

Day 5: DevOps

Create GitHub repo:

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

```
sachin@LAPTOP-KCFSQJ17: ~$ cd ..
sachin@LAPTOP-KCFSQJ17: ~$ ls
Devops_day2  Terraform  application  docker-python  minikube-linux-amd64  snap
sachin@LAPTOP-KCFSQJ17: ~$ cd Terraform
sachin@LAPTOP-KCFSQJ17: ~/Terraform$ git init
Reinitialized existing Git repository in /home/sachin/Terraform/.git/
sachin@LAPTOP-KCFSQJ17: ~/Terraform$ git add .
sachin@LAPTOP-KCFSQJ17: ~/Terraform$ git commit -m "Second commit"
[main d0c5e1c] Second commit
13 files changed, 177 insertions(+)
create mode 100644 README.md
create mode 100644 backend/app.py
create mode 100644 backend/dockerfile
create mode 100644 backend/products.csv
create mode 100644 backend/requirements.txt
create mode 100644 commands-to-stop-instances
create mode 100644 frontend/dockerfile
create mode 100644 frontend/index.html
create mode 100644 k8s/allow-all.yaml
create mode 100644 k8s/backend-deployment.yaml
create mode 100644 k8s/configmap.yaml
create mode 100644 k8s/frontend-deployment.yaml
create mode 100644 k8s/service.yaml
sachin@LAPTOP-KCFSQJ17: ~/Terraform$ git push origin main
Username for 'https://github.com': SachinOct07
Password for 'https://SachinOct07@github.com':
Enumerating objects: 19, done.
Counting objects: 100% (19/19), done.
Delta compression using up to 16 threads
Compressing objects: 100% (16/16), done.
Writing objects: 100% (18/18), 2.75 KiB | 469.00 KiB/s, done.
Total 18 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), done.
To https://github.com/SachinOct07/Terraform
2c23d6e..d0c5e1c  main -> main
sachin@LAPTOP-KCFSQJ17: ~/Terraform$ cd ..
sachin@LAPTOP-KCFSQJ17: ~$ ls
Devops_day2  Terraform  application  docker-python  minikube-linux-amd64  snap
sachin@LAPTOP-KCFSQJ17: ~$ sudo apt update
[sudo] password for sachin:
```

Push local changes to the remote repository

```
student@mcacci-0: ~/kubernetes-days/day5$ git push origin main
Username for 'https://github.com': iamJABASTIN
Password for 'https://iamJABASTIN@github.com':
Enumerating objects: 18, done.
Counting objects: 100% (18/18), done.
Delta compression using up to 16 threads
Compressing objects: 100% (16/16), done.
Writing objects: 100% (18/18), 2.71 KiB | 2.71 MiB/s, done.
Total 18 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), done.
To https://github.com/iamJABASTIN/DevOps-day-5.git
* [new branch]  main -> main
```

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

```

student@maccl-6:~/kubernetes-days/day5$ nano Jenkinsfile
student@maccl-6:~/kubernetes-days/day5$ cat Jenkinsfile
pipeline {
  agent any
  environment {
    DOCKER_IMAGE = "ianjabastin/docker-app:latest" // Change this to your registry
    CONTAINER_NAME = "docker-running-app"
    REGISTRY_CREDENTIALS = "docker-hub-jabastin" // Jenkins credentials ID
  }

  stages {
    stage('Checkout Code') {
      steps {
        withCredentials([usernamePassword(credentialsId: 'github-jabastin', usernameVariable: 'GIT_USER', passwordVariable: 'GIT_TOKEN')]) {
          git url: "https://$GIT_USER:$GIT_TOKEN@github.com/ianJABASTIN/DevOps-day-5.git", branch: 'main'
        }
      }
    }

    stage('Build Docker Image') {
      steps {

```

Enable and Start the Jenkins

```

student@maccl-6:~/kubernetes-day5/day5$ sudo systemctl enable jenkins
[sudo] password for student:
Synchronizing state of jenkins.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable jenkins
student@maccl-6:~/kubernetes-day5/day5$ sudo systemctl start jenkins
student@maccl-6:~/kubernetes-day5/day5$ |

```

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

Dashboard > Manage Jenkins > Plugins

Plugins

Search: 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	<input checked="" type="checkbox"/> <input type="checkbox"/>
Kubernetes Credentials Plugin 192.v4d5b_1c429d17 Common classes for Kubernetes credentials Report an issue with this plugin	<input checked="" type="checkbox"/> <input type="checkbox"/>
Kubernetes plugin 4324.vfec199a_33512 This plugin integrates Jenkins with Kubernetes Report an issue with this plugin	<input checked="" type="checkbox"/> <input type="checkbox"/>

Build the Jenkins

Dashboard > Manage Jenkins > Plugins

Plugins

Updates

Available plugins

Installed plugins

Advanced settings

Download progress

Download progress

Preparation

- Checking internet connectivity
- Checking update center connectivity
- Success

Kubernetes Client API

Authentication Tokens API

Kubernetes Credentials

Kubernetes

Loading plugin extensions

Success

Success

Success

Success

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

Dashboard > day5

Status

Changes

Build Now

Configure

Delete Pipeline

Stages

Rename

Pipeline Syntax

day5

Add description

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

Buids

Filter

Today

#4

4:45 am

Build successful

To test Frontend

```
student@kace1-6:~/kubernetes/k8s$ minikube service frontend-service --url
http://127.0.0.1:373757
! Because you are using a Docker driver on linux, the terminal needs to be open to run it.
```

127.0.0.1:373757

AI tools Gmail YouTube GitHub Research Webdevelopment Designing Interview preparati... Favorites bar Tech Blogs Fun

Welcome to Our Store

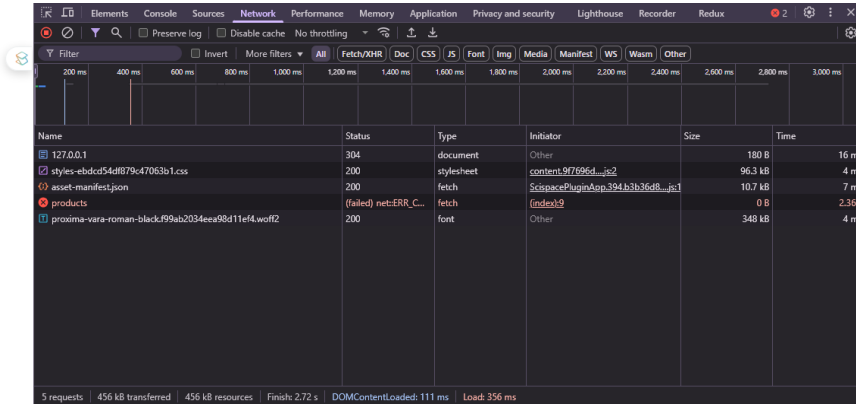
Loading...

To Test backend

```
student@ec2-54: ~$ kubectl run test-pod --image=alpine --restart=Never -it -- sh
If you don't see a command prompt, try pressing enter.
/ # kubectl get pod test-pod
sh: kubectl: not found
/ # kubectl exec -it test-pod -- sh
sh: kubectl: not found
/ # apk add curl
fetch https://dl-cdn.alpinelinux.org/alpine/v3.21/main/x86_64/APKINDEX.tar.gz
fetch https://dl-cdn.alpinelinux.org/alpine/v3.21/community/x86_64/APKINDEX.tar.gz
(1/9) Installing brotli-libs (1.1.0-r2)
(2/9) Installing c-ares (1.34.3-r0)
(3/9) Installing libunistring (1.2-r0)
(4/9) Installing libidn2 (2.3.7-r0)
(5/9) Installing nghttp2-libs (1.64.0-r0)
(6/9) Installing libpsl (0.21.5-r3)
(7/9) Installing zstd-libs (1.5.6-r2)
(8/9) Installing libcurl (8.12.1-r1)
(9/9) Installing curl (8.12.1-r1)
Executing busybox-1.37.0-r12.trigger
OK: 12 MiB in 24 packages
/ # curl http://backend-service:5000/products
{"id":{"0":1,"1":2,"2":3,"3":4,"4":5},"name":{"0":"pen","1":"book","2":"laptop","3":"shirt","4":"pants"},"price":{"0":20,"1":400,"2":50000,"3":500,"4":750},"qty":{"0":100,"1":50,"2":5,"3":50,"4":50}}/ #
```

Welcome to Our Store

Loading...



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

— COMPLETED —