CoDeKu Paid Mini Tasks

Project Code	**CPT-DC-006**
Project Name	**Simple web app with flask**
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Submission Date	**29-07-2024**
Task	**Creating a simple Flask web application that displays "Hello, CoDeKu!", containerize it with Docker, and test it by running the container.**

Contents

Summary

This project aims to develop a simple web application using Flask, a lightweight Python web framework, and containerize it using Docker. The application will display a "Hello,CoDeKu!" message on a web page. The primary goal is to demonstrate the process of building, containerizing, and deploying a web application in a consistent and reproducible environment.

In modern software development, containerization has become a standard practice for ensuring applications run consistently across different environments. Docker is a popular containerization platform that allows developers to package applications and their dependencies into a portable container. This project addresses the need for understanding and implementing a basic web application using Flask and Docker, which are widely used technologies in the industry.

Project Objectives

Project Timeline

Task	Spent Time Duration
Set up project environment	2 min
Develop Flask application	10 min
Create Dockerfile	2 min
Build and test Docker image	1 hour

Resources

- Personnel: 1 developer
- Software: Python, Flask, Docker, vscode
- Hardware: Development machine with Docker installed

Expected Outcomes

- A working Flask web application that displays "Hello, World!".
- A Docker container image for the Flask application.
- Documentation of the development and containerization process

Methodology

1. Setting Up the Project Environment:

- Create a project directory named flask-docker-app.
- Set up a virtual environment and activate it:

```
python -m venv venv
source venv/bin/activate
```

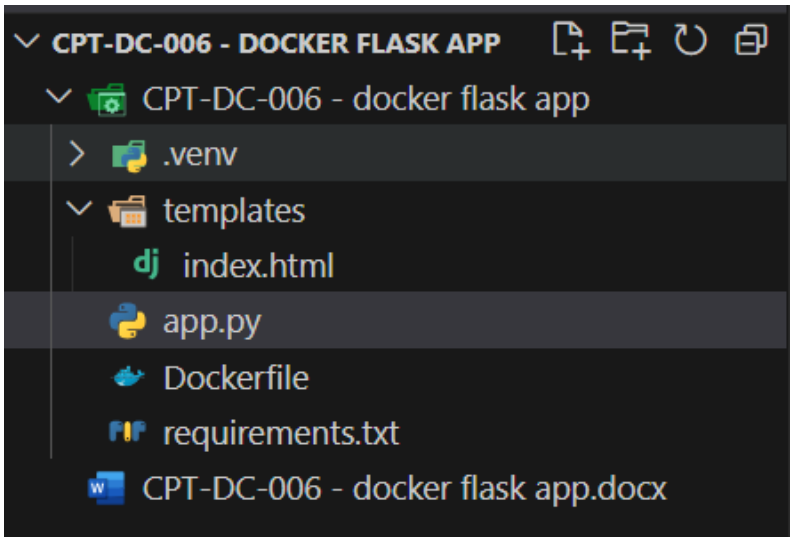


Figure 1- project structure

2. Developing the Flask Application:

- Create app.py with the following content:

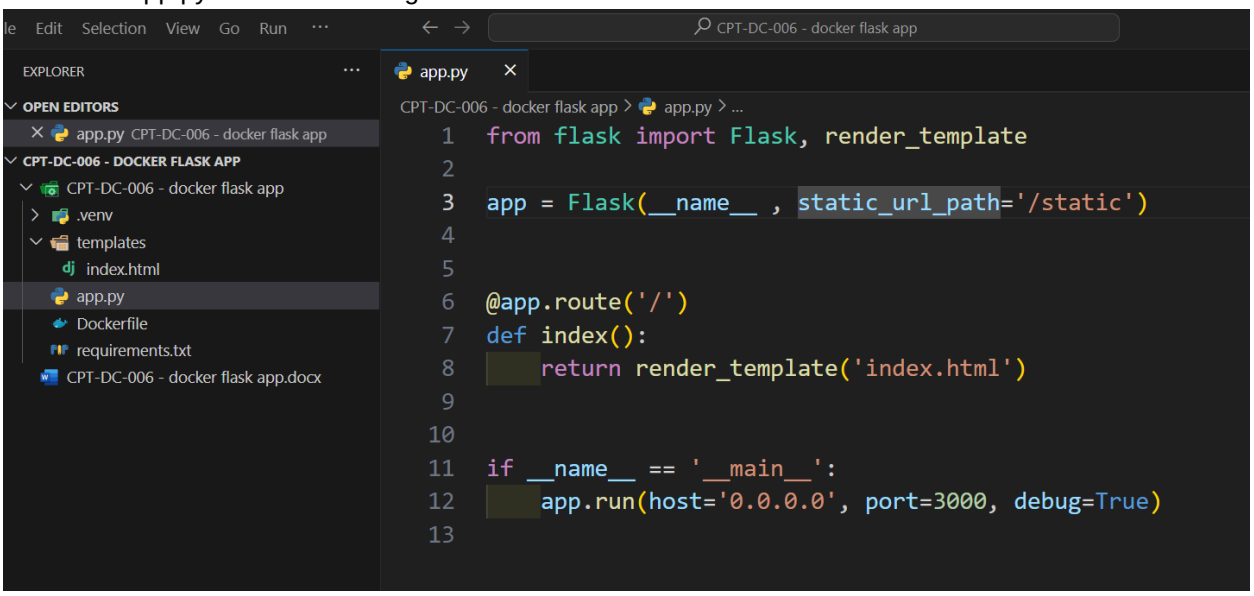


Figure 2

- Create templates/index.html:

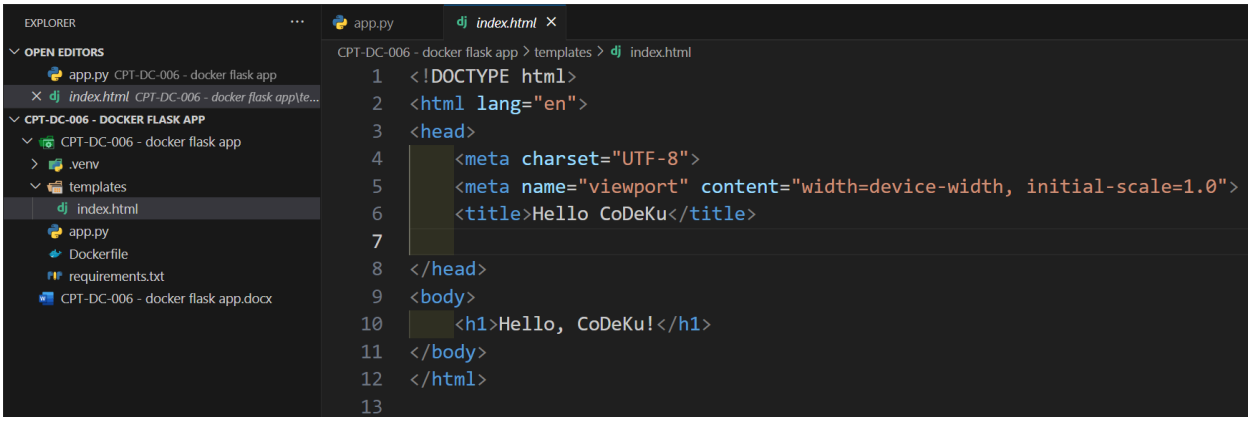


Figure 3

3. Containerizing the Application:

- Create a Dockerfile:

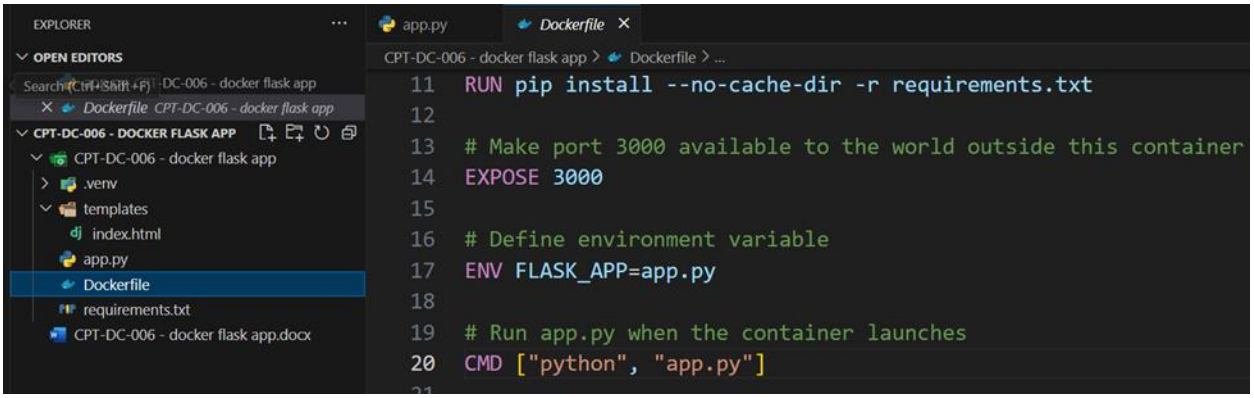


Figure 4

4. Building and Running the Docker Container:

- Build the Docker image:

dockerbuild -t amalsha/hello_codeku:latest .

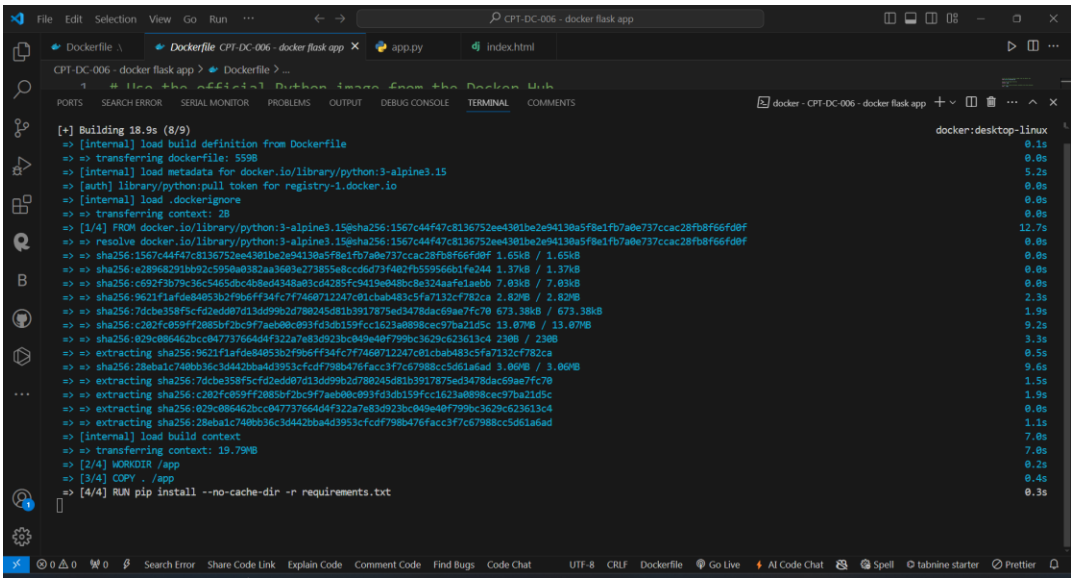
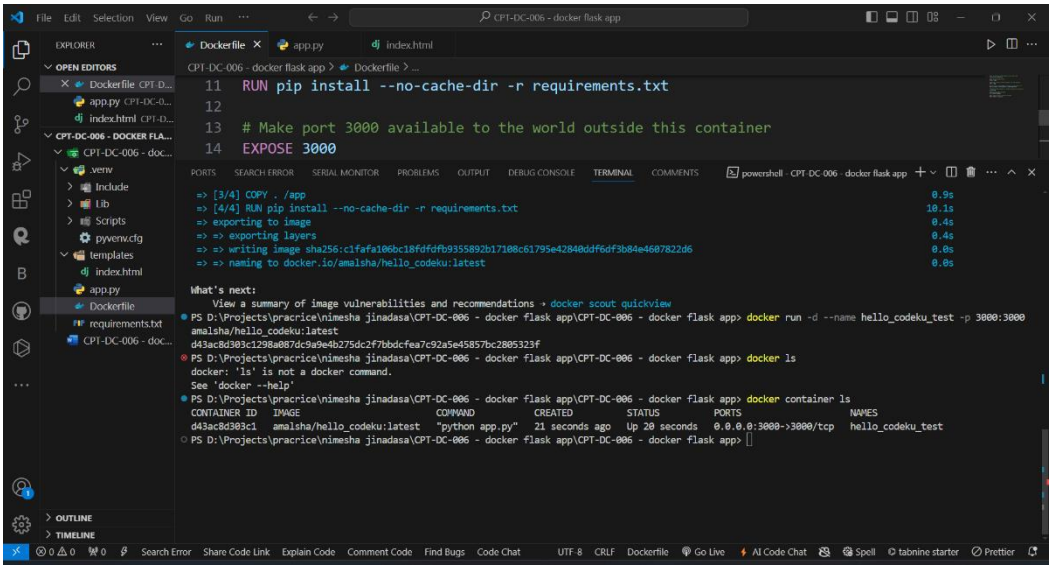


Figure 5

- Run the Docker container:

- docker run -p 3000:3000 flask-docker-app
- here first port, 3000 is dedicated for local pc port and second port, 3000 is dedicated for second port



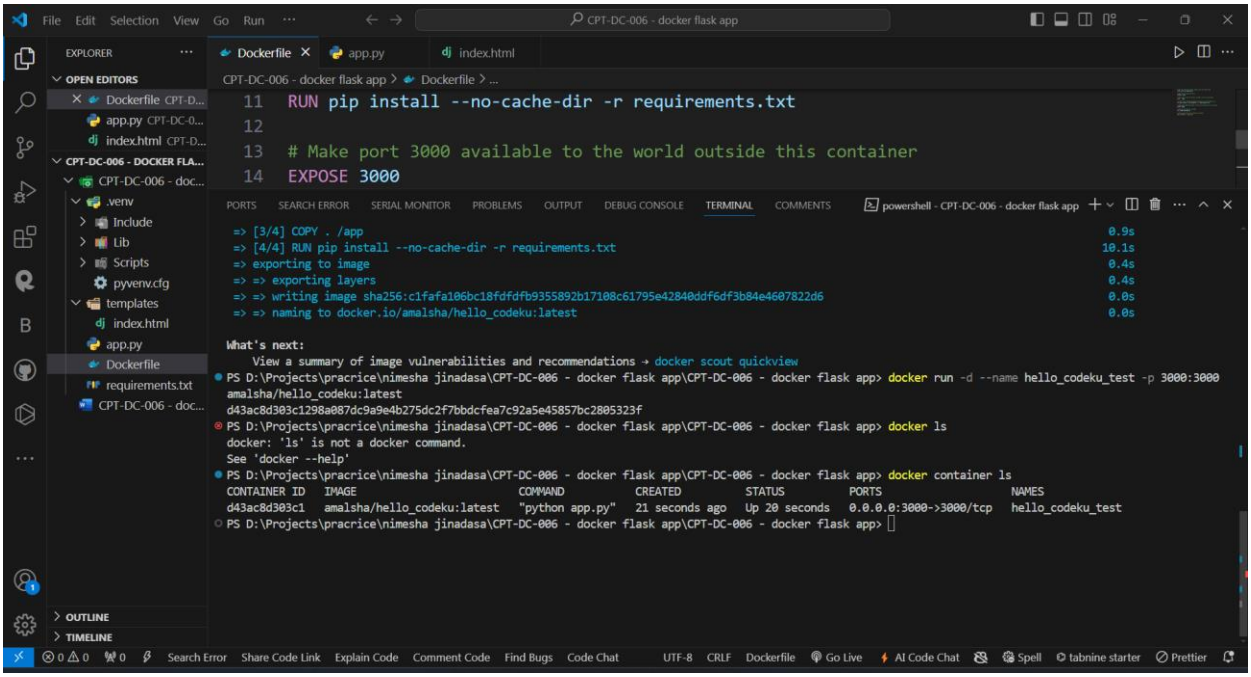


Figure 6

The docker ps command can show currently running containers. At first, it displays running containers, and after stopping containers, it shows nothing

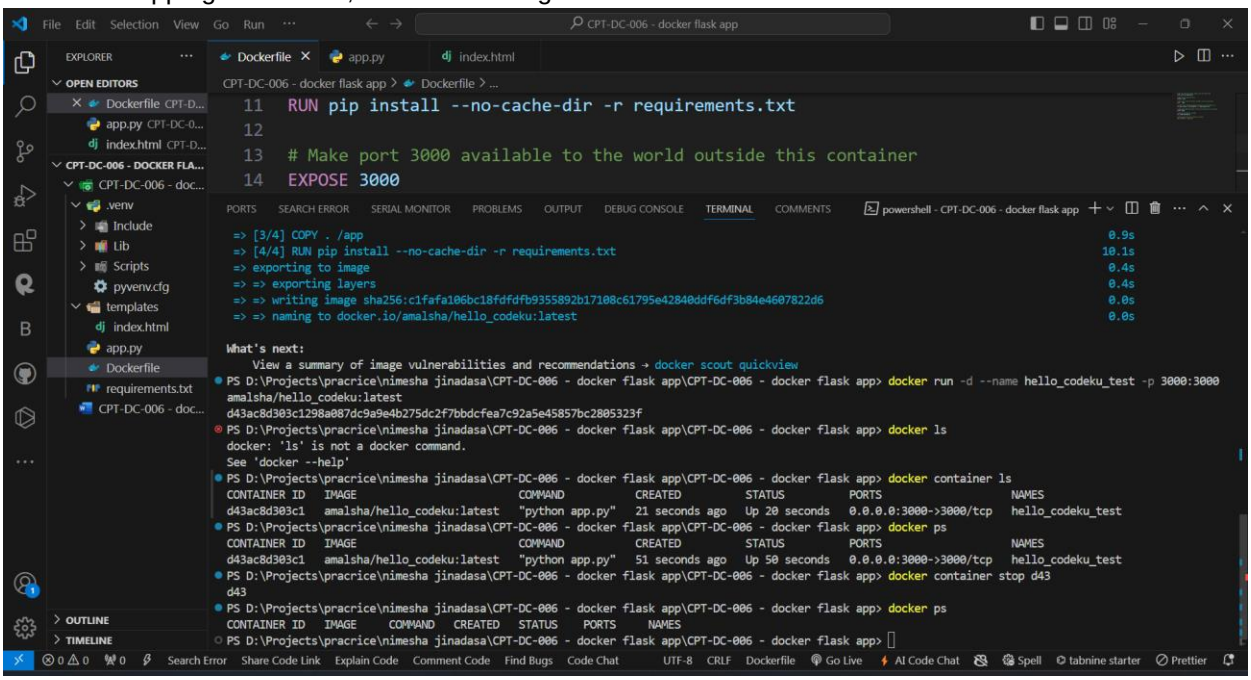


Figure 7

5. Testing the Application:

- When open a web browser and visit http://localhost:5000 to see the "Hello, CoDeKu!" message rendered from the HTML file.

Conclusion

This project will demonstrate the fundamental steps of developing and containerizing a simple web application using Flask and Docker. It serves as a foundational example for more complex applications and containerization processes.