

Devops lab program – 1

Build a Docker Container from a Custom Dockerfile

Project structure

```
devops_program1  
|__Dockerfile  
|__app.py  
|__requirements.tx
```

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

Nov 3 17:42

1rv24mc074_poornimat@lenovo:/home/1rv24mc074_poornimat/devops_program1

```
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
^X Exit ^R Read File ^R Replace ^U Paste ^J Justify
^C Location ^M-U Undo ^C Go To Line ^M-E Redo
^M-A Set Mark ^M-6 Copy

step3:create python application file

nano app.py

The screenshot shows a terminal window titled "1rv24mc074_poornimat@lenovo: /home/1rv24mc074_poornimat/devops_program1". The nano editor is open with the file "app.py". The code is as follows:

```
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)
```

The status bar at the bottom of the terminal window shows keyboard shortcuts for various commands like Help, Write Out, Cut, Paste, etc.

step4:create requirements.txt file

nano requirements.txt

The screenshot shows a terminal window titled "1rv24mc074_poornimat@lenovo: /home/1rv24mc074_poornimat/devops_program1". The nano editor is open with the file "requirements.txt". The content of the file is:

```
flask
```

step5:build docker image

sudo docker build -t p1 .

```

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1rv24mc074_poornimat@lenovo: /home/1rv24mc074_poornimat/devops_program1
1rv24mc074_poornimat@lenovo: /home/1rv24mc074_poornimat/devops_program1 1rv24mc074_poornimat@lenovo: /home/1rv24...
1rv24mc074_poornimat@lenovo: /home/1rv24mc074_poornimat/devops_program1$ sudo docker build -t p1 .
[+] Building 178.9s (10/10) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 941B
=> [internal] load metadata for docker.io/library/python:3.9
=> [internal] load .dockerrcignore
=> => transferring context: 2B
=> [1/5] FROM docker.io/library/python:3.9@sha256:da5aeee29682d12a6649f51c8d6f15b87deb3e6c524b923c41d0cb3304d07c9 166.0s
=> => resolve docker.io/library/python:3.9@sha256:da5aeee29682d12a6649f51c8d6f15b87deb3e6c524b923c41d0cb3304d07c9 0.0s
=> => sha256:bcd3da5974912584a81ed86fd944ab5fba093ff1c9a0b0ed18349f9a69e4762 6.23kB / 6.23kB 0.0s
=> => sha256:795dbdde24d2c72dafd2b71fe36643552e56859c0e29cdb095ed54b825fbba2 49.28MB / 49.28MB 67.2s
=> => sha256:89d573bf42b377ce6a5a0451c15388849686fa4058efd68999f3b014daeb5b55 25.62MB / 25.62MB 45.4s
=> => sha256:26dfe2fac1c486e9aaaf41d1028ed30be2c442aa84af44462bc7bac8c148ffb13 67.78MB / 67.78MB 58.5s
=> => sha256:da5aeee29682d12a6649f51c8d6f15b87deb3e6c524b923c41d0cb3304d07c913 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:c9723aa529b03c40e66d0aae927a410b4719528ab865af6e0bac1b7c9b10829e 20.37MB / 20.37MB 79.3s
=> => extracting sha256:795dbdde24d2c72dafd2b71fe36643552e56859c0e29cdb095ed54b825fbba2 1.7s
=> => extracting sha256:89d573bf42b377ce6a5a0451c15388849686fa4058efd68999f3b014daeb5b55 0.8s
=> => sha256:91c91c91f1d23f4edf4280a8fe935f14340fec43a7a3576149a7cffcf70c2f9b 250B / 250B 70.1s
=> => extracting sha256:26dfe2fac1c486e9aaaf41d1028ed30be2c442aa84af44462bc7bac8c148ffb13 2.5s
=> => extracting sha256:79d5bd8a8d262418bf22e705535ce38c6789dc72e319d76b30aafa5c331b6924 7.6s
=> => extracting sha256:081ccf923272c30c6072c6ff1617d9072e03ab2a90a431951d325d45e296962b 0.3s
=> => extracting sha256:c9723aa529b03c40e66d0aae927a410b4719528ab865af6e0bac1b7c9b10829e 0.8s
=> => extracting sha256:91c91c91f1d23f4edf4280a8fe935f14340fec43a7a3576149a7cffcf70c2f9b 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 instead.
 * 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>

