

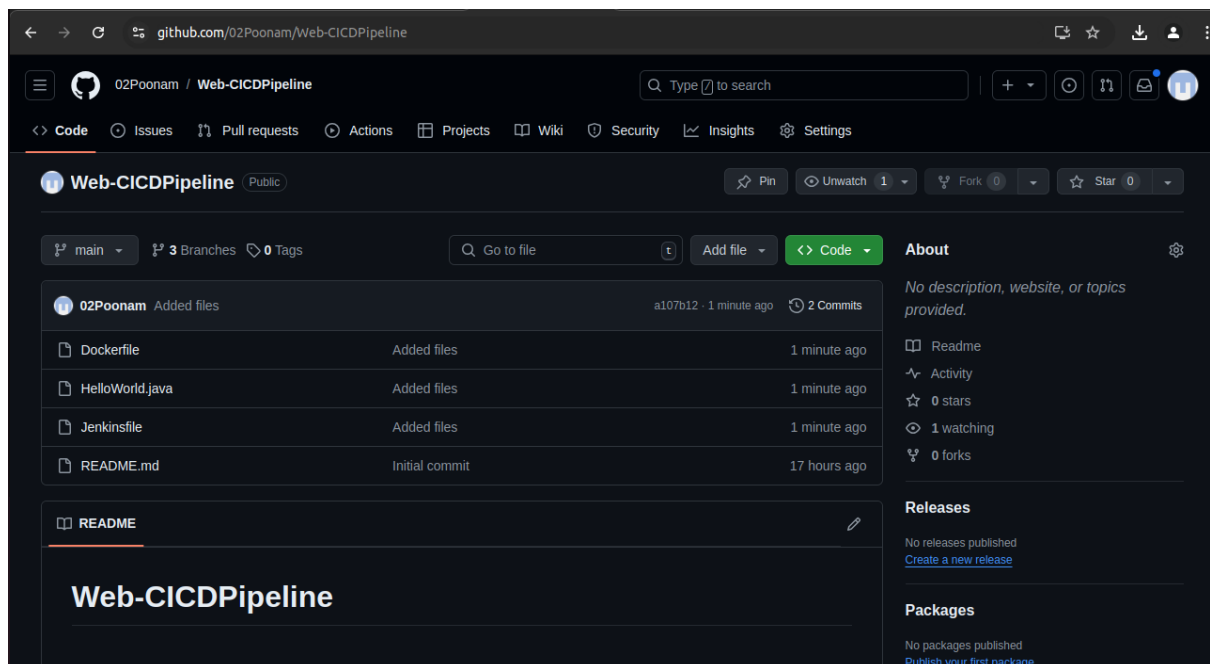
## Project Problem Statement

A development team needs to establish a basic CI/CD pipeline for a web application. The goal is to automate version control, containerization, building, testing, and deployment processes.

## Deliverables

1. **Git Repository:**
  - **Create a Git repository:** Initialize a new repository for the web application.
  - **Branching Strategy:**
    - Set up `main` and `develop` branches.
    - Create a feature branch for a new feature or bug fix.
  - **Add Configuration Files:**
    - Create a `.gitignore` file to exclude files like logs, temporary files, etc.
    - Create a `README.md` file with a project description, setup instructions, and contribution guidelines.

```
einfochips@AHMLPT2484: ~/Day15/Web-CICDPipeline
einfochips@AHMLPT2484:~/Day15/Web-CICDPipeline$ git branch
  develop
  feature
* main
einfochips@AHMLPT2484:~/Day15/Web-CICDPipeline$ git add Jenkinsfile Dockerfile HelloWorld.java
einfochips@AHMLPT2484:~/Day15/Web-CICDPipeline$ git commit -m "Added files"
[main a107b12] Added files
 3 files changed, 76 insertions(+)
 create mode 100644 Dockerfile
 create mode 100644 HelloWorld.java
 create mode 100644 Jenkinsfile
einfochips@AHMLPT2484:~/Day15/Web-CICDPipeline$ git push origin main
Username for 'https://github.com': ghp_7JTUJbGob65bJQ9mcmfjxcyNM4pAzu46U63j
Password for 'https://ghp_7JTUJbGob65bJQ9mcmfjxcyNM4pAzu46U63j@github.com':
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 8 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (5/5), 1.09 KiB | 558.00 KiB/s, done.
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/02Poonam/Web-CICDPipeline.git
 51ba62a..a107b12  main -> main
einfochips@AHMLPT2484:~/Day15/Web-CICDPipeline$
```

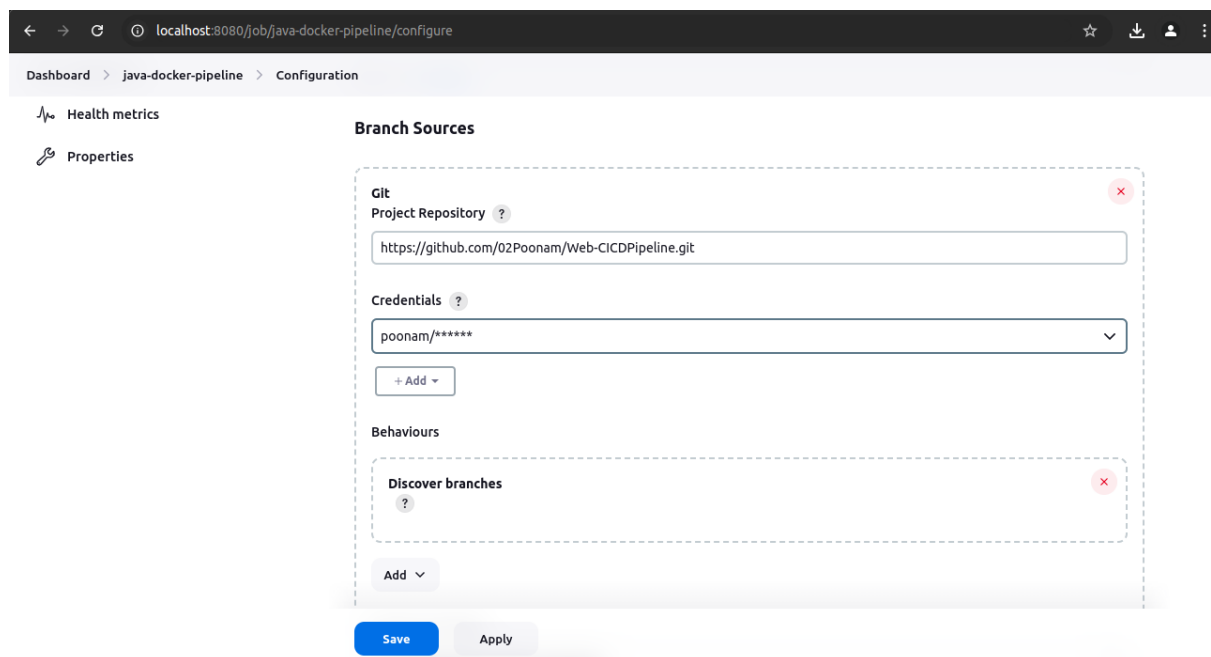


## 2. Docker Configuration:

- **Dockerfile:**
  - Write a **Dockerfile** to define how to build the Docker image for the web application.
- **Docker Ignore File:**
  - Create a **.dockerignore** file to exclude files and directories from the Docker build context.
- **Image Management:**
  - Build a Docker image using the **Dockerfile**.
  - Push the built Docker image to a container registry (e.g., Docker Hub).

## 3. Jenkins Configuration:

- **Jenkins Job Setup:**
  - Create a Jenkins job to pull code from the Git repository.
  - Configure Jenkins to build the Docker image using the **Dockerfile**.
  - Set up Jenkins to run tests on the Docker image.
  - Configure Jenkins to push the Docker image to the container registry after a successful build.
- **Jenkins Pipeline:**
  - Create a **Jenkinsfile** to define the CI/CD pipeline stages, including build, test, and deploy.



← → ↻ ⓘ localhost:8080/job/java-docker-pipeline/configure ☆ ⬇ 👤 ⋮

Dashboard > java-docker-pipeline > Configuration

### Properties

Docker Label ?

Docker registry URL ?

Registry credentials

+ Add ▾

### Pipeline Libraries

Sharable libraries available to any Pipeline jobs inside this folder. These libraries will be untrusted, meaning their code runs in the Groovy sandbox.

Add

Save Apply

← → ↻ ⓘ localhost:8080/job/java-docker-pipeline/job/main/1/console ☆ 👤 ⋮

**Jenkins** 🔍 Search (CTRL+K) ⓘ 🔒 2 👤 Poonam Mahesh Bhavsar ▾ 🚪 log out

Dashboard > java-docker-multibranch-pipeline > main > #1

📄 Status

</> Changes

📄 Console Output

📄 View as plain text

📄 Edit Build Information

🗑 Delete build '#1'

🕒 Timings

🔍 Git Build Data

🔗 Pipeline Overview

📄 Pipeline Console

🔄 Restart from Stage

🔄 Replay

✅ **Console Output**

```

Branch indexing
> git rev-parse --resolve-git-dir /var/lib/jenkins/caches/git-1688e1bd7652762d0de3a1398574697a/.git #
timeout=10
Setting origin to https://github.com/02Poonam/Web-CICDPipeline.git
> git config remote.origin.url https://github.com/02Poonam/Web-CICDPipeline.git # timeout=10
Fetching origin...
Fetching upstream changes from origin
> git --version # timeout=10
> git --version # 'git version 2.34.1'
> git config --get remote.origin.url # timeout=10
using GIT_ASKPASS to set credentials
> git fetch --tags --force --progress -- origin +refs/heads/*:refs/remotes/origin/* # timeout=10
Seen branch in repository origin/develop
Seen branch in repository origin/feature
Seen branch in repository origin/main
Seen 3 remote branches
Obtained Jenkinsfile from 06b4297ba1e21c281a90cca707432d69d7a2308c
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /var/lib/jenkins/workspace/java-docker-pipeline_main

```

## Ansible Playbook:

- **Basic Playbook Creation:**
  - Develop an Ansible playbook to automate the deployment of the Docker container.
- **Playbook Tasks:**
  - Install Docker on the target server (if Docker is not already installed).
  - Pull the Docker image from the container registry.
  - Run the Docker container with the required configurations.
- **Inventory File:**

- Create an **inventory** file specifying the target server(s) for deployment.