DevOps Task: Jenkins & Kubernetes Deployment

**Step 1:** Setting Up WSL and Ubuntu

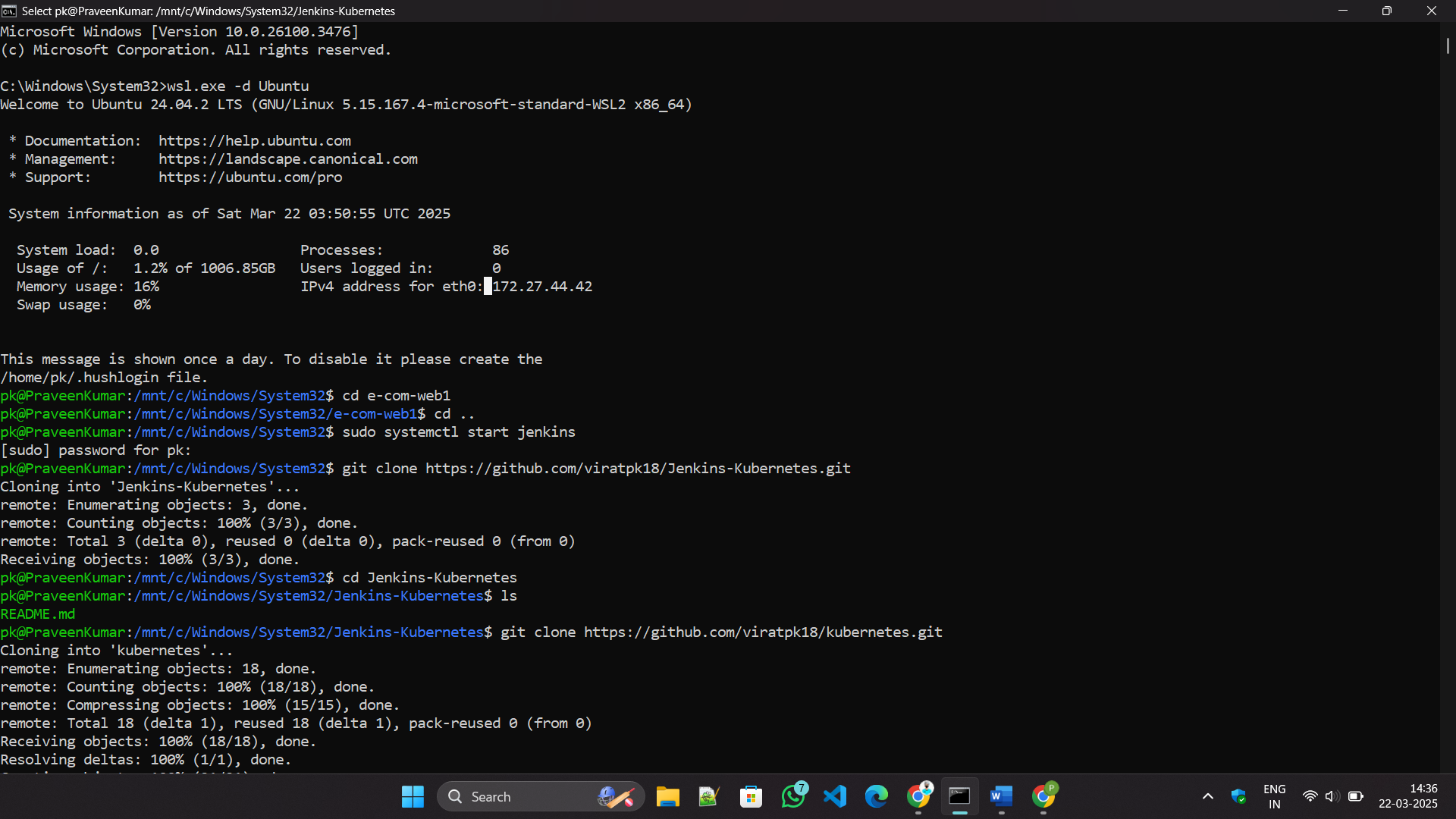
1. Open **Windows Subsystem for Linux (WSL)** and start **Ubuntu**:

wsl.exe -d Ubuntu

1. Verify system information and update packages:

sudo apt update

sudo apt upgrade



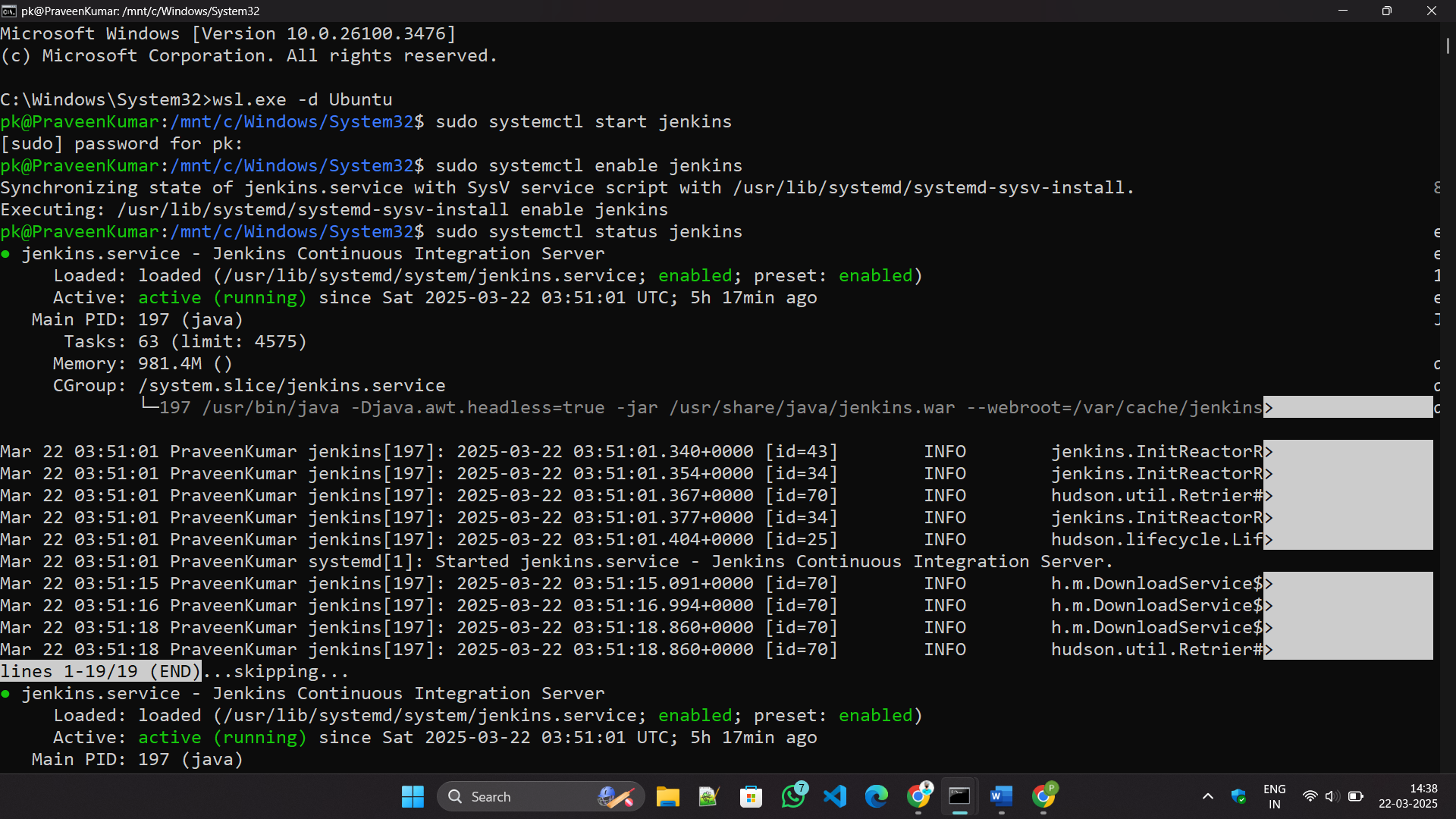
**Step 2:** Installing and Configuring Jenkins

1. Start the Jenkins service:

sudo systemctl start Jenkins

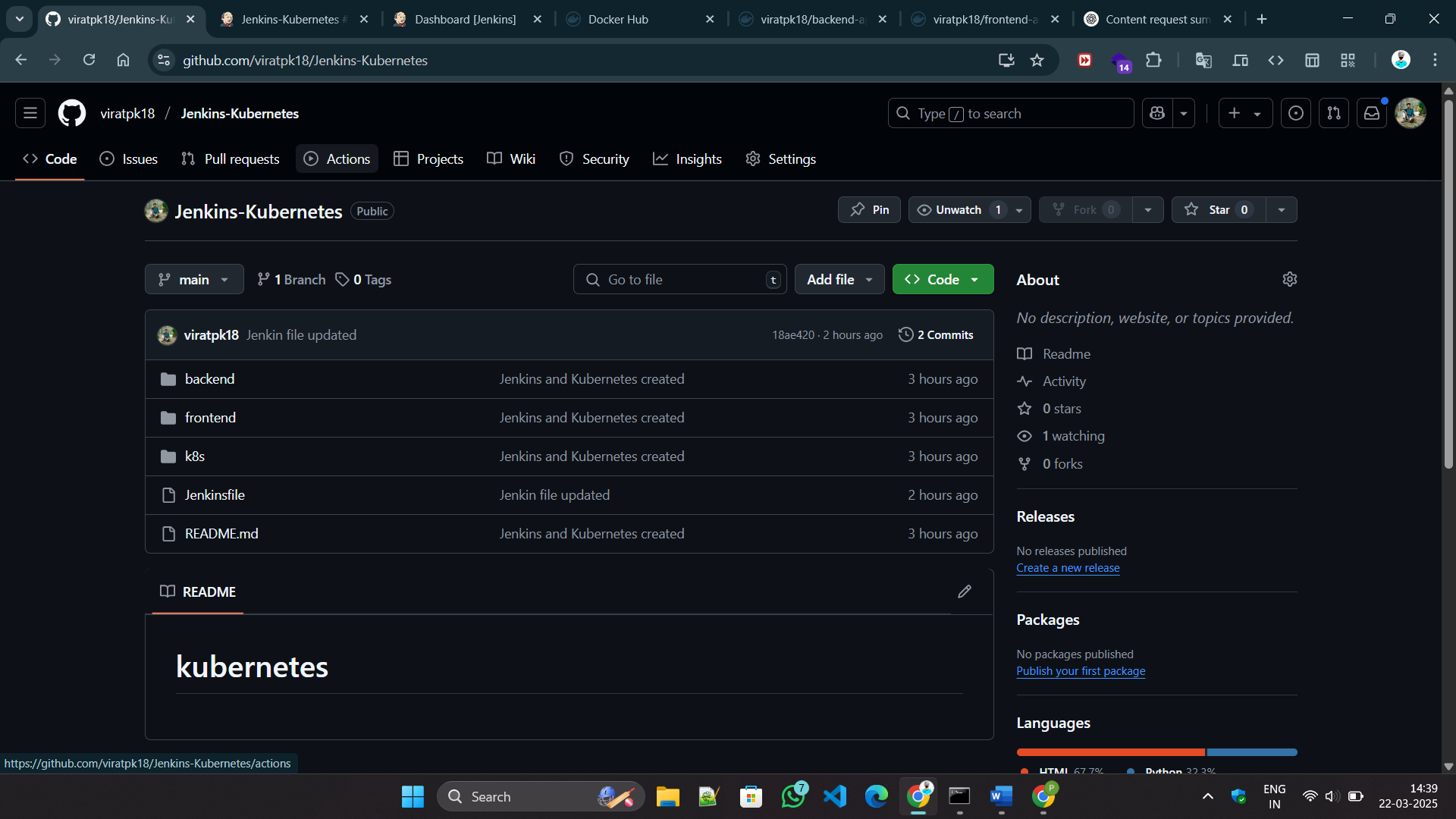
1. Enable Jenkins to start on boot:

sudo systemctl enable Jenkins



**Step 3:** Create new repository

1. Add Readme.md file



**Step 4:** Cloning Repositories

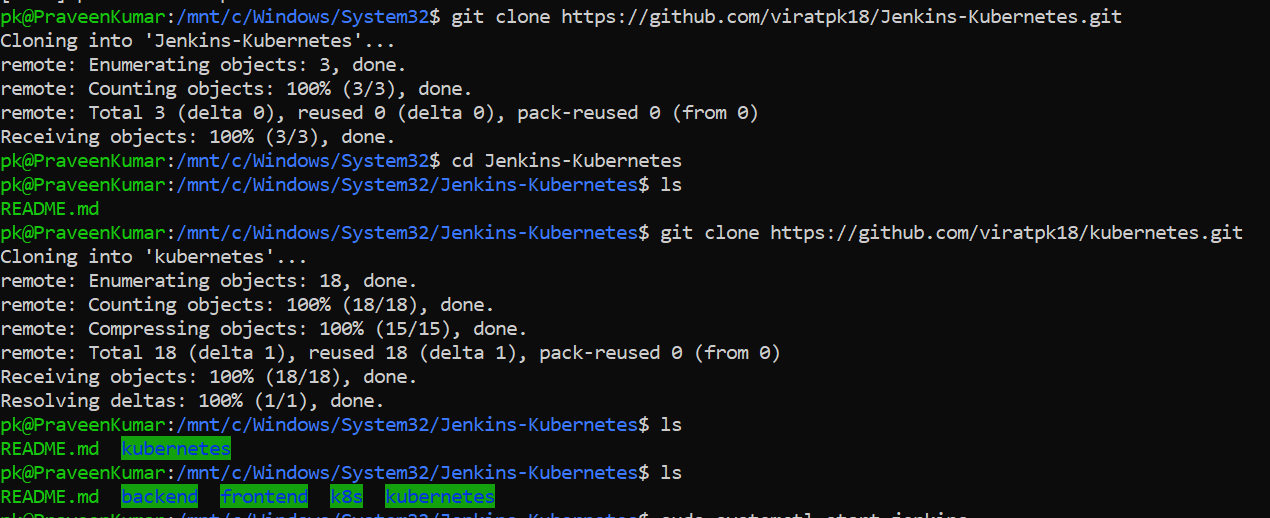
1. Clone the **Jenkins-Kubernetes** repository:

git clone <https://github.com/viratpk18/Jenkins-Kubernetes.git>

cd Jenkins-Kubernetes

1. Clone the **Kubernetes** configuration repository:

git clone <https://github.com/viratpk18/kubernetes.git>



**Step 5:** Creating the Jenkins Pipeline

1. Open **Jenkinsfile** using a text editor:

nano Jenkinsfile

1. Add the following pipeline script:

pipeline {

agent any

environment {

FRONTEND\_IMAGE = "viratpk18/frontend-app:latest"

BACKEND\_IMAGE = "viratpk18/backend-app:latest"

FRONTEND\_CONTAINER = "frontend-container"

BACKEND\_CONTAINER = "backend-container"

REGISTRY\_CREDENTIALS = "docker-praveen"

}

stages {

stage('Checkout Code') {

steps {

withCredentials([usernamePassword(credentialsId: 'github-pk', usernameVariable: 'GIT\_USER', passwordVariable: 'GIT\_TOKEN')]) {

git url: "https://$GIT\_USER:$GIT\_TOKEN@github.com/viratpk18/Jenkins-Kubernetes.git", branch: 'main'

}

}

}

stage('Build & Push Backend Image') {

steps {

dir('backend') {

sh 'docker build -t $BACKEND\_IMAGE .'

withCredentials([usernamePassword(credentialsId: 'docker-praveen', usernameVariable: 'DOCKER\_USER', passwordVariable: 'DOCKER\_PASS')]) {

sh 'echo $DOCKER\_PASS | docker login -u $DOCKER\_USER --password-stdin'

sh 'docker push $BACKEND\_IMAGE'

}

}

}

}

stage('Build & Push Frontend Image') {

steps {

dir('frontend') {

sh 'docker build -t $FRONTEND\_IMAGE .'

withCredentials([usernamePassword(credentialsId: 'docker-praveen', usernameVariable: 'DOCKER\_USER', passwordVariable: 'DOCKER\_PASS')]) {

sh 'echo $DOCKER\_PASS | docker login -u $DOCKER\_USER --password-stdin'

sh 'docker push $FRONTEND\_IMAGE'

}

}

}

}

stage('Deploy Containers') {

steps {

sh 'docker run -d -p 5000:5000 --name $BACKEND\_CONTAINER $BACKEND\_IMAGE'

sh 'docker run -d -p 3000:3000 --name $FRONTEND\_CONTAINER $FRONTEND\_IMAGE'

}

}

}

post {

success {

echo "Deployment successful!"

}

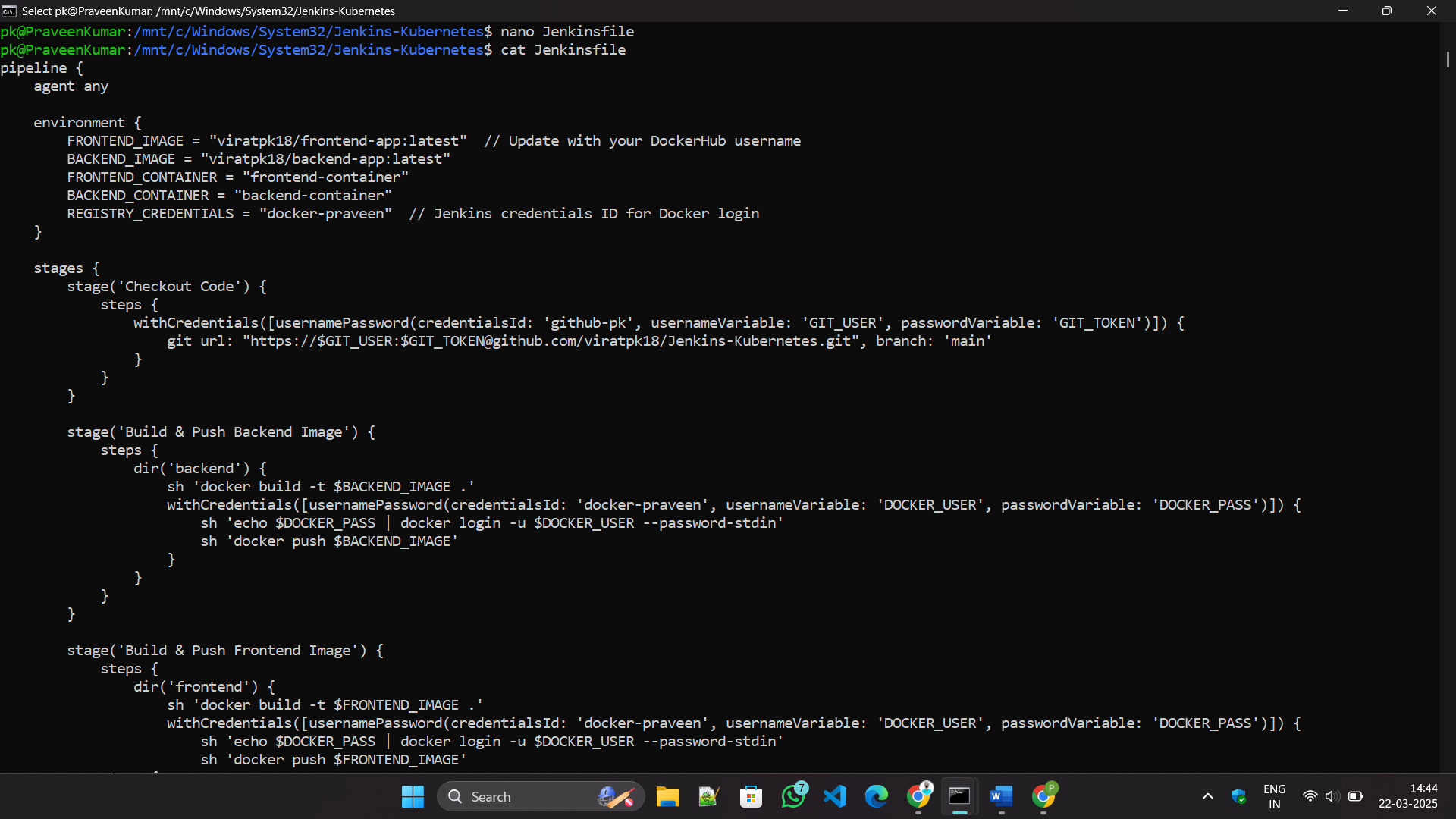
failure {

echo "Deployment failed."

}

}

}



**Step 6:** Committing and Pushing the Jenkinsfile

1. Add and commit changes:

git add .

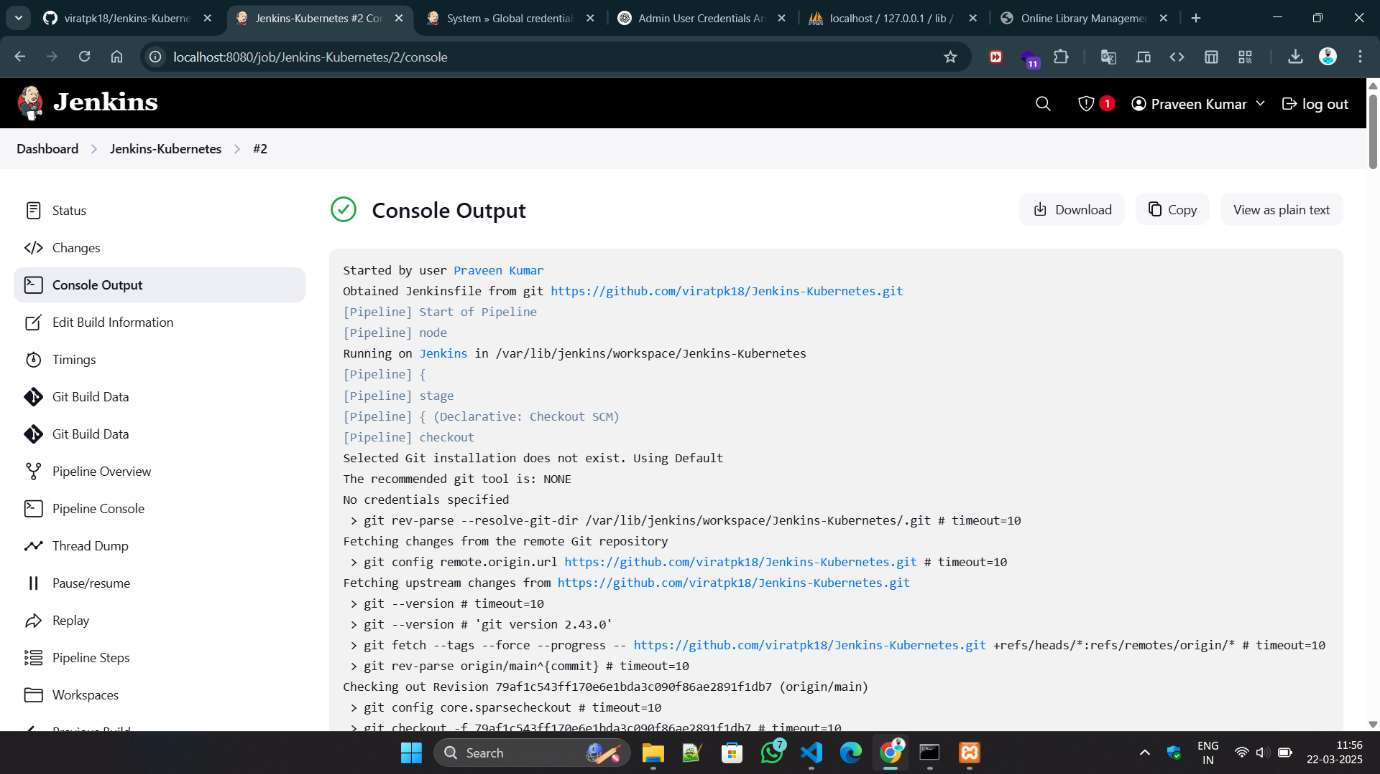
git commit -m "Jenkinsfile added"

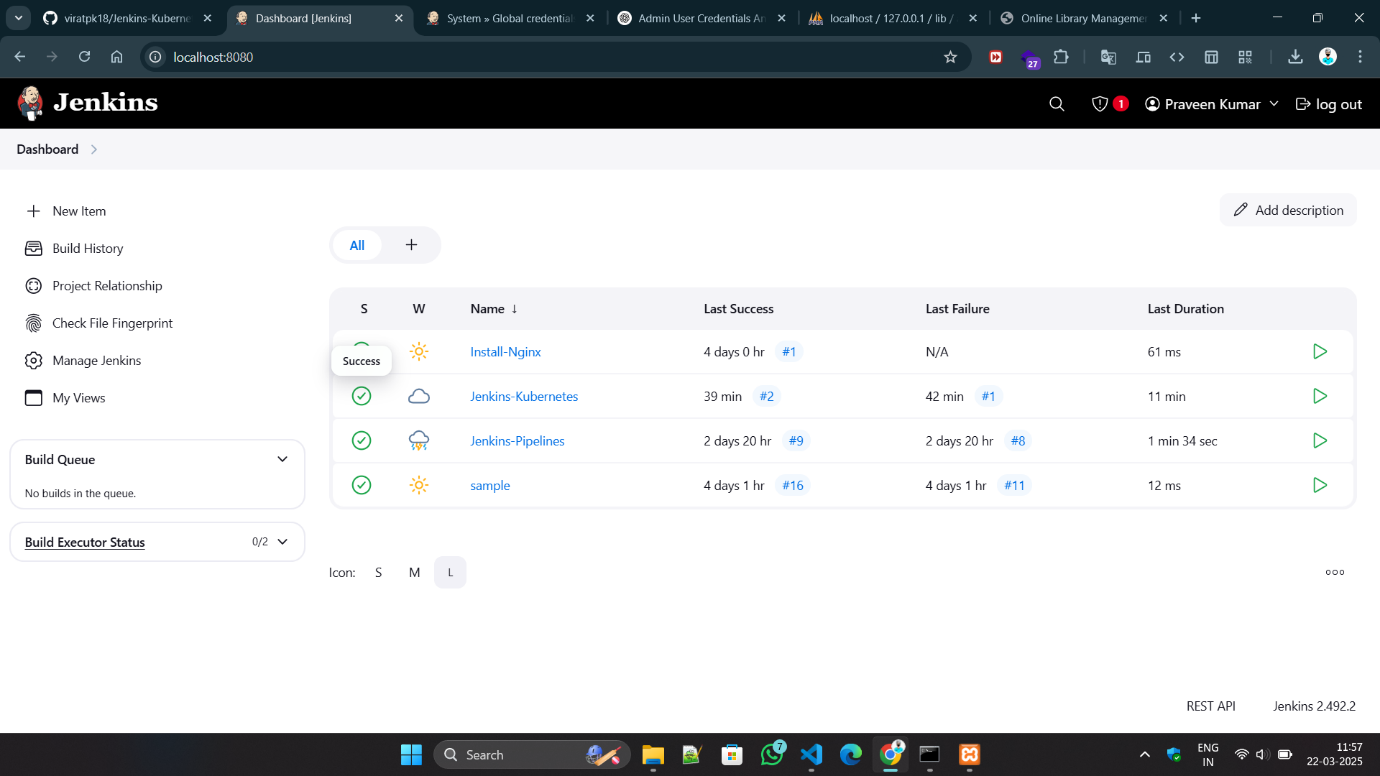
1. Push to GitHub:

git push <https://github.com/viratpk18/Jenkins-Kubernetes.git>

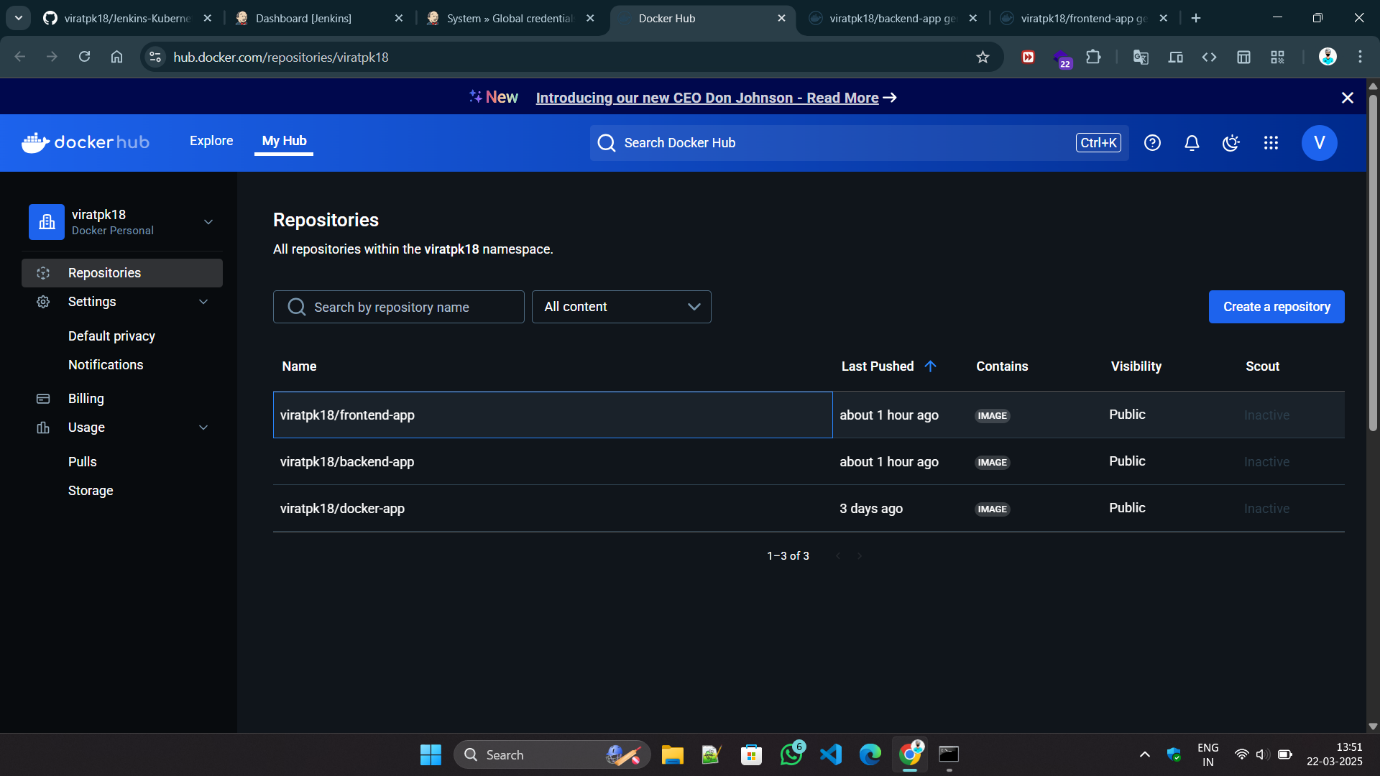


**Step7:** Build the Jenkins





**Step8:** Check in Docker images

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