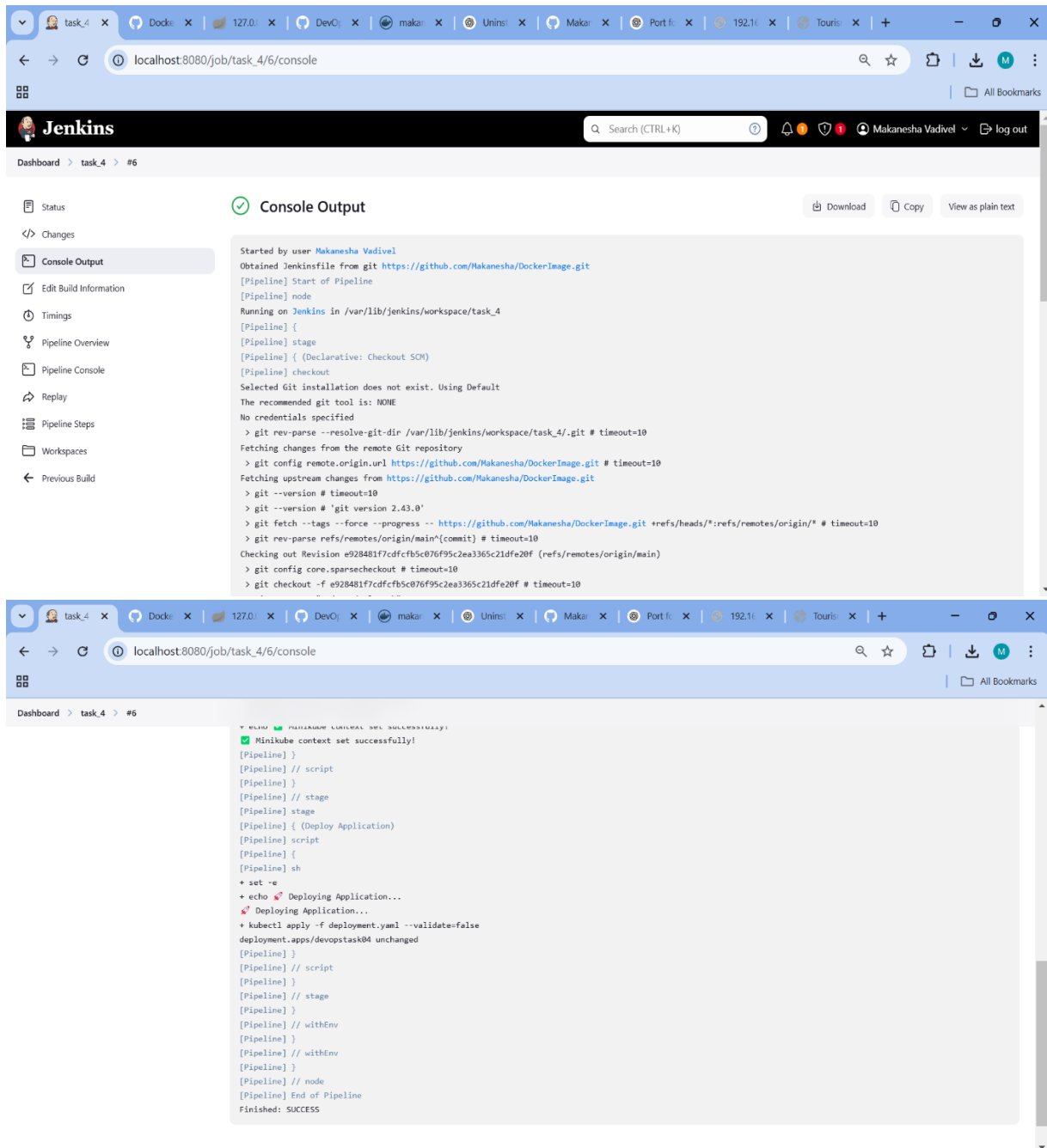
>> kubectl expose deployment ekartdep2 --type=NodePort --
port=8070

>> kubectl get pods
```

Get service details:

```
>>kubectl get svc my-java-app-service
```

i. Jenkins



The screenshot shows the Jenkins web interface in a browser. The address bar indicates the URL is `localhost:8080/job/task_4/6/console`. The Jenkins logo and search bar are at the top. The left sidebar contains navigation links: Status, Changes, Console Output (selected), Edit Build Information, Timings, Pipeline Overview, Pipeline Console, Replay, Pipeline Steps, Workspaces, and Previous Build. The main area displays the 'Console Output' for build #6 of task_4. The output text is as follows:

```
Started by user Makanesha Vadivel
Obtained Jenkinsfile from git https://github.com/Makanesha/DockerImage.git
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /var/lib/jenkins/workspace/task_4
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Declarative: Checkout SCM)
[Pipeline] checkout
Selected Git installation does not exist. Using Default
The recommended git tool is: NONE
No credentials specified
> git rev-parse --resolve-git-dir /var/lib/jenkins/workspace/task_4/.git # timeout=10
Fetching changes from the remote Git repository
> git config remote.origin.url https://github.com/Makanesha/DockerImage.git # timeout=10
Fetching upstream changes from https://github.com/Makanesha/DockerImage.git
> git --version # timeout=10
> git --version # 'git version 2.43.0'
> git fetch --tags --force --progress -- https://github.com/Makanesha/DockerImage.git +refs/heads/*:refs/remotes/origin/* # timeout=10
> git rev-parse refs/remotes/origin/main^{commit} # timeout=10
Checking out Revision e928481f7cdfcfb5c076f95c2ea3365c21dfe20f (refs/remotes/origin/main)
> git config core.sparsecheckout # timeout=10
> git checkout -f e928481f7cdfcfb5c076f95c2ea3365c21dfe20f # timeout=10

Mikukube context set successfully!
[Pipeline] }
[Pipeline] // script
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Deploy Application)
[Pipeline] script
[Pipeline] {
[Pipeline] sh
+ set -e
+ echo 🚀 Deploying Application...
🚀 Deploying Application...
+ kubectl apply -f deployment.yaml --validate=false
deployment.apps/devopstask04 unchanged
[Pipeline] }
[Pipeline] // script
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

```
root@LAPTOP-6I133M48 x + v
Enabled addons: default-storageclass, storage-provisioner
Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
jenkins@LAPTOP-6I133M48:/home/makanesha$ kubectl get start
error: the server doesn't have a resource type "start"
jenkins@LAPTOP-6I133M48:/home/makanesha$ kubectl get service
NAME          TYPE          CLUSTER-IP    EXTERNAL-IP    PORT(S)          AGE
edeploy       NodePort      10.101.204.32  <none>         80:31697/TCP     16h
edeploy1      NodePort      10.111.2.150   <none>         8070:31377/TCP   2m11s
kubernetes    ClusterIP     10.96.0.1      <none>         443/TCP          16h
jenkins@LAPTOP-6I133M48:/home/makanesha$ minikube service edeploy1
-----
| NAMESPACE | NAME   | TARGET PORT | URL               |
|-----|-----|-----|-----|
| default   | edeploy1 | 8070        | http://192.168.49.2:31377 |
|-----|-----|-----|-----|
Opening service default/edeploy1 in default browser...
http://192.168.49.2:31377
jenkins@LAPTOP-6I133M48:/home/makanesha$ kubectl port--forward svc/edeploy1 8070:8070
error: unknown command "port--forward" for "kubectl"

Did you mean this?
port-forward
jenkins@LAPTOP-6I133M48:/home/makanesha$ kubectl port-forward svc/edeploy1 8070:8070
Forwarding from 127.0.0.1:8070 -> 8070
Forwarding from [::1]:8070 -> 8070
Handling connection for 8070
Handling connection for 8070
Handling connection for 8070
Handling connection for 8070
```

ekart #11 Console [jenkins]

github.com

Shop

127.0.0.1:8070/login

Shop

Registration

Login

UserName

Password

Login

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