

Lab Exercise 5- Building a Docker Image for an HTML App Using Nginx

1. Setup

You will need:

- Docker installed on your machine.
- A simple HTML file for the app.

2. Step 1: Create the HTML File

Create a directory for your HTML app and place an index.html file in it.

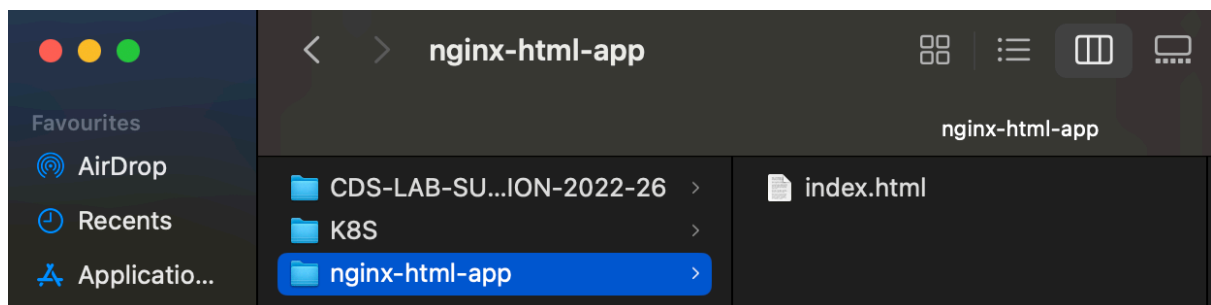
```
mkdir nginx-html-app  
cd nginx-html-app
```

```
[sai@Sais-Mac documents % mkdir nginx-html-app  
[sai@Sais-Mac documents % cd nginx-html-app  
sai@Sais-Mac nginx-html-app %
```

Inside the nginx-html-app directory, create the HTML file.

```
touch index.html
```

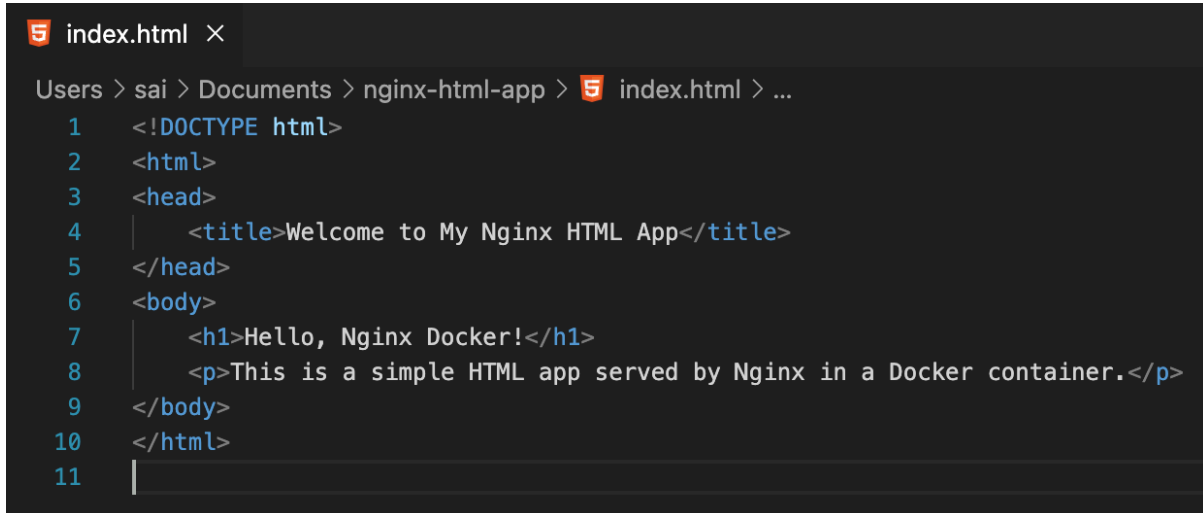
```
[sai@Sais-Mac nginx-html-app % touch index.html  
sai@Sais-Mac nginx-html-app %
```



Edit the index.html file with the following content (or any custom HTML content you want):

```
<!DOCTYPE html>  
<html>  
<head>
```

```
<title>Welcome to My Nginx HTML App</title>
</head>
<body>
  <h1>Hello, Nginx Docker!</h1>
  <p>This is a simple HTML app served by Nginx in a Docker container.</p>
</body>
</html>
```

A screenshot of a code editor window titled 'index.html'. The breadcrumb path is 'Users > sai > Documents > nginx-html-app > index.html > ...'. The code is as follows:

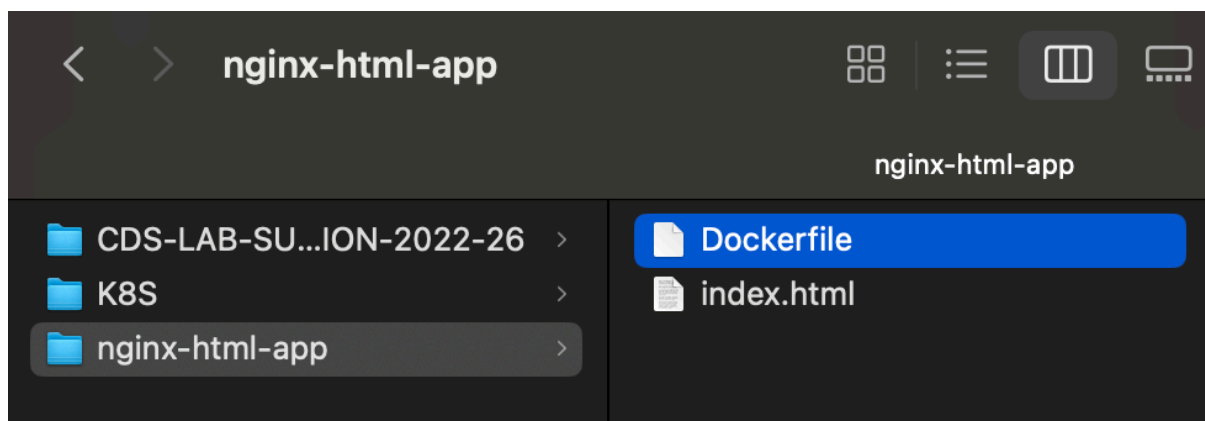
```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>Welcome to My Nginx HTML App</title>
5 </head>
6 <body>
7   <h1>Hello, Nginx Docker!</h1>
8   <p>This is a simple HTML app served by Nginx in a Docker container.</p>
9 </body>
10 </html>
11
```

3. Step 2: Create a Dockerfile

In the same directory, create a Dockerfile. This file will define how to build the Docker image using Nginx as the base image.

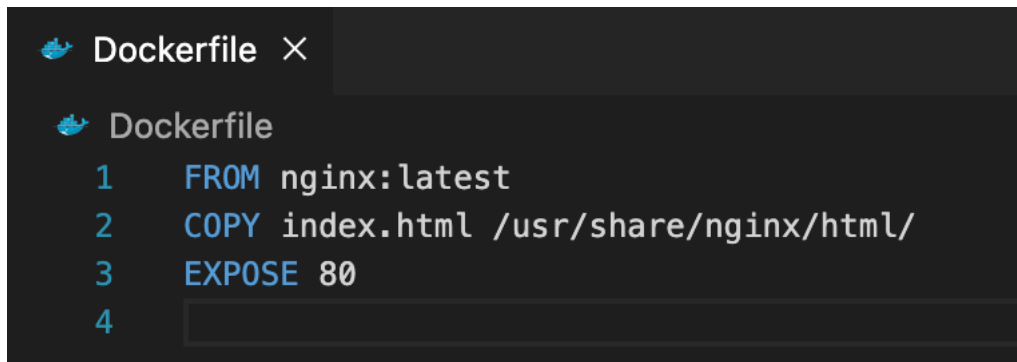
```
touch Dockerfile
```

```
[sai@Sais-Mac nginx-html-app % touch Dockerfile
sai@Sais-Mac nginx-html-app %
```



Edit the Dockerfile and add the following content:

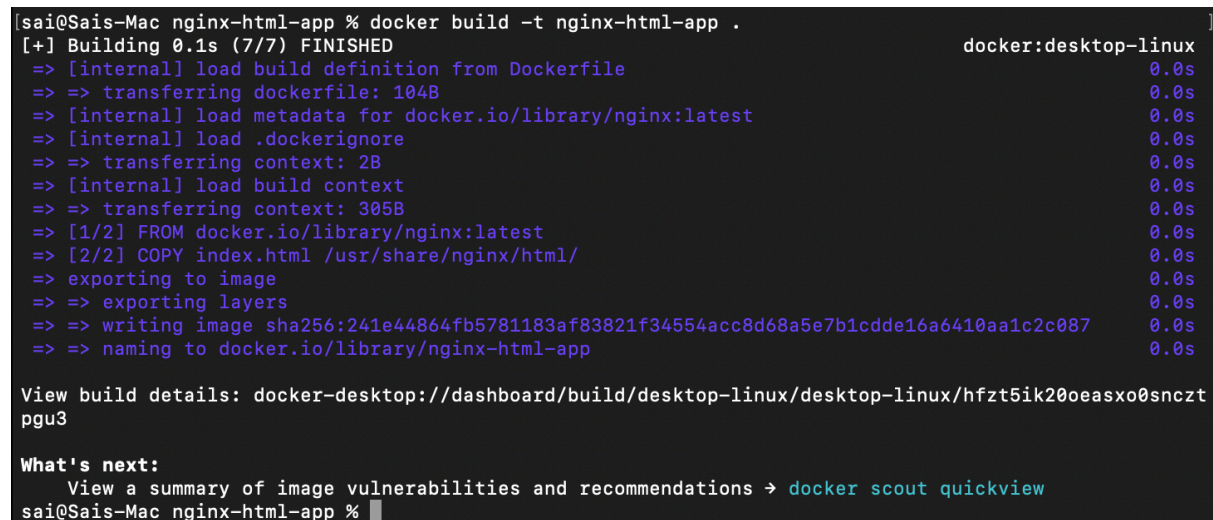
```
FROM nginx:latest
COPY index.html /usr/share/nginx/html/
EXPOSE 80
```

A screenshot of a code editor window titled "Dockerfile". The editor shows a Dockerfile with four lines: 1. FROM nginx:latest, 2. COPY index.html /usr/share/nginx/html/, 3. EXPOSE 80, and 4. (empty line). The lines are numbered on the left side of the editor.

4. Step 3: Build the Docker Image

Now that you have the Dockerfile and index.html, it's time to build the Docker image. Run the following command to build the image, giving it a tag (e.g., nginx-html-app):

```
docker build -t nginx-html-app .
```

A screenshot of a terminal window showing the output of the command "docker build -t nginx-html-app .". The output shows the build process, including loading the build definition, transferring the Dockerfile, loading metadata for the nginx:latest image, and finally exporting the layers to create the nginx-html-app image. The terminal output is as follows: [sai@Sais-Mac nginx-html-app % docker build -t nginx-html-app .] [+] Building 0.1s (7/7) FINISHED docker:desktop-linux => [internal] load build definition from Dockerfile 0.0s => => transferring dockerfile: 104B 0.0s => [internal] load metadata for docker.io/library/nginx:latest 0.0s => [internal] load .dockerignore 0.0s => => transferring context: 2B 0.0s => [internal] load build context 0.0s => => transferring context: 305B 0.0s => [1/2] FROM docker.io/library/nginx:latest 0.0s => [2/2] COPY index.html /usr/share/nginx/html/ 0.0s => exporting to image 0.0s => => exporting layers 0.0s => => writing image sha256:241e44864fb5781183af83821f34554acc8d68a5e7b1cdde16a6410aa1c2c087 0.0s => => naming to docker.io/library/nginx-html-app 0.0s View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/hfzt5ik20easxo0snczt pgu3 What's next: View a summary of image vulnerabilities and recommendations -> docker scout quickview sai@Sais-Mac nginx-html-app %

Docker will use the Nginx base image, copy your index.html into the appropriate directory, and build the image.

5. Step 4: Run the Docker Container

After building the image, you can run the container with the following command:

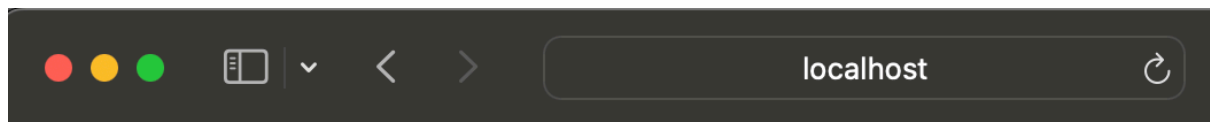
```
docker run -d -p 8080:80 nginx-html-app
```

```
sai@Sais-Mac nginx-html-app % docker run -d -p 8080:80 nginx-html-app
8e57a150147143195133fa4866060d112f0e1da69f25e4872ca609d981352690
sai@Sais-Mac nginx-html-app %
```

This command runs the container in detached mode (-d) and maps port 8080 on your host machine to port 80 inside the container, where Nginx is serving your HTML app.

6. Step 5: Verify

Open a browser and go to <http://localhost:8080>. You should see your HTML page with the message “Hello, Nginx Docker!”.



Hello, Nginx Docker!

This is a simple HTML app served by Nginx in a Docker container.

7. Step 6: Stop and Remove the Container

Once you're done, you can stop and remove the container:

```
docker ps # to see running containers
```

```
sai@Sais-Mac nginx-html-app % docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
8e57a1501471	nginx-html-app	"/docker-entrypoint..."	2 minutes ago	Up 2 minutes	0.0.0.0:8080->80/tcp	blissful_curran

```
docker stop <container-id>
```

```
[sai@Sais-Mac nginx-html-app % docker stop 8e57a1501471
8e57a1501471
```

```
docker rm <container-id>
```

```
[sai@Sais-Mac nginx-html-app % docker rm 8e57a1501471
8e57a1501471
```