✅ Environment Setup Summary: Host a Webpage on Minikube

💻 1. Local Setup (Prerequisites)

- **OS:** Windows 11
- **Tools Installed:**
    - Docker Desktop
    - Minikube
    - kubectl CLI
    - Hyper-V (used as the Minikube driver)

🧱 2. Create Project Files

Folder Path: C:\Damith\k8s-demo
Inside it, add:

index.html

Your simple HTML page with a link to a CSS file.

style.css

Your custom CSS file to style the webpage.

Dockerfile

Dockerfile

Content:

```
FROM nginx:alpine
COPY index.html /usr/share/nginx/html/index.html
COPY style.css /usr/share/nginx/html/style.css
```

Description:

- Uses a lightweight nginx:alpine image.
- Copies HTML and CSS to Nginx's default root folder so they are served on container start.

🐬 3. Build Docker Image

Before building, set Docker environment to Minikube:

Command:

```
@FOR /f "tokens=*" %i IN ('minikube docker-env') DO @%i
```

Then build your image:

Command:

```
docker build -t damith1 C:\Damith\k8s-demo
```

- -t damith1 gives your image the name/tag **damith1**.
- This image is stored in Minikube's internal Docker registry.

🚀 4. Create Kubernetes Deployment

Create a file named deployment.yaml:

yaml

Command:

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: damith1-deployment
spec:
  replicas: 1
  selector:
    matchLabels:
      app: damith1
  template:
    metadata:
      labels:
        app: damith1
    spec:
      containers:
      - name: damith1
        image: damith1
        imagePullPolicy: Never
        ports:
        - containerPort: 80
```

Description:

- Creates a Kubernetes **Deployment** running one pod with the damith1 Docker image.
- imagePullPolicy: Never tells Kubernetes to use the local image instead of pulling from a registry.

Apply the deployment:

Command:

```
kubectl apply -f deployment.yaml
```

🌐 5. Expose the Deployment as a Service

Run:

Command:

```
kubectl expose deployment damith1-deployment --type=NodePort --port=80
```

Description:

- Exposes your pod to the outside world using a **NodePort**.

🔗 6. Access the Webpage

Get the service URL:

Command:

```
minikube service damith1-deployment --url
```

Open the URL in your browser — you'll see your styled demo webpage!