Day 5: DevOps

Create GitHub repo:

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

```
student@mcacc1-6:~/kubernetes-day5/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-day5/day5/.git/
student@mcacc1-6:~/kubernetes-day5/day5$ git branch -M main
student@mcacc1-6:~/kubernetes-day5/day5$ git add .
student@mcacc1-6:~/kubernetes-day5/day5$ git commit "Initial commit"
error: pathspec 'Initial commit' did not match any file(s) known to git
student@mcacc1-6:~/kubernetes-day5/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@mcacc1-6:~/kubernetes-day5/day5$ git remote add origin https://github.com/iamJABASTIN/DevOps-day-5.git
```

Push local changes to the remote repository

```
student@mcacc1-6:~/kubernetes-day5/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@mcacc1-6:~/kubernetes-day5/day5$ nano Jenkinsfile
student@mcacc1-6:~/kubernetes-day5/day5$ cat Jenkinsfile
pipeline {
    agent any
    environment {
        DOCKER_IMAGE = "iamjabastin/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/iamJABASTIN/DevOps-day-5.git", branch: 'main'
                }
            }
        }

        stage('Build Docker Image') {
            steps {
```

Enable and **Start** the Jenkins

```
student@mcacc1-6:~/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@mcacc1-6:~/kubernetes-day5/day5$ sudo systemctl start jenkins
student@mcacc1-6:~/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

Build the 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

- 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

Builds   ⋯ ⌞⌝

🔍 Filter   /

Today

✓ #4 4:45 am   ⌄

Build successful

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   ☆ ⬚ | 🔖 ⋮

⊞ | 📁 AI tools M Gmail ▶ YouTube GitHub 📁 Reserch 📁 Webdevelopment 📁 Designing 📁 Interview preparati... 📁 Favorites bar 📁 Tech Blogs 📁 Fun

Welcome to Our Store

Loading...

To Test backend

```
student@mcacc1-6:~/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":50000,"3":500,"4":750},"qty":{"0":100,"1"
:50,"2":5,"3":50,"4":50}}/ # 
```

Welcome to Our Store

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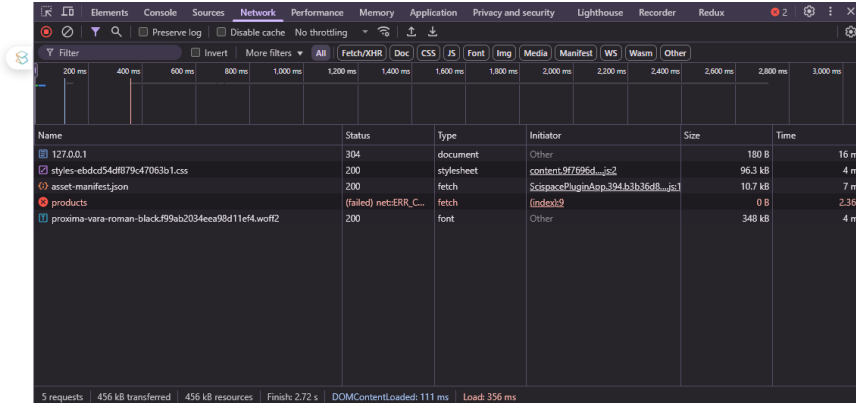
Note: We expect this kind of output because we are running this frontend on localhost.

— COMPLETED —