

Devops Practical 5

Dockerize a Flask/FastAPI Application:

Objective

- Dockerize a **Flask** or **FastAPI** app
- Build, run, test the Docker container
- Push the image to Docker Hub ([username]/myapp)

Prerequisites

Make sure you have these installed:

- [Docker Desktop for Windows](#)
- [Visual Studio Code](#)
- [Python](#)
- A [Docker Hub](#) account

1. Create Your Flask App

Create a folder docker-flask-app and inside it, create:

app.py (in vscode)

```
from flask import Flask
app = Flask(__name__)
@app.route('/')
def hello():
    return 'Hello from Dockerized Flask!'
if __name__ == '__main__':
    app.run(host='0.0.0.0', port=5000)
```

requirements.txt (in vscode)

flask

2. Create <Dockerfile> (in vscode)

Note: Make sure you have Docker Extension installed in VSCode before exactly creating Dockerfile

Use official Python base image

FROM python:3.12-slim

Set working directory

WORKDIR /app

Copy app files

COPY . .

Install dependencies

RUN pip install --no-cache-dir -r requirements.txt

Run the app

CMD ["python", "app.py"]

3. Build the Docker Image (in vscode terminal)

Open VS Code terminal in the project folder and run:

docker build -t [username]/myapp:latest .

4. Run the Container (Use Port 5050 if 5000 is occupied) (in vscode terminal)

docker run -d -p 5050:5000 [username]/myapp:latest

on browser

Then visit: <http://localhost:5050>

You should see: Hello from Dockerized Flask!

5. Push to Docker Hub (in vscode terminal) *{if you already have docker app open it will automatically log in by itself}*

First, **log in**:

docker login

Username: [username]

Password: [enter your Docker Hub password or token]

If not already done, **create the repo** on hub.docker.com: (on browser)

- Name: myapp
- Visibility: Public

Now push: (in vscode terminal)

docker push [username]/myapp:latest

You should see multiple Pushed lines and a digest: at the end, confirming success.

Troubleshooting

Issue	Fix
address already in use	Run on different port: docker run -p 5050:5000
push access denied	Make sure repo exists on Docker Hub
tag does not exist	Run docker tag username/myapp:latest [username]/myapp:latest
docker daemon not running	Restart Docker Desktop

