Report: Making a Simple Web Server Using Docker

By,
Neil Duraiswami.

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Introduction

This report documents the steps taken to set up a simple web server using Docker and Docker Compose as part of an assignment. The objective was to learn the basics of Docker Compose, including defining services in a docker-compose.yml file and managing container orchestration.

Task 1: Setting Up Your Project

1.1. Create Project Directory

Create a new directory named simple-web-server.

mkdir simple-web-server

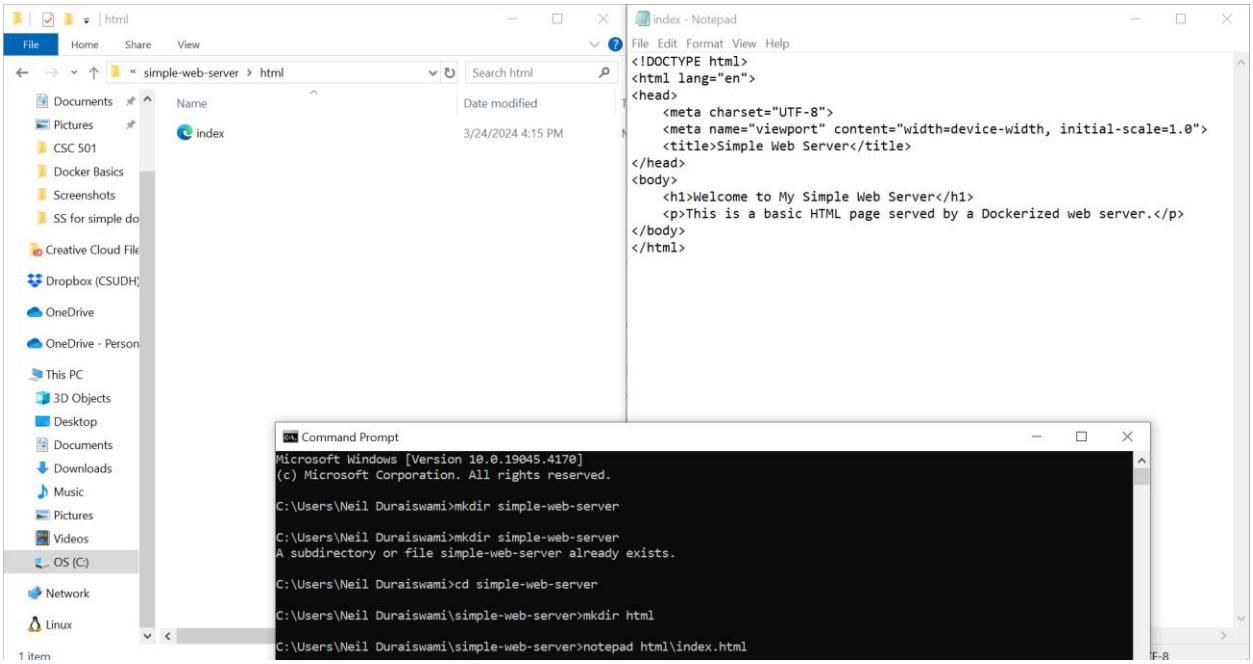
1.2. Create and edit the HTML File

Within the simple-web-server directory, create a subdirectory named html.

cd simple-web-server

mkdir html

Created an index.html file with provided content inside the html directory.



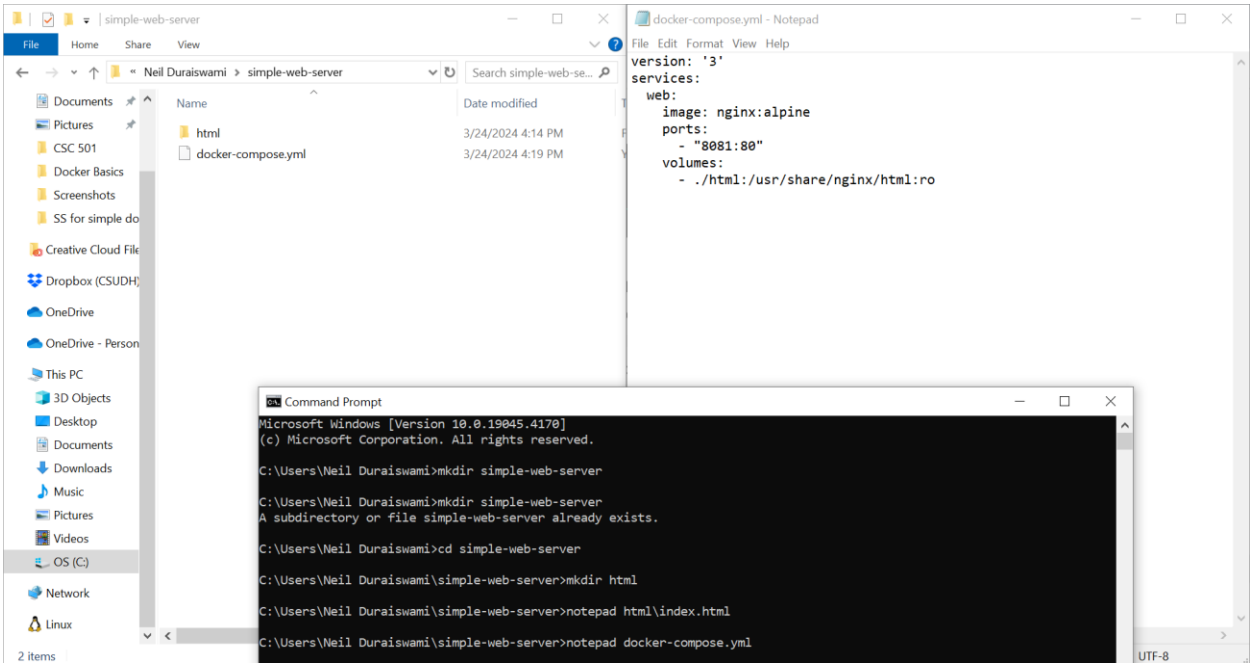
Edited the index.html file with provided content inside the html directory.

1.3. Create and edit the Docker Compose File

Create a docker-compose.yml file in the simple-web-server directory.

Open the docker-compose.yml file in a text editor.

Defined the Nginx service in the docker-compose.yml file with the provided configuration.



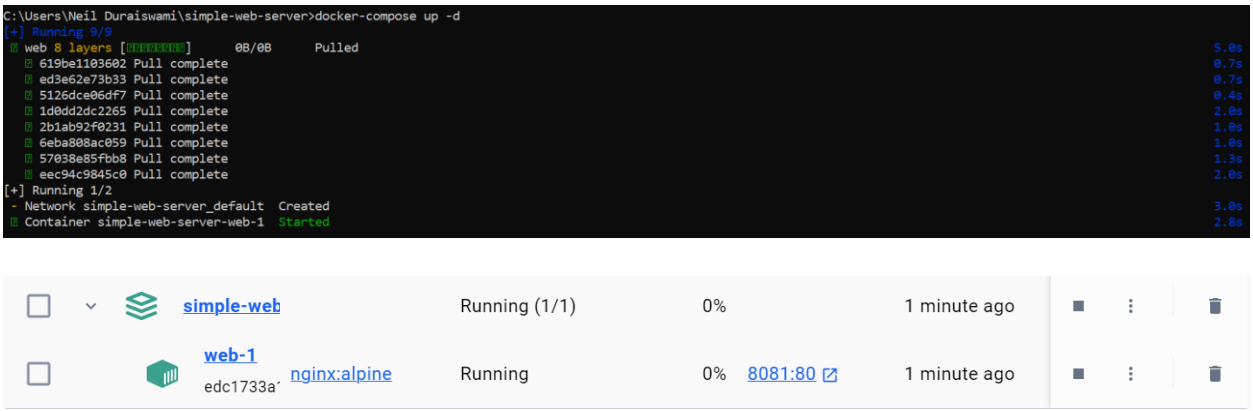
Task 2: Running Your Web Server

2.1. Start the Service

Navigate to the simple-web-server directory in the terminal.

Run the Docker Compose command to start the service.

docker-compose up -d



Docker Terminal view

2.2. Verify the Web Server

Open a web browser and access http://localhost:8081 to confirm the HTML page served by the Nginx web server.

2.3. Accessing Logs (Optional)

Use the docker-compose logs command to view the logs of the running containers.

docker-compose logs

```
C:\Users\Neil Duraiswami\simple-web-server>docker-compose logs
web-1  | /docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
web-1  | /docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
web-1  | /docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
web-1  | 10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
web-1  | 10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
web-1  | /docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
web-1  | /docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
web-1  | /docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
web-1  | /docker-entrypoint.sh: Configuration complete; ready for start up
web-1  | 2024/03/24 23:23:37 [notice] 1#1: using the "epoll" event method
web-1  | 2024/03/24 23:23:37 [notice] 1#1: nginx/1.25.4
web-1  | 2024/03/24 23:23:37 [notice] 1#1: built by gcc 12.2.1 20220924 (Alpine 12.2.1_git20220924-r10)
web-1  | 2024/03/24 23:23:37 [notice] 1#1: OS: Linux 5.15.146.1-microsoft-standard-WSL2
web-1  | 2024/03/24 23:23:37 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
web-1  | 2024/03/24 23:23:37 [notice] 1#1: start worker processes
web-1  | 2024/03/24 23:23:37 [notice] 1#1: start worker process 30
web-1  | 2024/03/24 23:23:37 [notice] 1#1: start worker process 31
web-1  | 2024/03/24 23:23:37 [notice] 1#1: start worker process 32
web-1  | 2024/03/24 23:23:37 [notice] 1#1: start worker process 33
web-1  | 2024/03/24 23:23:37 [notice] 1#1: start worker process 34
web-1  | 2024/03/24 23:23:37 [notice] 1#1: start worker process 35
web-1  | 2024/03/24 23:23:37 [notice] 1#1: start worker process 36
web-1  | 2024/03/24 23:23:37 [notice] 1#1: start worker process 37
web-1  | 172.18.0.1 - - [24/Mar/2024:23:24:36 +0000] "GET / HTTP/1.1" 200 339 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/1
23.0.0.0 Safari/537.36" "-"
```

Task 3: Cleanup

3.1. Stopping the Service

Stop the Docker Compose service using the command:

docker-compose down

```
[+] Running 2/2uraiswami\simple-web-server>docker-compose down
 ⠿ Container simple-web-server-web-1  Removed                                    0.5s
 ⠿ Network simple-web-server_default  Removed                                    0.2s
```

Conclusion

This report outlined the steps undertaken to set up a simple web server using Docker and Docker Compose. Through this assignment, fundamental concepts of Docker Compose, container orchestration, and web server operations were explored.