

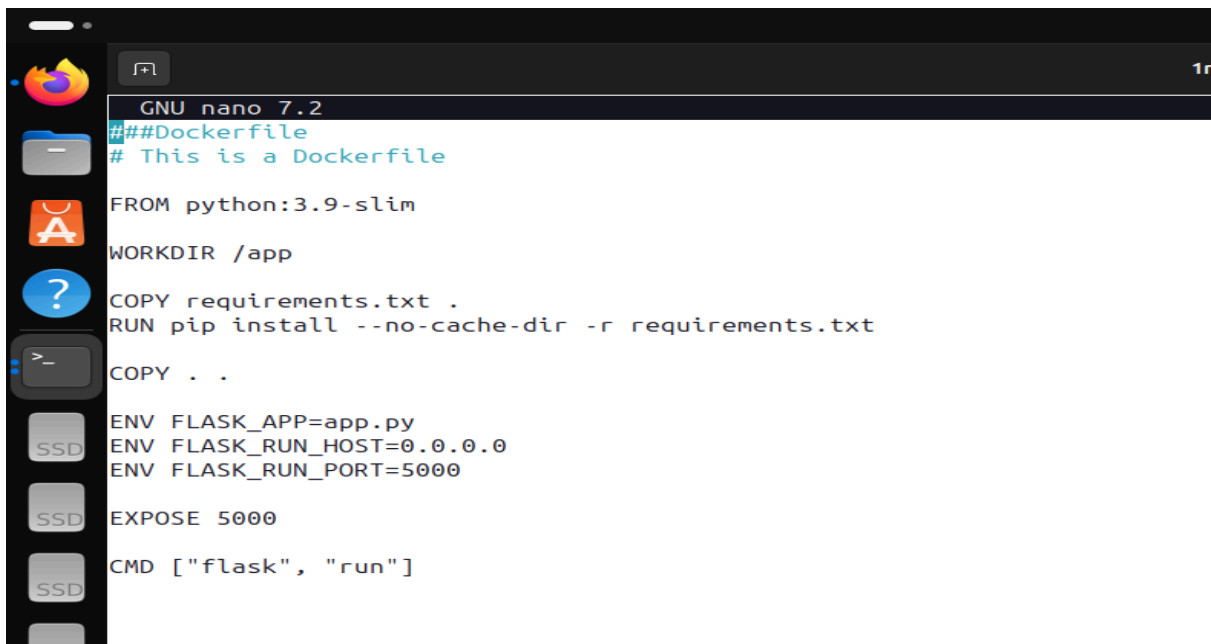
## Program 1 : Bulid a Docker container from a custom Dockerfile

Project Structure :

program-1/

- > Dockerfile
- > requirements.txt
- > app.py

Step 1: Create a Dockerfile.



```
GNU nano 7.2
###Dockerfile
# This is a Dockerfile

FROM python:3.9-slim

WORKDIR /app

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

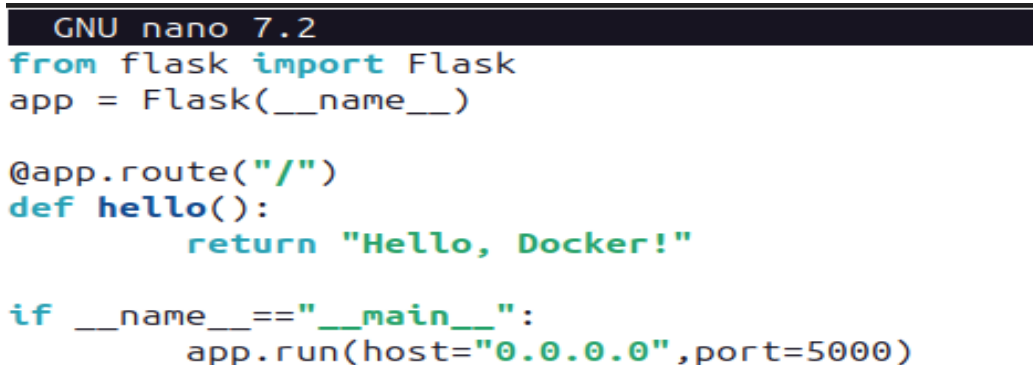
COPY . .

ENV FLASK_APP=app.py
ENV FLASK_RUN_HOST=0.0.0.0
ENV FLASK_RUN_PORT=5000

EXPOSE 5000

CMD ["flask", "run"]
```

Step 2 : Create a python file - [app.py](#)



```
GNU nano 7.2
from flask import Flask
app = Flask(__name__)

@app.route("/")
def hello():
    return "Hello, Docker!"

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

Step 3 : Create Requirements.txt file and add the following

flask

Step 4: Execute the Docker Build command on the terminal.

```
1rv24mc013_akashj@akash-HP-Laptop-15s-fq5xxx: ~/program-1
1rv24mc013_akashj@akash-HP-Laptop-15s-fq5xxx:~$ cd program-1
1rv24mc013_akashj@akash-HP-Laptop-15s-fq5xxx:~/program-1$ ls
app.py  Dockerfile  requirements.txt
1rv24mc013_akashj@akash-HP-Laptop-15s-fq5xxx:~/program-1$ sudo docker build -t program-1 .
[sudo] password for 1rv24mc013_akashj:
[+] Building 48.4s (10/10) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 306B
=> [internal] load metadata for docker.io/library/python:3.9-slim
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/5] FROM docker.io/library/python:3.9-slim@sha256:2d97f6910b16bd338d3060f261f53f144965f755599aab1acda1e13cf1731b1b
=> => resolve docker.io/library/python:3.9-slim@sha256:2d97f6910b16bd338d3060f261f53f144965f755599aab1acda1e13cf1731b1b
=> => sha256:2d97f6910b16bd338d3060f261f53f144965f755599aab1acda1e13cf1731b1b 10.36kB / 10.36kB
=> => sha256:dad5b29e3506c35e0fd222736f4d4ef25d21b219acd73f7bb41d59996ca8e0d 1.74kB / 1.74kB
=> => sha256:085da638e1b8a449514c3fda83ff50a3bffa4418b050cfac087e5722071f497 5.40kB / 5.40kB
=> => sha256:b3ec39b36ae8c03a3e09854de4ec4aa08381dfed84a9daa075048c2e3df3881d 1.29MB / 1.29MB
=> => sha256:fc74430849022d13b0d44b8969a953f842f59c6e9d1a0c2c83d710affa286c08 13.88MB / 13.88MB
=> => sha256:ea56f68540ad81680322f152d2cfec62115b30dda481c2c450078315beb508 251B / 251B
=> => extracting sha256:b3ec39b36ae8c03a3e09854de4ec4aa08381dfed84a9daa075048c2e3df3881d
=> => extracting sha256:fc74430849022d13b0d44b8969a953f842f59c6e9d1a0c2c83d710affa286c08
=> => extracting sha256:ea56f68540ad81680322f152d2cfec62115b30dda481c2c450078315beb508
=> [internal] load build context
=> => transferring context: 93B
=> [2/5] WORKDIR /app
=> [3/5] COPY requirements.txt .
=> [4/5] RUN pip install --no-cache-dir -r requirements.txt
=> [5/5] COPY . .
=> => exporting to image
=> => exporting layers
=> => writing image sha256:88875dee5447459b9550ee3d56d978a45d65e15bb463a5095d6eb9b5c5724045
=> => naming to docker.io/library/program-1
1rv24mc013_akashj@akash-HP-Laptop-15s-fq5xxx:~/program-1$ nano docker images
1rv24mc013_akashj@akash-HP-Laptop-15s-fq5xxx:~/program-1$ sudo docker images
REPOSITORY   TAG       IMAGE ID       CREATED        SIZE
program-1    latest   88875dee5447   33 seconds ago  133MB
program-2    latest   2e4d257bd902   2 days ago    137MB
ubuntu       latest   2e4d257bd902   2 days ago    137MB
<none>       <none>   71e4b1564732   2 days ago    137MB
program_1    latest   557b2bd68360   2 days ago    132MB
<none>       <none>   3c18222808af   3 days ago    132MB
secondfile   latest   3d28727ea299   6 days ago    17.8MB
1rv24mc013_akashj@akash-HP-Laptop-15s-fq5xxx:~/program-1$ sudo docker run -d -p 5000:5000 --name flask-container program-1
06b9075e252974ae4a0cedea9781af296932ac045b087e6ffba3167158967948
1rv24mc013_akashj@akash-HP-Laptop-15s-fq5xxx:~/program-1$ sudo docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
06b9075e2529   program-1 "flask run"             19 seconds ago Up 18 seconds 0.0.0.0:5000->5000/tcp, [::]:5000->5000/tcp  flask-container
1rv24mc013_akashj@akash-HP-Laptop-15s-fq5xxx:~/program-1$ sudo docker container stop 06b9075e2529
06b9075e2529
1rv24mc013_akashj@akash-HP-Laptop-15s-fq5xxx:~/program-1$ sudo docker container rm 06b9075e2529
06b9075e2529
1rv24mc013_akashj@akash-HP-Laptop-15s-fq5xxx:~/program-1$
```

```
1rv24mc013_akashj@akash-HP-Laptop-15s-fq5xxx:~/program-1$ sudo docker run -d -p 5000:5000 --name flask-container program-1
06b9075e252974ae4a0cedea9781af296932ac045b087e6ffba3167158967948
1rv24mc013_akashj@akash-HP-Laptop-15s-fq5xxx:~/program-1$ sudo docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
06b9075e2529   program-1 "flask run"             19 seconds ago Up 18 seconds 0.0.0.0:5000->5000/tcp, [::]:5000->5000/tcp  flask-container
1rv24mc013_akashj@akash-HP-Laptop-15s-fq5xxx:~/program-1$ sudo docker container stop 06b9075e2529
06b9075e2529
1rv24mc013_akashj@akash-HP-Laptop-15s-fq5xxx:~/program-1$ sudo docker container rm 06b9075e2529
06b9075e2529
1rv24mc013_akashj@akash-HP-Laptop-15s-fq5xxx:~/program-1$
```

Step 5 : Test the container by verifying the localhost

Http ://localhost:5000

