ASSIGNMENT 2

CI/CD Pipeline Setup Using Jenkins

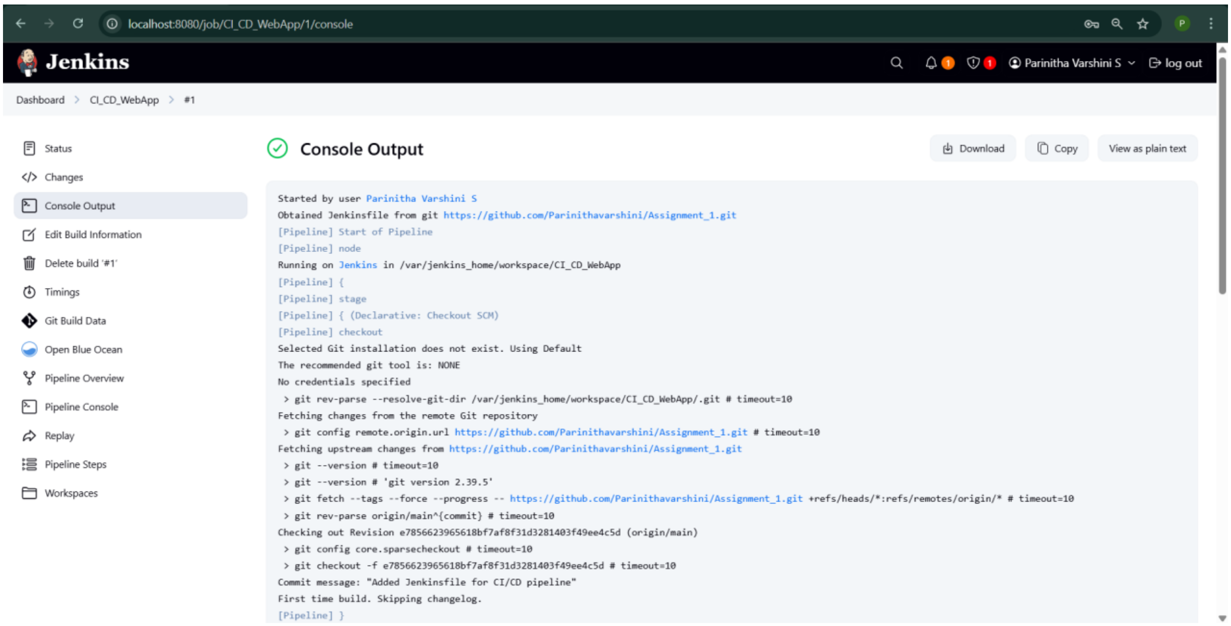
Task Description:

This task involves setting up a Continuous Integration and Continuous Deployment (CI/CD) pipeline using Jenkins to automate the build, test, and push process of a containerized web application. The pipeline integrates GitHub for source code management, Docker for containerization, and a container registry (such as Docker Hub) for storing the container image.

Steps to Set Up the CI/CD Pipeline:

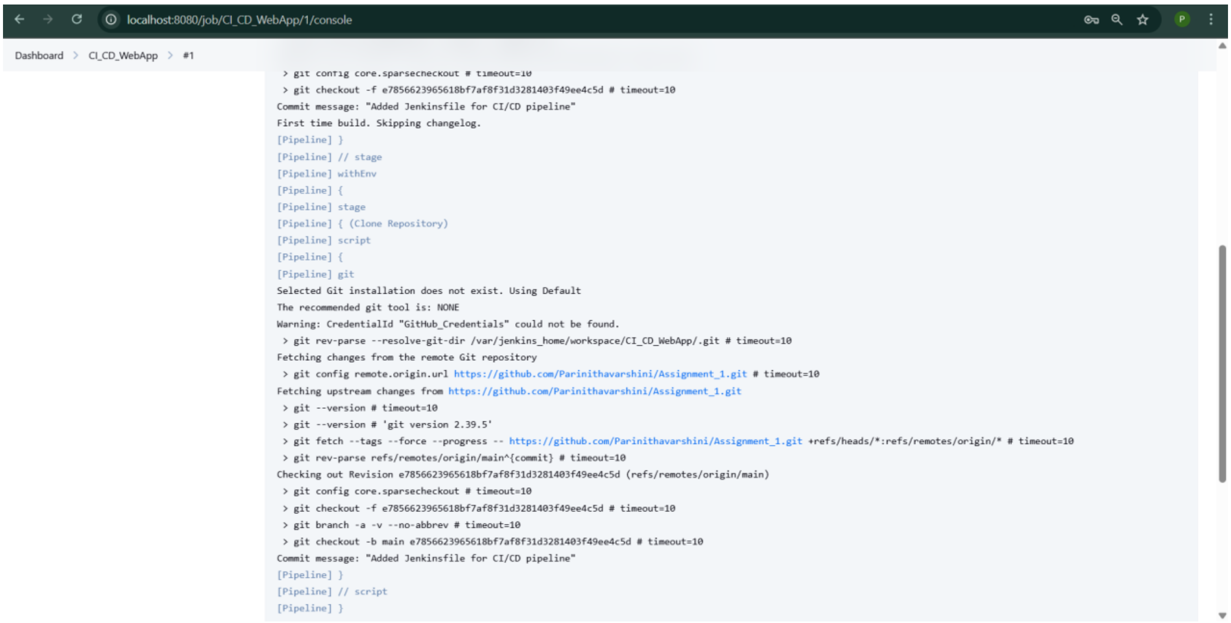
1. **Install Jenkins:**
    - Ensure Jenkins is running and install necessary plugins (Git, Docker).
2. **Create a New Pipeline Job:**
    - Create a new Pipeline job in Jenkins to automate the build, test, and deployment process.
3. **Configure the GitHub Repository:**
    - Link your GitHub repository to Jenkins to automatically pull the latest code.
4. **Write the Pipeline Script (Jenkinsfile):**
    - Define stages in the Jenkinsfile:
        - **Clone Repository**: Pull the latest code from GitHub.
        - **Build Docker Image**: Build the image using Docker.
        - **Push Docker Image**: Push the image to a container registry (e.g., Docker Hub).
5. **Add Docker Credentials (if needed):**
    - Add Docker credentials to Jenkins if using a private registry for authentication.
6. **Trigger the Pipeline:**
    - Trigger the pipeline manually or set up GitHub webhooks for automatic triggers on code changes.

OUTPUT:

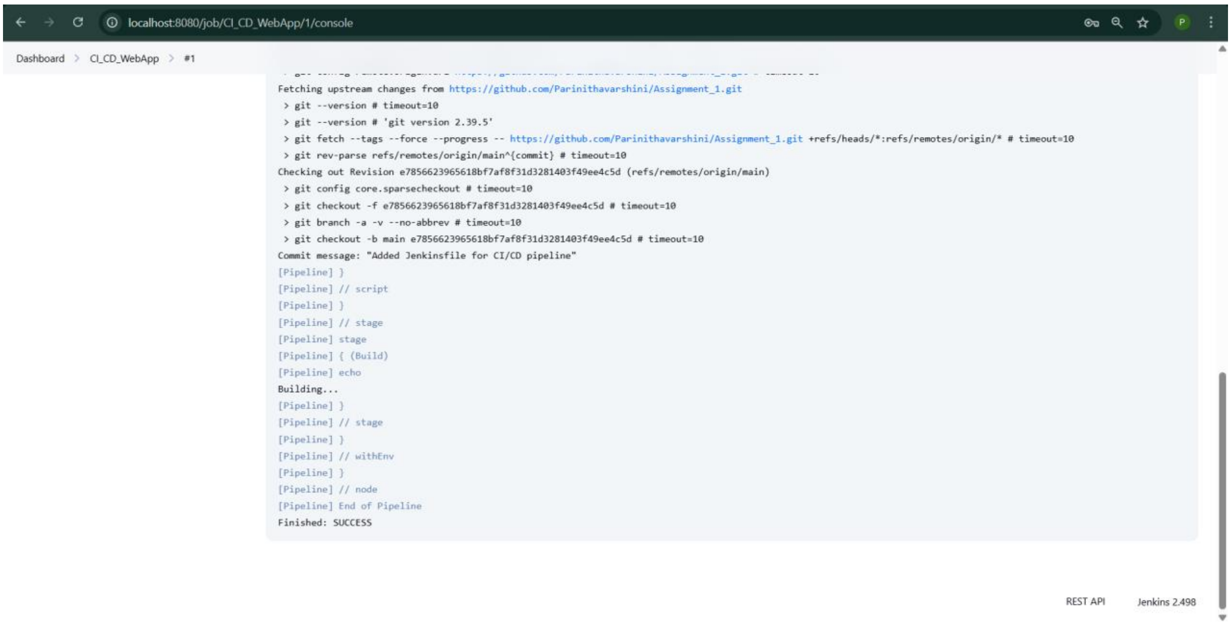


Console Output

```
Started by user Parinitha Varshini S
Obtained Jenkinsfile from git https://github.com/Parinithavarshini/Assignment_1.git
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /var/jenkins_home/workspace/CI_CD_WebApp
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Declarative: Checkout SCM)
[Pipeline] checkout
Selected Git installation does not exist. Using Default
The recommended git tool is: NONE
No credentials specified
 > git rev-parse --resolve-git-dir /var/jenkins_home/workspace/CI_CD_WebApp/.git # timeout=10
Fetching changes from the remote Git repository
 > git config remote.origin.url https://github.com/Parinithavarshini/Assignment_1.git # timeout=10
Fetching upstream changes from https://github.com/Parinithavarshini/Assignment_1.git
 > git --version # timeout=10
 > git --version # 'git version 2.39.5'
 > git fetch --tags --force --progress -- https://github.com/Parinithavarshini/Assignment_1.git +refs/heads/*:refs/remotes/origin/* # timeout=10
 > git rev-parse origin/main^{commit} # timeout=10
Checking out Revision e7856623965618bf7af8f31d3281403f49ee4c5d (origin/main)
 > git config core.sparsecheckout # timeout=10
 > git checkout -f e7856623965618bf7af8f31d3281403f49ee4c5d # timeout=10
Commit message: "Added Jenkinsfile for CI/CD pipeline"
First time build. Skipping changelog.
[Pipeline] }
```


localhost:8080/job/CI_CD_WebApp/1/console
Dashboard > CI_CD_WebApp > #1

```
 > git config core.sparsecheckout # timeout=10
 > git checkout -f e7856623965618bf7af8f31d3281403f49ee4c5d # timeout=10
Commit message: "Added Jenkinsfile for CI/CD pipeline"
First time build. Skipping changelog.
[Pipeline] }
[Pipeline] // stage
[Pipeline] withEnv
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Clone Repository)
[Pipeline] script
[Pipeline] {
[Pipeline] git
Selected Git installation does not exist. Using Default
The recommended git tool is: NONE
Warning: CredentialId "GitHub_Credentials" could not be found.
 > git rev-parse --resolve-git-dir /var/jenkins_home/workspace/CI_CD_WebApp/.git # timeout=10
Fetching changes from the remote Git repository
 > git config remote.origin.url https://github.com/Parinithavarshini/Assignment_1.git # timeout=10
Fetching upstream changes from https://github.com/Parinithavarshini/Assignment_1.git
 > git --version # timeout=10
 > git --version # 'git version 2.39.5'
 > git fetch --tags --force --progress -- https://github.com/Parinithavarshini/Assignment_1.git +refs/heads/*:refs/remotes/origin/* # timeout=10
 > git rev-parse refs/remotes/origin/main^{commit} # timeout=10
Checking out Revision e7856623965618bf7af8f31d3281403f49ee4c5d (refs/remotes/origin/main)
 > git config core.sparsecheckout # timeout=10
 > git checkout -f e7856623965618bf7af8f31d3281403f49ee4c5d # timeout=10
 > git branch -a -v --no-abbrev # timeout=10
 > git checkout -b main e7856623965618bf7af8f31d3281403f49ee4c5d # timeout=10
Commit message: "Added Jenkinsfile for CI/CD pipeline"
[Pipeline] }
[Pipeline] // script
[Pipeline] }
```


localhost:8080/job/CI_CD_WebApp/1/console
Dashboard > CI_CD_WebApp > #1

```
Fetching upstream changes from https://github.com/Parinithavarshini/Assignment_1.git
 > git --version # timeout=10
 > git --version # 'git version 2.39.5'
 > git fetch --tags --force --progress -- https://github.com/Parinithavarshini/Assignment_1.git +refs/heads/*:refs/remotes/origin/* # timeout=10
 > git rev-parse refs/remotes/origin/main^{commit} # timeout=10
Checking out Revision e7856623965618bf7af8f31d3281403f49ee4c5d (refs/remotes/origin/main)
 > git config core.sparsecheckout # timeout=10
 > git checkout -f e7856623965618bf7af8f31d3281403f49ee4c5d # timeout=10
 > git branch -a -v --no-abbrev # timeout=10
 > git checkout -b main e7856623965618bf7af8f31d3281403f49ee4c5d # timeout=10
Commit message: "Added Jenkinsfile for CI/CD pipeline"
[Pipeline] }
[Pipeline] // script
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Build)
[Pipeline] echo
Building...
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```