

1)

1.1

```
abolfazl@ubuntu01:~/exc7$ touch app.py
abolfazl@ubuntu01:~/exc7$ nano app.py
abolfazl@ubuntu01:~/exc7$ nano app.py
```

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

app = Flask(__name__)

@app.route('/')
def hello():
    return "Hello from Flask!"

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

1.2

```
Press CTRL+C to quit
(.venv) abolfazl@ubuntu01:~/exc7$ touch Dockerfile
```

```
GNU nano 7.2 Dockerfile
FROM python:3.9-slim

WORKDIR /app

COPY . .

RUN pip install Flask

Expose 5000

CMD ["python3", "app.py"]
```

1.3

```
(.venv) abolfazl@ubuntu01:~/exc7$ docker build -t flask-app:latest .
[+] Building 295.0s (9/9) FINISHED                                docker:default
=> [internal] load build definition from Dockerfile                0.2s
=> => transferring dockerfile: 146B                                0.0s
=> WARN: ConsistentInstructionCasing: Command 'Expose' should match the case of the c 0.2s
=> [internal] load metadata for docker.io/library/python:3.9-slim 7.7s
=> [internal] load .dockerignore                                  0.2s
=> => transferring context: 2B                                       0.0s
=> [1/4] FROM docker.io/library/python:3.9-slim@sha256:27211e8bbfd2c91ac9adbde0565b 258.0s
=> => resolve docker.io/library/python:3.9-slim@sha256:27211e8bbfd2c91ac9adbde0565b9a 0.2s
=> => sha256:27211e8bbfd2c91ac9adbde0565b9ac18234bfcde8ef0e6a3404fd 10.41kB / 10.41kB 0.0s
=> => sha256:6a168e1359fe0cb7746746fe418bab1ffc1972294e5f75005db8d9e9 1.94kB / 1.94kB 0.0s
=> => sha256:7bfcddd27f2b23ee199f3e4a938eaa80ef01c609d6d1c160787e7642 6.88kB / 6.88kB 0.0s
=> => sha256:efc2b5ad9eec05bfa54239d53feeae3569ccbef689aa5e5dbfc 29.13MB / 29.13MB 233.1s
=> => sha256:7464ec8699ac1a9a0b7ecb92214d829bb4fd397807b7b7ea6a48349 3.51MB / 3.51MB 27.9s
=> => sha256:1a6e97f2166ac8137bc106722ddb9e0ffc6ffd868f278e0c29d57 11.89MB / 11.89MB 66.6s
=> => sha256:27f64c4bf8446eb334eef17fb7bb926fc38019d35f12357148f19c86aae 230B / 230B 28.6s
=> => sha256:1d44c5b3324ee14545c10ae777ae3a1ca09f0ac1bb9b4c8cc65828b 2.77MB / 2.77MB 85.3s
=> => extracting sha256:efc2b5ad9eec05bfa54239d53feeae3569ccbef689aa5e5dbfc25da6c4d 14.2s
=> => extracting sha256:7464ec8699ac1a9a0b7ecb92214d829bb4fd397807b7b7ea6a483493992a8 1.4s
=> => extracting sha256:1a6e97f2166ac8137bc106722ddb9e0ffc6ffd868f278e0c29d57584f7f56 4.0s
=> => extracting sha256:27f64c4bf8446eb334eef17fb7bb926fc38019d35f12357148f19c86aaec7 0.0s
=> => extracting sha256:1d44c5b3324ee14545c10ae777ae3a1ca09f0ac1bb9b4c8cc65828b58526b 1.9s
=> [internal] load build context                                  3.5s
=> => transferring context: 17.89MB                                3.0s
=> [2/4] WORKDIR /app                                           3.0s
=> [3/4] COPY . .                                               1.6s
=> [4/4] RUN pip install Flask                                  22.0s
=> exporting to image                                           1.3s
=> => exporting layers                                           1.1s
=> => writing image sha256:93b8ab2ab7255cff2509f53afd4c4f41dd89433cd4a5dea434d4b76b0a 0.0s
=> => naming to docker.io/library/flask-app:latest              0.0s

1 warning found (use --debug to expand):
- ConsistentInstructionCasing: Command 'Expose' should match the case of the command majorit
y (uppercase) (line 9)
```

2)

2.1

```
(.venv) abolfazl@ubuntu01:~/exc7$ docker tag flask-app:latest abolfazlaghdaee/flask-app:lates
t
(.venv) abolfazl@ubuntu01:~/exc7$ docker images
REPOSITORY          TAG         IMAGE ID      CREATED        SIZE
abolfazlaghdaee/flask-app  latest     93b8ab2ab725  8 minutes ago  154MB
```

2.2

```
(.venv) abolfazl@ubuntu01:~/exc7$ docker push abolfazlaghdaee/flask-app:latest
The push refers to repository [docker.io/abolfazlaghdaee/flask-app]
1af277525055: Layer already exists
2151d9194c67: Layer already exists
79ae63a8f0de: Layer already exists
337337a89bc6: Layer already exists
6e1edc42bbcc: Layer already exists
da6d0db38dea: Layer already exists
4e4410552731: Pushed
e0781bc8667f: Pushed
latest: digest: sha256:2a73a4db7564140fef0b9fb25b4fc94256cebce3cf59a02eaae05a6606379019 size:
1998
(.venv) abolfazl@ubuntu01:~/exc7$
```

2.3

```
abolfazl@ablfzl ~$ sudo docker login
Log in with your Docker ID or email address to push and pull images from Docker Hub. If you don't have a Docker ID, head
over to https://hub.docker.com/ to create one.
You can log in with your password or a Personal Access Token (PAT). Using a limited-scope PAT grants better security and
is required for organizations using SSO. Learn more at https://docs.docker.com/go/access-tokens/

Username: abolfazlaghdaee
Password:
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credential-stores

Login Succeeded

abolfazl@ablfzl ~$ sudo docker pull abolfazlaghdaee/flask-app:latest
latest: Pulling from abolfazlaghdaee/flask-app
efc2b5ad9eec: Pull complete
7464ec8699ac: Pull complete
1a6e97f2166a: Pull complete
27f64c4bf844: Pull complete
1d44c5b3324e: Pull complete
24698b8c6264: Pull complete
9ad90c531276: Pull complete
3a5fb593827e: Pull complete
Digest: sha256:2a73a4db7564140fef0b9fb25b4fc94256cebce3cf59a02eaae05a6606379019
Status: Downloaded newer image for abolfazlaghdaee/flask-app:latest
docker.io/abolfazlaghdaee/flask-app:latest
```

2.4

```
abolfazl@ablfzl ~$ sudo docker run -p 5000:5000 abolfazlaghdaee/flask-app:latest
* Serving Flask app 'app'
* 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://172.17.0.2:5000
Press CTRL+C to quit
172.17.0.1 - - [01/Aug/2024 11:57:54] "GET / HTTP/1.1" 200 -
172.17.0.1 - - [01/Aug/2024 11:57:55] "GET /favicon.ico HTTP/1.1" 404 -
```

Hello from Flask!

68.6 kbps 112.0 kbps

3)

3.1

```
bolfazl@ubuntu01:~/exc7$ docker run -d --name my-flask-app -p 5000:5000 abolfazlaghd/my-flask-app:latest
43b62c3da18491415ac2312de5d3ca1acda6a117d45ca20263c6c3c06f26762a
```

3.2

```
(.venv) abolfazl@ubuntu01:~/exc7$ docker pause my-flask-app
my-flask-app
```

```
(.venv) abolfazl@ubuntu01:~/exc7$ docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
43b6c23da184	abolfazlaghdaee/flask-app:latest	"python3 app.py"	54 seconds ago	Up 52 seconds (Paused)	0.0.0.0:5000->5000/tcp, :::5000->5000/tcp	my-flask-app

3.3)

```
(.venv) abolfazl@ubuntu01:~/exc7$ docker unpause my-flask-app
my-flask-app
```

```
(.venv) abolfaz@ubuntu01:~/exc7$ docker ps -a
```

CONTAINER ID	IMAGE	NAMES	COMMAND	CREATED	STATUS	PORTS
43b62c3da184	abolfazlaghadee/flask-app:latest	my-flask-app	"python3 app.py"	4 minutes ago	Up 4 minutes	0.0.0.0:5000->5000/tcp, :::5000->5000/tcp

4)

4.1)

THERE WAS JUST NOTE ABOUT DOING THIS ASSIGNMENT

4.2)

```
(.venv) abolfazl@ubuntu01:~/exc7$ docker save -o flask-app.tar abolfazlaghdaee/flask-app:latest
(.venv) abolfazl@ubuntu01:~/exc7$ ls
app.py  docker-compose.yml  Dockerfile  flask-app.tar
```

4.3)

```
(.venv) abolfazl@ubuntu01:~/exc7$ sudo mv flask-app.tar /exc7-2
(.venv) abolfazl@ubuntu01:~/exc7$ cd exc7 2
```

4.4)

```
(.venv) abolfazl@ubuntu01:~/exc7/exc7_2$ docker load -i flask-app.tar
Loaded image: abolfazlaghdaee/flask-app:latest
```

4.5)

```
(.venv) abolfazl@ubuntu01:~/exc7/exc7_2$ docker run -d abolfazlaghdaee/flask-app:latest
ec69e69706be59d8bdbd1fa826b7975805c6290c2ec8f30fceca9ca45ba1ecca
```

5)

5.1)

```
touch docker-compose.yml
nano docker-compose.yml
```

version: '3.8'

services:

flask_app:

image: python:3.8

container_name: flask_app

working_dir: /app

volumes:

- ./app

ports:

- "5000:5000"

command: >

sh -c "pip install flask && python -m flask run --host=0.0.0.0"

redis:

image: "redis:alpine"

container_name: redis

ports:

- "6379:6379"

5.2)

```
(.venv) abolfazl@ubuntu01:~/exc7$ docker-compose up -d
Creating network "exc7_default" with the default driver
Pulling flask_app (python:3.8)...
3.8: Pulling from library/python
ca4e5d672725: Downloading [=====] 41.88MB/49.55MB
30b93c12a9c9: Download complete
10d643a5fa82: Downloading 32.75MB
d6dc1019d793: Downloading [==>] 6.404MB/211.2MB
0d76ce9e50f4: Waiting
124e2529c480: Waiting
27f64c4bf844: Waiting
0bd46e5067ca: Waiting
```

5.3)

Docker-compose ps

flask_app	sh -c pip install flask & ...	Up	0.0.0.0:5000->5000/tcp
redis	docker-entrypoint.sh redis ...	Up	0.0.0.0:6379->6379/tcp

5.4)

docker-compose down