Name: Vaibhav Gholap
Roll No :A018
Done on College PC

Q2

Files

1. Deployment.yaml

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: deployment
spec:
  replicas: 2
  selector:
    matchLabels:
      app: my-html-app
  template:
    metadata:
      labels:
        app: my-html-app
    spec:
      containers:
      - name: my-html-container
        image: dockerfile:latest
        ports:
        - containerPort: 8084  # Updated to match the container port
```

2. Dockerfile

```
# Use a lightweight web server
FROM nginx:alpine

# Copy the HTML file to the server
COPY index.html /usr/share/nginx/html/index.html

# Expose port 80
EXPOSE 80
```

3. Index.html

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width,
initial-scale=1.0">
    <title>Kubernetes Deployment</title>
</head>
<body>
    <h1>Hello, Kubernetes!</h1>
    <p>This is a simple HTML page served from a Kubernetes
deployment.</p>
</body>
</html>
```

4. Service.yaml

```
apiVersion: v1
kind: Service
metadata:
  name: service
spec:
  type: NodePort  # or LoadBalancer if on a cloud provider
  ports:
  - port: 8084
    targetPort: 8084
  selector:
    app: my-html-app
```

STEPS

BUILD AND RUN DOCKER

```
PS C:\Users\mpstme.student\Desktop\M2> docker build -t dockerfile .
[+] Building 5.7s (7/7) FINISHED
 => [internal] load build definition from dockerfile
 => => transferring dockerfile: 209B
 => [internal] load metadata for docker.io/library/nginx:alpine
 => [internal] load .dockerignore
```

```
PS C:\Users\mpstme.student\Desktop\M2> docker run --name my-nginx -d -p 8080:80 dockerfile
f2a7d4505ae49a58dbf2fc1e9bca7a5216b202fe9bcf84d2769463f0bea5e93d
```

```
PS C:\Users\mpstme.student\Desktop\M2> docker images
REPOSITORY                                TAG                 IMAGE ID       CREATED          SIZE
dockerfile                                latest              3f7351bc2793   14 minutes ago   47MB
```

CREATE KUBERNETES DEPLOYMENT AND SERVICE AND SCALE IT REPLICA

```
PS C:\Users\mpstme.student\Desktop\M2> kubectl apply -f deployment.yaml
deployment.apps/deployment created
PS C:\Users\mpstme.student\Desktop\M2> kubectl get deployments
NAME                    READY   UP-TO-DATE   AVAILABLE   AGE
deployment              0/2     2            0           8s
spring-boot-deployment  3/3     3            3           18d
```

```
error: the path "my-html-service.yaml" does not exist
PS C:\Users\mpstme.student\Desktop\M2> kubectl apply -f service.yaml
service/service created
PS C:\Users\mpstme.student\Desktop\M2> kubectl scale deployment my-htm
```

2 REPLICAS

```
spring-boot-deployment   3/3   3   3   18d
PS C:\Users\mpstme.student\Desktop\M2> kubectl get pods -l app=my-html-app
NAME                          READY   STATUS         RESTARTS   AGE
deployment-6cc9447488-ggtk7   0/1     ErrImagePull   0          15s
deployment-6cc9447488-p7v78   0/1     ErrImagePull   0          15s
```

Scaling to 5 Replicas

```
PS C:\Users\mpstme.student\Desktop\M2> kubectl scale deployment deployment --replicas=5
deployment.apps/deployment scaled
PS C:\Users\mpstme.student\Desktop\M2> kubectl get deployments
NAME                    READY   UP-TO-DATE   AVAILABLE   AGE
deployment              0/5     5            0           79s
spring-boot-deployment  3/3     3            3           18d
```

```
PS C:\Users\mpstme.student\Desktop\M2> kubectl get pods -l app=my-html-app
NAME                          READY   STATUS             RESTARTS   AGE
deployment-6cc9447488-87ph8   0/1     ErrImagePull       0          12s
deployment-6cc9447488-ggtk7   0/1     ImagePullBackOff   0          84s
deployment-6cc9447488-h7qsr   0/1     ErrImagePull       0          12s
deployment-6cc9447488-nf6g8   0/1     ErrImagePull       0          12s
deployment-6cc9447488-p7v78   0/1     ImagePullBackOff   0          84s
PS C:\Users\mpstme.student\Desktop\M2>
```