

PROGRAM 1

Build a Docker Container from a Custom Dockerfile

Project Structure

program1/

```
|
|— Dockerfile
|— app.py
|— requirements.txt
```

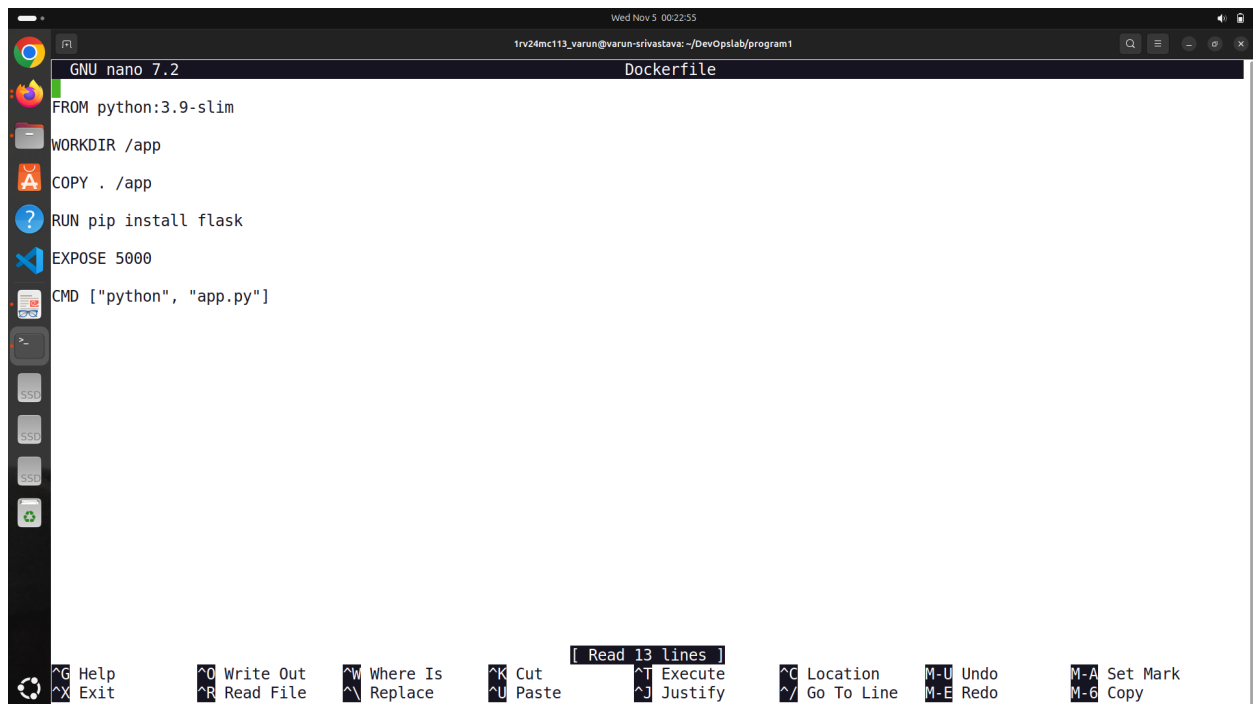
S1: Create Project Folder

```
mkdir program1
```

```
cd program1
```

S2: Create Dockerfile

```
sudo nano Dockerfile
```



The screenshot shows a terminal window with the title bar "Wed Nov 3 00:22:55" and "1rv24mc113_varun@varun-srivastava: ~/DevOpslab/program1". The terminal is running the GNU nano 7.2 editor, editing a file named "Dockerfile". The content of the Dockerfile is as follows:

```
FROM python:3.9-slim
WORKDIR /app
COPY . /app
RUN pip install flask
EXPOSE 5000
CMD ["python", "app.py"]
```

The bottom of the terminal shows the nano editor's status bar with various keyboard shortcuts: ^G Help, ^X Exit, ^O Write Out, ^R Read File, ^W Where Is, ^M Replace, ^K Cut, ^U Paste, [Read 13 lines], ^T Execute, ^J Justify, ^C Location, ^_ Go To Line, M-U Undo, M-E Redo, M-A Set Mark, M-G Copy.

S3: Create Python Application File

```
nano app.py
```



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

app = Flask(__name__)

@app.route('/')
def home():
    return "Hello, Docker Flask App!"

if __name__ == "__main__":
    app.run(host='0.0.0.0', port=5000)
```

Help Exit Write Out Read File Where Is Replace Cut Paste [Read 11 lines] Execute Justify Location Go To Line M-U Undo M-E Redo M-A Set Mark M-G Copy

S4: Create requirements.txt File
nano requirements.txt



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

Help Exit Write Out Read File Where Is Replace Cut Paste [Read 1 line] Execute Justify Location Go To Line M-U Undo M-E Redo M-A Set Mark M-G Copy

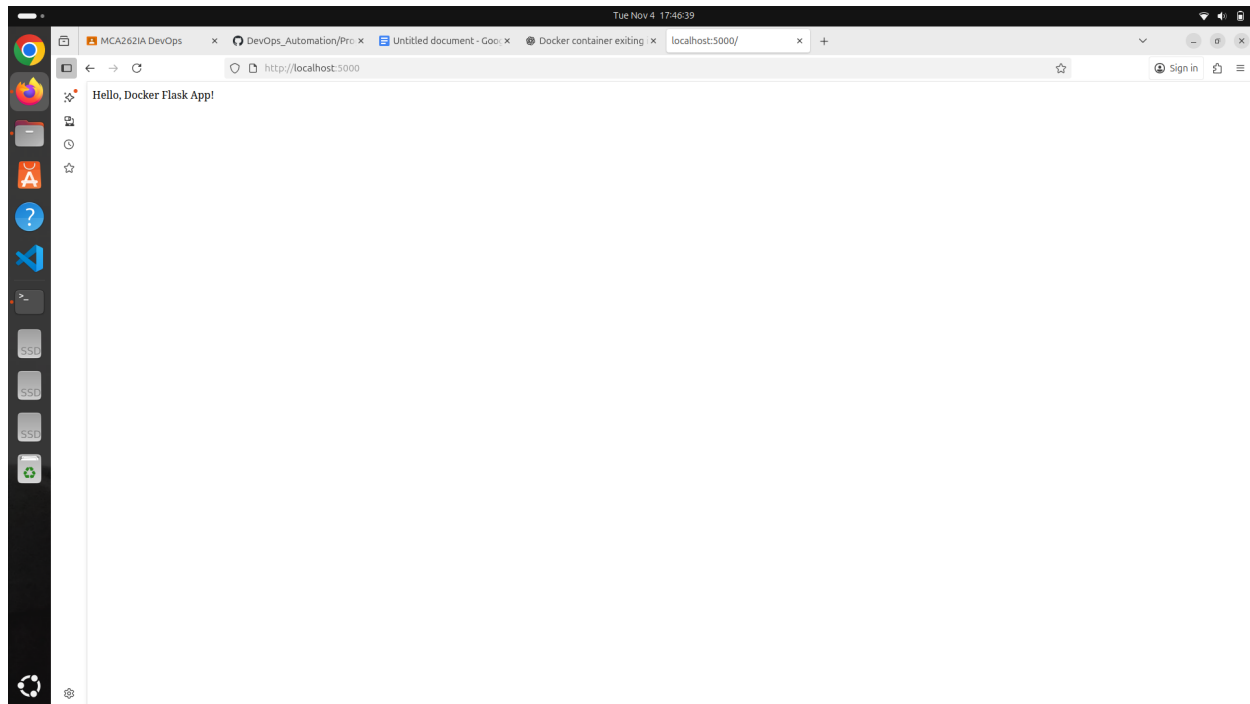
S5: Build the Docker Image
Sudo docker build -t program1 .
S6: Run the Docker Container

docker run -d -p 5000:5000 program_1

```
1rv24mc113_varun@varun-srivastava:~/DevOpslab/program1$ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
1rv24mc113_varun@varun-srivastava:~/DevOpslab/program1$ docker container ls -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
1rv24mc113_varun@varun-srivastava:~/DevOpslab/program1$ docker build --no-cache -t program1:latest .
[+] Building 9.4s (9/9) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 149B
=> [internal] load metadata for docker.io/library/python:3.9-slim
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/4] FROM docker.io/library/python:3.9-slim@sha256:2d97f6910b16bd338d3060f261f53f144965f755599aabb1acd1e13cf1731b1b
=> [internal] load build context
=> => transferring context: 92B
=> CACHED [2/4] WORKDIR /app
=> [3/4] COPY . /app
=> [4/4] RUN pip install flask
=> exporting to image
=> => exporting layers
=> => writing image sha256:64134eff34fdc7dfe12cecc9224c172a34a48e54b1eb3f82873b45fd3f32ee98
=> => naming to docker.io/library/program1:latest
1rv24mc113_varun@varun-srivastava:~/DevOpslab/program1$ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
program1 latest 64134eff34fd 29 seconds ago 133MB
1rv24mc113_varun@varun-srivastava:~/DevOpslab/program1$ docker run -d -p 5000:5000 --name Contprog1 program1:latest
63b4c27b3e6ac543902c2347d3e8eb285eda47d002de940fab44f363fd29c3ee
1rv24mc113_varun@varun-srivastava:~/DevOpslab/program1$ docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
63b4c27b3e6a program1:latest "python app.py" 11 seconds ago Up 10 seconds 0.0.0.0:5000->5000/tcp, [::]:5000->5000/tcp ontprog1
1rv24mc113_varun@varun-srivastava:~/DevOpslab/program1$
```

S7: Verify the Application

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



S8: Verify Running Container

docker ps