Day 5: DevOps

Create GitHub repo:

"**Add** and **commit** all files to the remote repository."

```
gokila@780697454512345:~/ecom/kubernetes$ cd ..
gokila@780697454512345:~/ecom$ git clone https://github.com/gokila0/terra.git
Cloning into 'terra'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (3/3), done.
gokila@780697454512345:~/ecom$ ls
kubernetes  terra
gokila@780697454512345:~/ecom$ cd kubernetes
gokila@780697454512345:~/ecom/kubernetes$ ls
README.md  backend  commands-to-execute  commands-to-stop-instances  frontend  k8s  minikube-linux-amd64  pre-requisites-command
gokila@780697454512345:~/ecom/kubernetes$ mv frontend backend k8s terra/
mv: target 'terra/': No such file or directory
gokila@780697454512345:~/ecom/kubernetes$ mv frontend backend k8s ~/ecom/kubernetes/terra/
mv: target '/home/gokila/ecom/kubernetes/terra/': No such file or directory
gokila@780697454512345:~/ecom/kubernetes$ mv frontend backend k8s ~/ecom/kubernetes/terra/
mv: target '/home/gokila/ecom/kubernetes/terra/': No such file or directory
gokila@780697454512345:~/ecom/kubernetes$ mkdir -p ~/ecom/kubernetes/ecom_v2
gokila@780697454512345:~/ecom/kubernetes$ mv frontend backend k8s ~/ecom/kubernetes/ecom_v2/
gokila@780697454512345:~/ecom/kubernetes$ ls
README.md  commands-to-execute  commands-to-stop-instances  ecom_v2  minikube-linux-amd64  pre-requisites-command
gokila@780697454512345:~/ecom/kubernetes$ cd ..
gokila@780697454512345:~/ecom$ ls
kubernetes  terra
```

Push local changes to the remote repository

```
gokila@780697454512345:~/ecom/ecom_v2/terra$ git push origin main
Username for 'https://github.com': ^C
gokila@780697454512345:~/ecom/ecom_v2/terra$ git push origin main
Username for 'https://github.com': gokila0
Password for 'https://gokila0@github.com':
gokila@780697454512345:~/ecom/ecom_v2/terra$ git pull origin main
remote: Enumerating objects: 17, done.
remote: Counting objects: 100% (17/17), done.
remote: Compressing objects: 100% (15/15), done.
remote: Total 16 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (16/16), 2.95 KiB | 188.00 KiB/s, done.
From https://github.com/gokila0/terra
 * branch            main       -> FETCH_HEAD
   1bdb367..9763bea  main       -> origin/main
Updating 1bdb367..9763bea
error: The following untracked working tree files would be overwritten by merge:
        backend/app.py
        backend/dockerfile
        backend/products.csv
        backend/requirements.txt
        frontend/dockerfile
        frontend/index.html
        k8s/allow-all.yaml
        k8s/backend-deployment.yaml
        k8s/configmap.yaml
        k8s/frontend-deployment.yaml
        k8s/service.yaml
Please move or remove them before you merge.
Aborting
```

Create a Jenkins config file **Jenkinsfile**

A **Jenkinsfile** is a script that defines a **Jenkins pipeline**. It outlines how Jenkins should build, test, and deploy your code. Instead of manually configuring Jenkins jobs through the web interface, you can store the entire pipeline as code in your repository

```
gokila@780697454512345:~/ecom/ecom_v2/terra$ nano Jenninsfile
gokila@780697454512345:~/ecom/ecom_v2/terra$ nano Jenkinsfile
gokila@780697454512345:~/ecom/ecom_v2/terra$ git pull origin main
remote: Enumerating objects: 4, done.
remote: Counting objects: 100% (4/4), done.
remote: Compressing objects: 100% (3/3), done.
Unpacking objects: 100% (3/3), 1.66 KiB | 568.00 KiB/s, done.
remote: Total 3 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
From https://github.com/gokila0/terra
 * branch            main       -> FETCH_HEAD
   9763bea..dfca965  main       -> origin/main
Updating 1bdb367..dfca965
error: The following untracked working tree files would be overwritten by merge:
        Jenkinsfile
        backend/app.py
        backend/dockerfile
        backend/products.csv
        backend/requirements.txt
        frontend/dockerfile
        frontend/index.html
        k8s/allow-all.yaml
        k8s/backend-deployment.yaml
        k8s/configmap.yaml
        k8s/frontend-deployment.yaml
        k8s/service.yaml
Please move or remove them before you merge.
Aborting
```

Enable and **Start** the Jenkins

```
gokila@780697454512345:~/ecom/ecom_v2/terra$ git status
On branch main
Your branch is behind 'origin/main' by 2 commits, and can be fast-forwarded.
  (use "git pull" to update your local branch)

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        Jenkinsfile
        backend/
        frontend/
        k8s/
```

Vist the Jenkins in Port 8080

Jenkins Pipe Line

Create a Jenkins Pipeline

Push the Jenkins file to the Remote Repo

Install **Kubernetes plugin** in Jenkins

Plugins

- Updates
- Available plugins
- **Installed plugins**
- Advanced settings

Q   kubernetes plugin

Name ↓		Enabled	
Kubernetes Client API Plugin 6.10.0-251.v556f5f100500 Kubernetes Client API plugin for use by other Jenkins plugins. Report an issue with this plugin		✓	⊗
Kubernetes Credentials Plugin 192.v4d5b_1c429d17 Common classes for Kubernetes credentials Report an issue with this plugin		✓	⊗
Kubernetes plugin 4324.vfec199a_33512 This plugin integrates Jenkins with Kubernetes Report an issue with this plugin		✓	⊗

Build the Jenkins

🧱 Jenkins

Q   🛡①   👤 jabastin ˅   log out

Plugins

- Updates
- Available plugins
- Installed plugins
- Advanced settings
- **Download progress**

Download progress

Preparation

- Checking internet connectivity
- Checking update center connectivity
- Success

Kubernetes Client API	✓ Success
Authentication Tokens API	✓ Success
Kubernetes Credentials	✓ Success
Kubernetes	✓ Success
Loading plugin extensions	✓ Success

→ Go back to the top page
   (you can start using the installed plugins right away)

→ ☐ Restart Jenkins when installation is complete and no jobs are running

REST API   Jenkins 2.492.2

✓ **day5**   ✏ Add description

- Status
- Changes
- Build Now
- Configure
- Delete Pipeline
- Stages
- Rename
- Pipeline Syntax

Permalinks

- Last build (#4), 3 hr 54 min ago
- Last stable build (#4), 3 hr 54 min ago
- Last successful build (#4), 3 hr 54 min ago
- Last failed build (#3), 3 hr 58 min ago
- Last unsuccessful build (#3), 3 hr 58 min ago
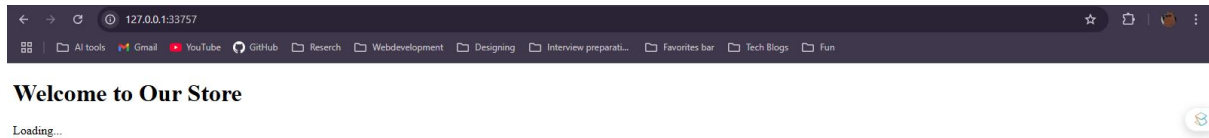- Last completed build (#4), 3 hr 54 min ago

Builds   ⋯ ⤢

Q   Filter   /

Today

✓ #4 4:45 am   ˅

Build successful

Q   kubernetes plugin

To test Frontend

```
student@mcacc1-6:~/kubernetes/k8s$ minikube service frontend-service --url
http://127.0.0.1:37341
! Because you are using a Docker driver on linux, the terminal needs to be open to run it.
```

```
←  →  C  ⓘ 127.0.0.1:33757                                                              ☆  🗗 | 🔖 | ⋮
88  |  🗀 AI tools   M Gmail   ▶ YouTube   🐙 GitHub   🗀 Reserch   🗀 Webdevelopment   🗀 Designing   🗀 Interview preparati...   🗀 Favorites bar   🗀 Tech Blogs   🗀 Fun
```

Welcome to Our Store

Loading...

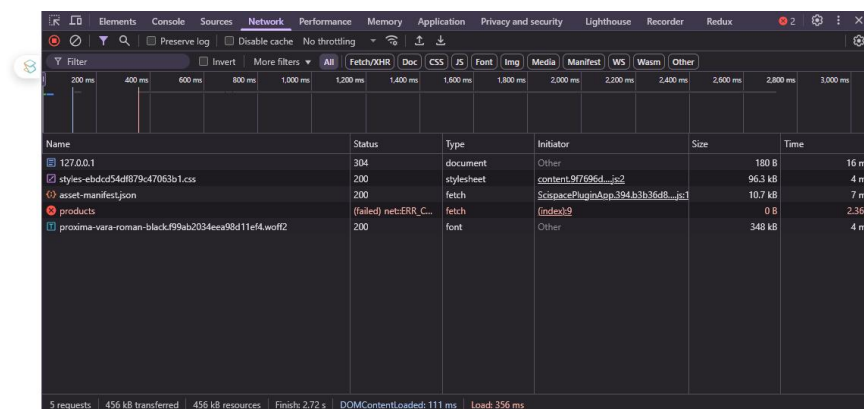## To Test backend

```
gokila@780697454512345:~/kumar/frontend$ docker images | grep frontend
frontend                           latest      18f800c27e75   27 seconds ago   47.9MB
gokila@780697454512345:~/kumar/frontend$ minikube image load frontend:latest
gokila@780697454512345:~/kumar/frontend$ cd ..
gokila@780697454512345:~/kumar$ kubectl apply -f k8s/backend-deployment.yaml
deployment.apps/backend unchanged
gokila@780697454512345:~/kumar$ kubectl apply -f k8s/frontend-deployment.yaml
deployment.apps/frontend unchanged
gokila@780697454512345:~/kumar$ kubectl apply -f k8s/service.yaml
service/frontend-service unchanged
gokila@780697454512345:~/kumar$ kubectl apply -f k8s/configmap.yaml
configmap/backend-config unchanged
gokila@780697454512345:~/kumar$ kubectl get pods
NAME                       READY   STATUS             RESTARTS   AGE
backend-57cc6744ff-7bw2n   0/1     ImagePullBackOff   0          43m
frontend-689df7744b-5gvl5  0/1     ImagePullBackOff   0          43m
gokila@780697454512345:~/kumar$ cd
gokila@780697454512345:~$ rm -rf kumar
gokila@780697454512345:~$ ls
```

Welcome to Our Store

Loading...

Name	Status	Type	Initiator	Size	Time
127.0.0.1	304	document	Other	180 B	16 m
styles-ebdcd54df879c47063b1.css	200	stylesheet	content.9f7696d...js2	96.3 kB	4 m
asset-manifest.json	200	fetch	ScispacePluginApp.394.b3b36d8...js:1	10.7 kB	7 m
products	(failed) net::ERR_C...	fetch	(index):9	0 B	2.36
proxima-vara-roman-black.f99ab2034eea98d11ef4.woff2	200	font	Other	348 kB	4 m

5 requests | 456 kB transferred | 456 kB resources | Finish: 2.72 s | DOMContentLoaded: 111 ms | Load: 356 ms

Note: We expect this kind of output because we are running this frontend on localhost.