

## Devops lab program – 1

### Build a Docker Container from a Custom Dockerfile

#### Project structure

devops\_program1

|\_\_Dockerfile

|\_\_app.py

|\_\_requirements.txt

#### step1:create project folder

```
1rv24mc074_poornimat@lenovo: /home/1rv24mc074_poornimat/devops_program1
1rv24mc074_poornimat@lenovo: /home/1rv24mc074_poornimat$ mkdir devops__program1
1rv24mc074_poornimat@lenovo: /home/1rv24mc074_poornimat$ cd devops__program1/
1rv24mc074_poornimat@lenovo: /home/1rv24mc074_poornimat/devops__program1$
```

#### step2: create docker file

#### nano Dockerfile

```
GNU nano 7.2 Dockerfile
# Program 1 - Build a Docker Container from a Custom Dockerfile

# Step 1: Use an official Python image
FROM python:3.9

# Step 2: Add maintainer information
LABEL maintainer="Poornima Thimmaraju <poornimat.mca24@rvce.edu.in>"

# Step 3: Add image version
LABEL version="1.0"

# Step 4: Add image description
LABEL description="Custom Dockerfile to run a simple Flask web application"

# Step 5: Set the working directory inside the container
WORKDIR /app

# Step 6: Copy the requirements file and install dependencies
COPY requirements.txt .
RUN pip install --no-cache-dir -r requirements.txt

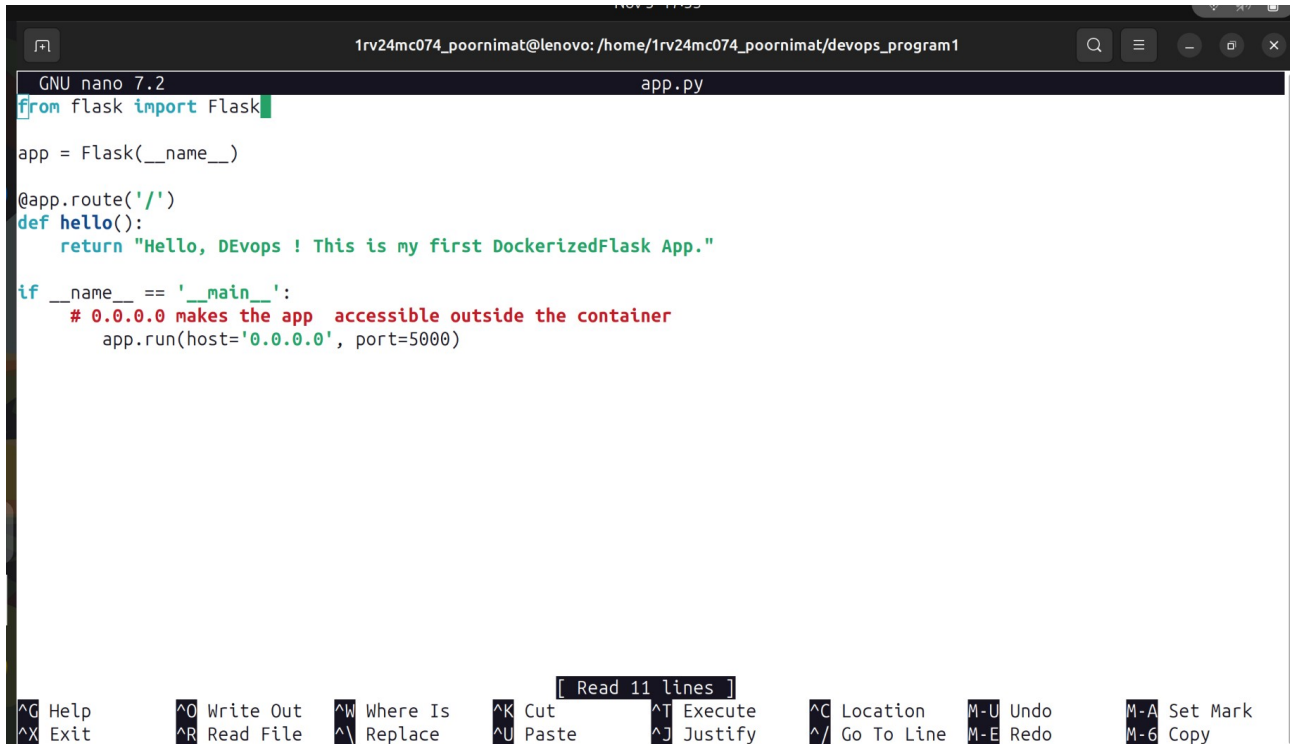
# Step 7: Copy the application code
COPY . .

# Step 8: Set Flask environment variables

[ Read 34 lines ]
^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute  ^C Location  M-U Undo     M-A Set Mark
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify  ^/_ Go To Line M-E Redo     M-6 Copy
```

### step3:create python application file

#### nano app.py



```
GNU nano 7.2 app.py
from flask import Flask

app = Flask(__name__)

@app.route('/')
def hello():
    return "Hello, DEVops ! This is my first DockerizedFlask App."

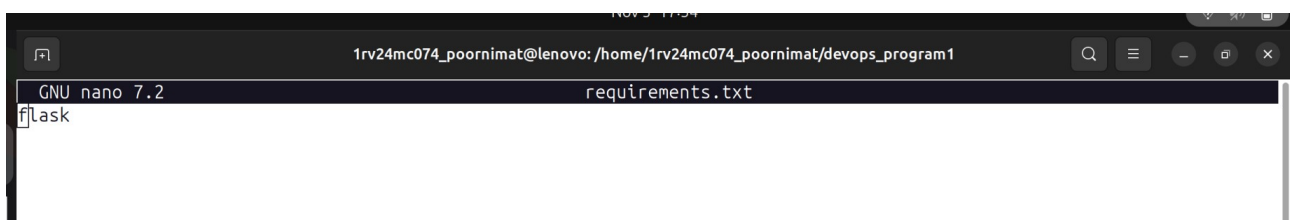
if __name__ == '__main__':
    # 0.0.0.0 makes the app accessible outside the container
    app.run(host='0.0.0.0', port=5000)
```

[ Read 11 lines ]

|         |              |             |          |            |               |          |              |
|---------|--------------|-------------|----------|------------|---------------|----------|--------------|
| ^G Help | ^O Write Out | ^W Where Is | ^K Cut   | ^T Execute | ^C Location   | M-U Undo | M-A Set Mark |
| ^X Exit | ^R Read File | ^_ Replace  | ^U Paste | ^J Justify | ^_ Go To Line | M-E Redo | M-6 Copy     |

### step4:create requirements.txt file

#### nano requirements.txt



```
GNU nano 7.2 requirements.txt
flask
```

### step5:build docker image

sudo docker build -t p1 .

```
1rv24mc074_poornimat@lenovo: /home/1rv24mc074_poornimat/devops_program1
1rv24mc074_poornimat@lenovo: /home/1rv24... x 1rv24mc074_poornimat@lenovo: /home/1rv24... x 1rv24mc074_poornimat@lenovo: /home/1rv24... x
1rv24mc074_poornimat@lenovo: /home/1rv24mc074_poornimat/devops_program1$ sudo docker build -t p1 .
[+] Building 178.9s (10/10) FINISHED docker:default
=> [internal] load build definition from Dockerfile 0.0s
=> => transferring dockerfile: 941B 0.0s
=> [internal] load metadata for docker.io/library/python:3.9 6.5s
=> [internal] load .dockerignore 0.0s
=> => transferring context: 2B 0.0s
=> [1/5] FROM docker.io/library/python:3.9@sha256:da5aee29682d12a6649f51c8d6f15b87deb3e6c524b923c41d0cb3304d07 166.0s
=> => resolve docker.io/library/python:3.9@sha256:da5aee29682d12a6649f51c8d6f15b87deb3e6c524b923c41d0cb3304d07c9 0.0s
=> => sha256:bcd3da5974912584a81ed86fd944ab5fba9093ff1c9a0b0ed18349f9a69e4762 6.23kB / 6.23kB 0.0s
=> => sha256:795d8edde24d2c72dafd2b71fe36643552e56859c0e29cdb095ed54b825fbaa2 49.28MB / 49.28MB 67.2s
=> => sha256:89d573bf42b377ce6a5a0451c15388849686fa4058efd68999f3b014daeb5b55 25.62MB / 25.62MB 45.4s
=> => sha256:26dfe2fac1c486e9aaf41d1028ed30be2c442aa84af44462bc7bac8c148ffb13 67.78MB / 67.78MB 58.5s
=> => sha256:da5aee29682d12a6649f51c8d6f15b87deb3e6c524b923c41d0cb3304d07c913 10.30kB / 10.30kB 0.0s
=> => sha256:d6ca7d9522a172c424721d3509ee12079f7864a742b6adf1eeb66b6c405307ee 2.32kB / 2.32kB 0.0s
=> => sha256:79d5bd8a8d262418bf22e705535ce38c6789dc72e319d76b30aafa5c331b6924 235.93MB / 235.93MB 156.9s
=> => sha256:081ccf923272c30c6072c6ff1617d9072e03ab2a90a431951d325d45e296962b 6.10MB / 6.10MB 69.5s
=> => sha256:c9723aa529b03c40e66d0aee927a410b4719528ab865af6e0bac1b7c9b10829e 20.37MB / 20.37MB 79.3s
=> => extracting sha256:795d8edde24d2c72dafd2b71fe36643552e56859c0e29cdb095ed54b825fbaa2 1.7s
=> => extracting sha256:89d573bf42b377ce6a5a0451c15388849686fa4058efd68999f3b014daeb5b55 0.8s
=> => sha256:91c91cf1d23f4edf4280a8fe935f14340fec43a7a3576149a7cfff70c2f9b 250B / 250B 70.1s
=> => extracting sha256:26dfe2fac1c486e9aaf41d1028ed30be2c442aa84af44462bc7bac8c148ffb13 2.5s
=> => extracting sha256:79d5bd8a8d262418bf22e705535ce38c6789dc72e319d76b30aafa5c331b6924 7.6s
=> => extracting sha256:081ccf923272c30c6072c6ff1617d9072e03ab2a90a431951d325d45e296962b 0.3s
=> => extracting sha256:c9723aa529b03c40e66d0aee927a410b4719528ab865af6e0bac1b7c9b10829e 0.8s
=> => extracting sha256:91c91cf1d23f4edf4280a8fe935f14340fec43a7a3576149a7cfff70c2f9b 0.0s
=> [internal] load build context 0.0s
```

## step6: run the container

### sudo docker run -p 5000:5000 p1

```
1rv24mc074_poornimat@lenovo: /home/1rv24mc074_poornimat/devops_program1$ sudo docker run -p 5000:5000 p1
* Serving Flask app 'app.py'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server inst
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5000
* Running on http://172.18.0.2:5000
Press CTRL+C to quit
```

## step7: verify the application

### open your browser and go to <http://localhost:5000>

