

Day 5: DevOps

Create GitHub repo:

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

```
student@mcaccl-6:~/kubernetes-days5/day5$ git init
hint: Using 'master' as the name for the initial branch. This default branch name
hint: is subject to change. To configure the initial branch name to use in all
hint: of your new repositories, which will suppress this warning, call:
hint:
hint:   git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this command:
hint:
hint:   git branch -m <name>
Initialized empty Git repository in /home/student/kubernetes-days5/day5/.git/
student@mcaccl-6:~/kubernetes-days5/day5$ git branch -M main
student@mcaccl-6:~/kubernetes-days5/day5$ git add .
student@mcaccl-6:~/kubernetes-days5/day5$ git commit "Initial commit"
error: pathspec 'Initial commit' did not match any file(s) known to git
student@mcaccl-6:~/kubernetes-days5/day5$ git commit -m "Initial commit"
[main (root-commit) 262f6c0] Initial 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
student@mcaccl-6:~/kubernetes-days5/day5$ git remote add origin https://github.com/ianJABASTIN/DevOps-day-5.git
```

Push local changes to the remote repository

```
student@mcaccl-6:~/kubernetes-days5/day5$ git push origin main
Username for 'https://github.com': ianJABASTIN
Password for 'https://ianJABASTIN@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/ianJABASTIN/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@mcaccl-6:~/kubernetes-days5/day5$ nano Jenkinsfile
student@mcaccl-6:~/kubernetes-days5/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@cac1-6:~/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@cac1-6:~/kubernetes-day5/day5$ sudo systemctl start jenkins
student@cac1-6:~/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

Updates

Available plugins

Installed plugins

Advanced settings

Q kubernetes plugin

Name	Enabled
Kubernetes Client API Plugin 6.10.0-251.v55605f100500 Kubernetes Client API plugin for use by other Jenkins plugins. Report an issue with this plugin	<div><div></div></div>
Kubernetes Credentials Plugin 192.v4d5b_1c429d17 Common classes for Kubernetes credentials Report an issue with this plugin	<div><div></div></div>
Kubernetes plugin 4324.vfec199a_33512 This plugin integrates Jenkins with Kubernetes Report an issue with this plugin	<div><div></div></div>

Build the Jenkins

Jenkins

🔍

🛡️

👤 jabastin

🚪 log out

Dashboard

>

Manage Jenkins

>

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

Dashboard

>

day5

📄 Status

</> Changes

▶ Build Now

⚙️ Configure

🗑️ Delete Pipeline

📋 Stages

✎ Rename

❓ Pipeline Syntax

BUILDS

Filter

Today

✔ #4 4:45 am

✔ 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](#)

Build successful

To test Frontend

```
student@ecacc1-6:~/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.
```

127.0.0.1:373757

☆

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⋮

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

Welcome to Our Store

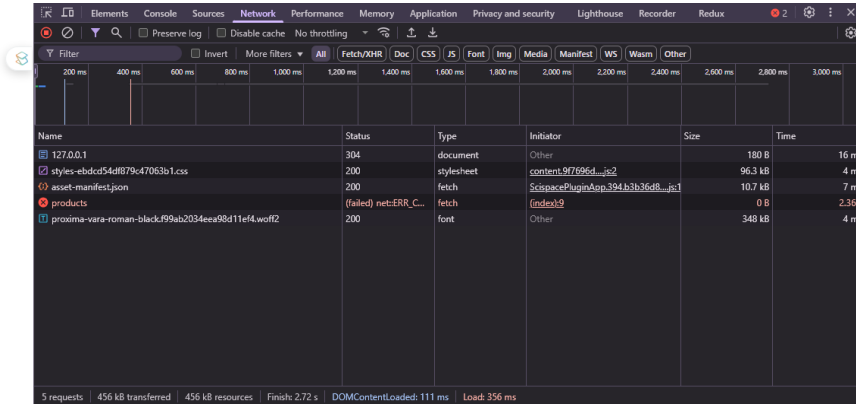
Loading...

To Test backend

```
student@maccl1-6:~/kubernetes/k8s$ 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":5000,"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 —