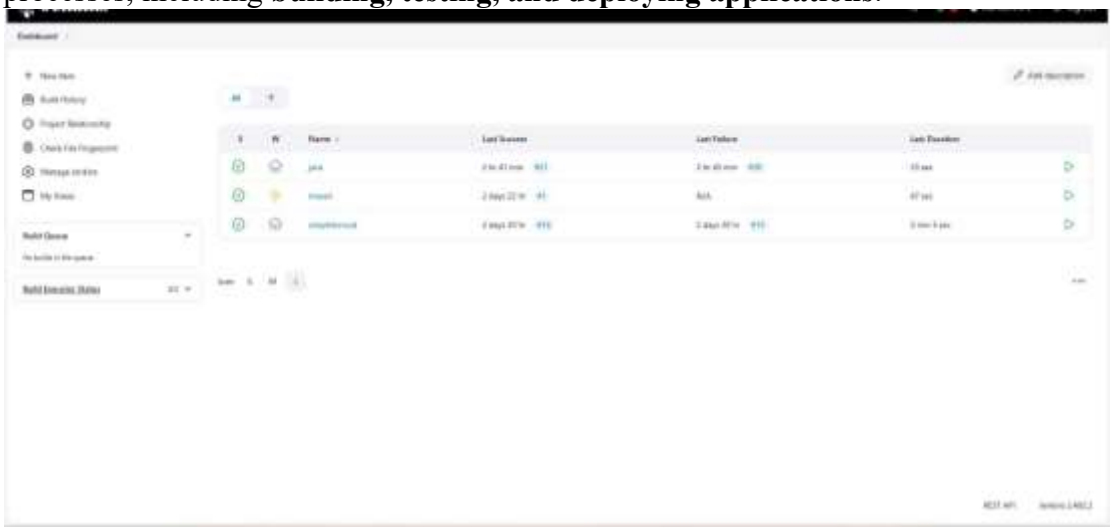
DAY 6:

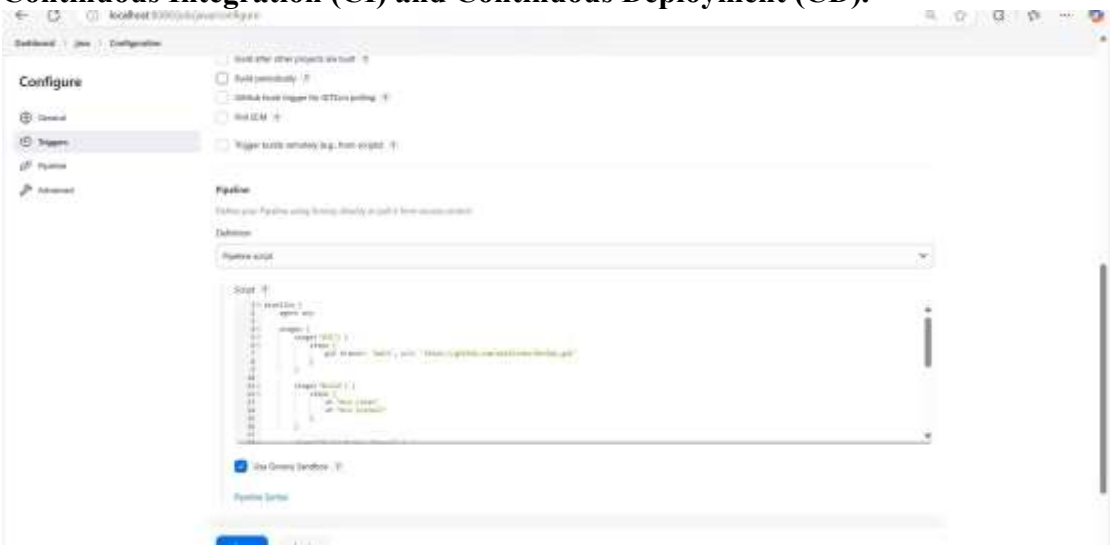
JENKINS:

Jenkins is an open-source automation server used for **Continuous Integration (CI) and Continuous Deployment (CD)**. It helps automate software development processes, including **building, testing, and deploying applications**.



JENKINS PIPELINE:

A **Jenkins Pipeline** is a set of automated steps that define how software is built, tested, and deployed. It is written as code in a **Jenkinsfile** and helps implement **Continuous Integration (CI) and Continuous Deployment (CD).**



KUBERNETES DEPLOYMENT:

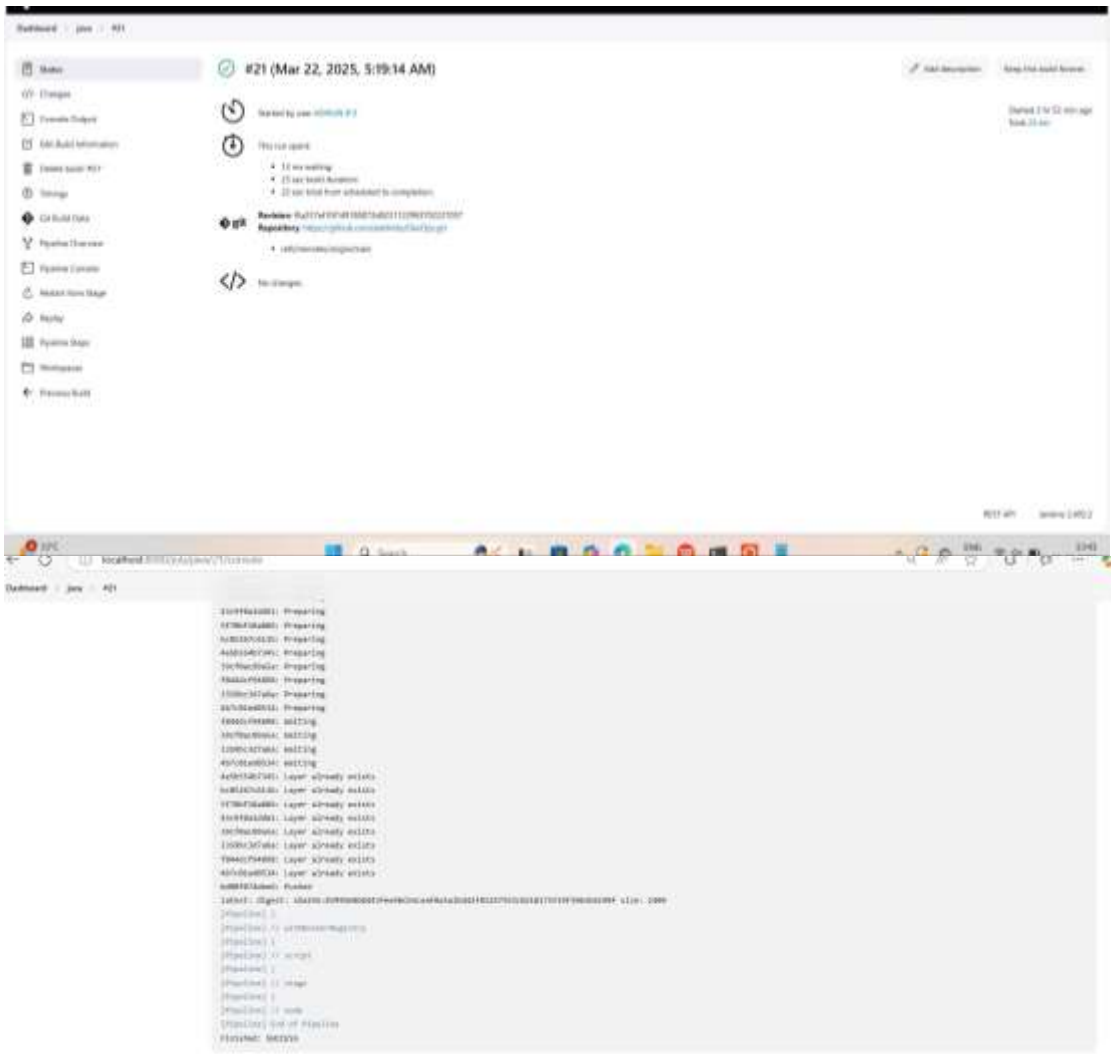
apiVersion: apps/v1
kind: Deployment
metadata: name: my-
deploy labels:

```
    apptype: web-backend # Ensure this matches Service selector
spec: replicas: 4 selector: matchLabels: apptype: web-backend #
  Ensure this matches Service selector strategy: type:
  RollingUpdate
  template:
    metadata:
      labels:
        apptype: web-backend # Ensure this matches Service selector
    spec:
      containers:
      - name: my-app
        image: ashilin20/app:latest
        ports:
      - containerPort: 5050
---
apiVersion: v1
kind: Service
metadata: name:
my-service labels:
    apptype: web-backend # Make labels consistent
spec: type:
  NodePort
  ports:
      - targetPort: 8080 port: 5050 nodePort: 30001
```

PIPELINE SCRIPT:

```
pipeline {
    agent any

    stages {
        stage('SCM') {
            steps {
                git branch: 'main', url: 'https://github.com/ashilinbs/DevOps.git'
            }
        }

        stage('Build') {
            steps {
                sh "mvn clean"
                sh "mvn install"
            }
        }

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

```
                script {
                    sh 'docker build -t ashilin20/app .'
                }
            }
        }

        stage('Push to Docker Hub') {
            steps {
                script {
                    withDockerRegistry(credentialsId: 'cur', url:
'https://index.docker.io/v1/') {
                        sh 'docker push ashilin20/app'
                    }
                }
            }
        }


    }
}
```



MINIKUBE COMMANDS:

Start & Stop Minikube

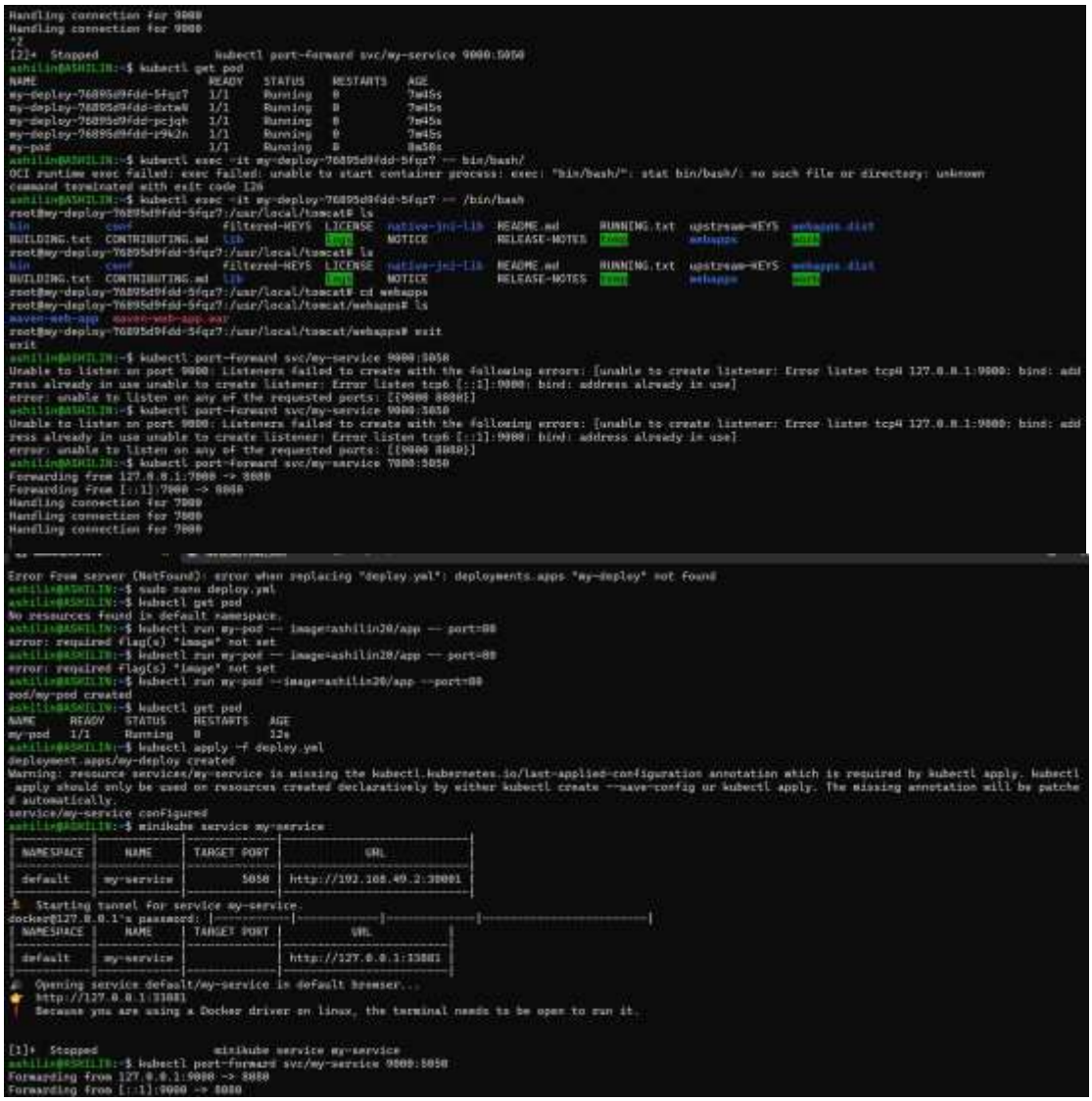
sh
CopyEdit
minikube start # Start Minikube cluster
minikube start --driver=docker # Start with Docker driver
minikube status # Check cluster status
minikube stop # Stop Minikube minikube delete
Delete the cluster

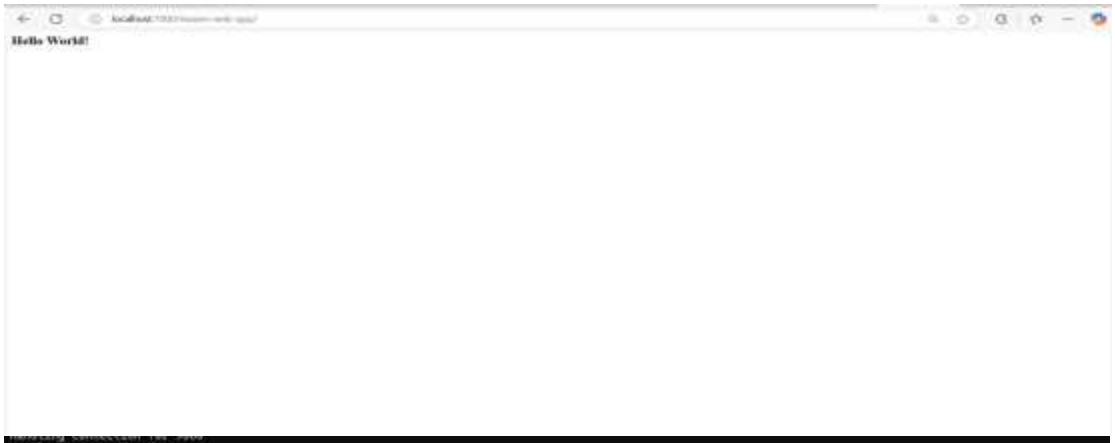
Configure Minikube

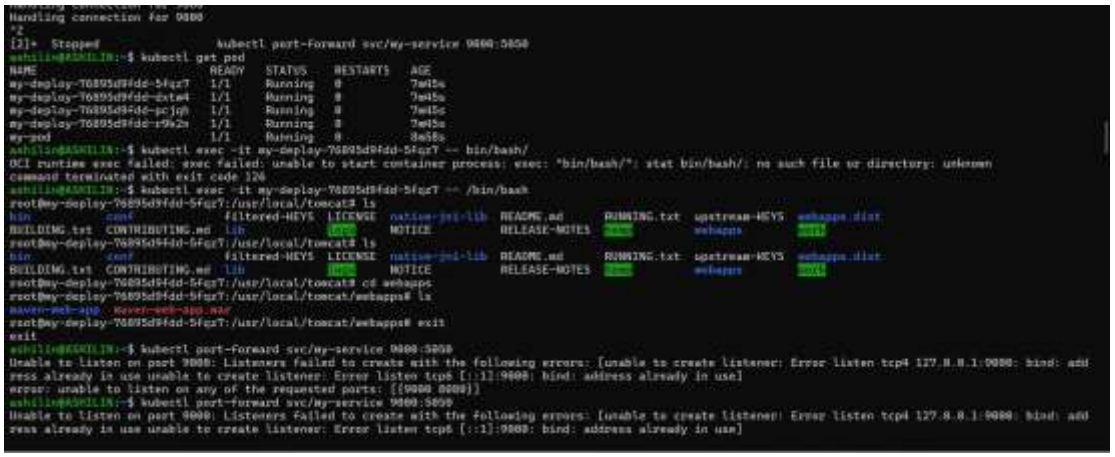
sh

CopyEdit
minikube config set memory 4096 # Set memory to 4GB minikube
config set cpus 2

OUTPUT:




Hello World!


Handling connection for 9000
^Z
[2]+ Stopped kubectl port-forward svc/my-service 9000:5050
ashlin@ASHLIN:~$ kubectl get pod
NAME READY STATUS RESTARTS AGE
my-deploy-76895d9fdd-5fqzT 1/1 Running 0 7m45s
my-deploy-76895d9fdd-gxte4 1/1 Running 0 7m45s
my-deploy-76895d9fdd-pcjqh 1/1 Running 0 7m45s
my-deploy-76895d9fdd-z9s2n 1/1 Running 0 7m45s
my-pod 1/1 Running 0 8m58s
ashlin@ASHLIN:~$ kubectl exec -it my-deploy-76895d9fdd-5fqzT -- bin/bash/
OCI runtime exec failed: exec failed: unable to start container process: exec: "bin/bash/": stat bin/bash/: no such file or directory: unknown
command terminated with exit code 126
ashlin@ASHLIN:~$ kubectl exec -it my-deploy-76895d9fdd-5fqzT -- /bin/bash
root@my-deploy-76895d9fdd-5fqzT:/usr/local/tomcat# ls
bin conf filtered-HEYS LICENSE native-jni-lib README.md RUNNING.txt upstream-HEYS webapps.dist
BUILDING.txt CONTRIBUTING.md lib logs NOTICE RELEASE-NOTES temp webapps work
root@my-deploy-76895d9fdd-5fqzT:/usr/local/tomcat# ls
bin conf filtered-HEYS LICENSE native-jni-lib README.md RUNNING.txt upstream-HEYS webapps.dist
BUILDING.txt CONTRIBUTING.md lib logs NOTICE RELEASE-NOTES temp webapps work
root@my-deploy-76895d9fdd-5fqzT:/usr/local/tomcat# cd webapps
root@my-deploy-76895d9fdd-5fqzT:/usr/local/tomcat/webapps# ls
maven-web-app maven-web-app.war
root@my-deploy-76895d9fdd-5fqzT:/usr/local/tomcat/webapps# exit
exit
ashlin@ASHLIN:~$ kubectl port-forward svc/my-service 9000:5050
Unable to listen on port 9000: Listeners failed to create with the following errors: [unable to create listener: Error listen tcp4 127.0.0.1:9000: bind: add
ress already in use unable to create listener: Error listen tcp6 [::1]:9000: bind: address already in use]
error: unable to listen on any of the requested ports: [{9000 8080}]
ashlin@ASHLIN:~$ kubectl port-forward svc/my-service 9000:5050
Unable to listen on port 9000: Listeners failed to create with the following errors: [unable to create listener: Error listen tcp4 127.0.0.1:9000: bind: add
ress already in use unable to create listener: Error listen tcp6 [::1]:9000: bind: address already in use]