

Class Assignment / Homework III

Go through Chapter 7 in the Docker Book, and do the exercises one by one.

Start on page 254, and stop on page 270, when you reach “Consul, Service Discovery and Docker”;

Listing 7.1: Installing Docker Compose on Linux

```
$ sudo curl -L "https://github.com/docker/compose/releases/  
download/$(curl -sL https://api.github.com/repos/docker/  
compose/releases/latest | grep tag_name | cut -d'"'"' -f 4)/  
docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/  
docker-compose  
$ sudo chmod +x /usr/local/bin/docker-compose
```

Listing 7.3: Testing Docker Compose is working

```
$ docker-compose --version  
docker-compose version 1.17.1, build f3628c7
```

```
ubuntu $ docker-compose --version  
docker-compose version 1.25.0, build unknown  
ubuntu $ docker compose --version  
Docker version 24.0.5, build 24.0.5-0ubuntu1~20.04.1  
ubuntu $
```

Listing 7.4: Creating the composeapp directory

```
$ mkdir composeapp
$ cd composeapp
```

```
ubuntu $
ubuntu $ mkdir composeapp
ubuntu $ cd composeapp
ubuntu $
```

Listing 7.5: The app.py file

```
from flask import Flask
from redis import Redis
import os

app = Flask(__name__)
redis = Redis(host="redis", port=6379)

@app.route('/')
def hello():
    redis.incr('hits')
    return 'Hello Docker Book reader! I have been seen {0} times'
        .format(redis.get('hits'))

if __name__ == "__main__":
    app.run(host="0.0.0.0", debug=True)
```

```
ubuntu $
ubuntu $ touch app.py
ubuntu $ nano app.py
ubuntu $
```

```
Editor  Tab 1  +
GNU nano 4.8 app.py
from flask import Flask
from redis import Redis
import os

app = Flask(__name__)
redis = Redis(host="redis", port=6379)

@app.route('/')
def hello():
    redis.incr('hits')
    return 'Hello Docker Book reader! I have been seen {0} times'.format(redis.get('hits'))

if __name__ == "__main__":
    app.run(host="0.0.0.0", debug=True)
```

Listing 7.6: The requirements.txt file

```
flask
redis
```

```
ubuntu $ touch requirements.txt
ubuntu $ nano requirements.txt
ubuntu $
```

```
GNU nano 4.8 requirements.txt
flask
redis
```

Listing 7.7: The composeapp Dockerfile

```
# Compose Sample application image
FROM python:2.7
LABEL maintainer="james@example.com"
ENV REFRESHED_AT 2016-06-01

ADD . /composeapp

WORKDIR /composeapp

RUN pip install -r requirements.txt
```

```
ubuntu $ touch Dockerfile
ubuntu $ nano Dockerfile
ubuntu $
```

Editor Tab 1 +

GNU nano 4.8

Dockerfile

```
FROM python:2.7
LABEL maintainer="james@example.com"
ENV REFRESHED_AT 2016-08-01

ADD . /composeapp

WORKDIR /composeapp

RUN pip install -r requirements.txt
```

Listing 7.8: Building the composeapp application

```
$ sudo docker build -t jamtur01/composeapp .
Sending build context to Docker daemon 16.9 kB
Sending build context to Docker daemon
Step 0 : FROM python:2.7
--> 1c8df2f0c10b
Step 1 : LABEL maintainer="james@example.com"
--> Using cache
--> aa564fe8be5a
Step 2 : ADD . /composeapp
```

```
ubuntu $ docker build -t bojan211151/composeapp .
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
Install the buildx component to build images with BuildKit:
https://docs.docker.com/go/buildx/

Sending build context to Docker daemon 4.608kB
Step 1/6 : FROM python:2.7
2.7: Pulling from library/python
7e2b2a5af8f6: Pull complete
09b6f03ffac4: Pull complete
dc3f0c679f0f: Pull complete
fd4b47407fc3: Pull complete
b32f6bf7d96d: Pull complete
6f4489a7e4cf: Pull complete
af4b99ad9ef0: Pull complete
39db0bc48c26: Pull complete
acb4a89489fc: Pull complete
Digest: sha256:cfa62318c459b1fde9e0841c619906d15ada5910d625176e24bf692cf8a2601d
Status: Downloaded newer image for python:2.7
--> 68e7be49c28c
Step 2/6 : LABEL maintainer="james@example.com"
--> Running in 167f4f6e2345
Removing intermediate container 167f4f6e2345
--> 599cc390dbab
Step 3/6 : ENV REFRESHED_AT 2016-08-01
--> Running in ee0265a82249
Removing intermediate container ee0265a82249
--> 22663ab2092a
Step 4/6 : ADD . /composeapp
--> fd3ea7c20217
Step 5/6 : WORKDIR /composeapp
--> Running in 5fc9a9f86b77
Removing intermediate container 5fc9a9f86b77
--> 633c54dfe3dd
Step 6/6 : RUN pip install -r requirements.txt
--> Running in 1b919c451569
```

```
Removing intermediate container 1b919c451569
--> 845b8c4ca73c
Successfully built 845b8c4ca73c
Successfully tagged bojan211151/composeapp:latest
```

Listing 7.9: Creating the docker-compose.yml file

```
$ touch docker-compose.yml
```

Listing 7.10: The docker-compose.yml file

```
version: '3'
services:
  web:
    image: jamtur01/composeapp
    command: python app.py
    ports:
      - "5000:5000"
    volumes:
      - ./composeapp
  redis:
    image: redis
```

```
Successfully tagged bojan211151/composeapp:latest
ubuntu $ touch docker-compose.yml
ubuntu $ nano docker-compose.yml
ubuntu $ nano docker-compose.yml
```

Editor Tab 1 +

GNU nano 4.8

docker-compose.yml

```
version: '3'
services:
  web:
    image: bojan211151/composeapp
    command: python app.py
    ports:
      - "5000:5000"
    volumes:
      - ./composeapp
  redis:
    image: redis
```

Listing 7.13: Running docker-compose up with our sample application

```
$ cd composeapp
$ sudo docker-compose up
Creating network "composeapp_default" with the default driver
Recreating composeapp_web_1 ...
Recreating composeapp_web_1
Recreating composeapp_redis_1 ...
Recreating composeapp_web_1 ... done
Attaching to composeapp_redis_1, composeapp_web_1
web_1      | * Running on http://0.0.0.0:5000/ (Press CTRL+C to
           | quit)
. . .
```

```
ubuntu $ docker-compose up
Creating network "composeapp_default" with the default driver
Pulling redis (redis:)...
latest: Pulling from library/redis
8a1e25ce7c4f: Pull complete
8ab039a68e51: Pull complete
2b12a49dcfb9: Pull complete
cdf9868f47ac: Pull complete
e73ea5d3136b: Pull complete
890ad32c613f: Pull complete
4f4fb700ef54: Pull complete
ba517b76f92b: Pull complete
Digest: sha256:3134997edb04277814aa51a4175a588d45eb4299272f8eff2307bbf8b39e4d43
Status: Downloaded newer image for redis:latest
Creating composeapp_web_1 ...
```

Listing 7.15: Running Compose daemonized

```
$ sudo docker-compose up -d
```

```
ubuntu $ docker-compose up -d
Starting composeapp_web_1 ...
composeapp_redis_1 is up-to-date
Starting composeapp_web_1 ... error
```

Listing 7.17: Running the docker-compose ps command

```
$ cd composeapp
$ sudo docker-compose ps
Name                                Command                                State Ports
-----
composeapp_redis_1 docker-entrypoint.sh redis Up      6379/tcp
composeapp_web_1   python app.py                        Up      0.0.0.0:5000
->5000/tcp
```

```
ubuntu $
ubuntu $ docker-compose ps
Name                                Command                                State Ports
-----
composeapp_redis_1 docker-entrypoint.sh redis ... Up      6379/tcp
composeapp_web_1   python app.py                        Exit 128
ubuntu $
```

Listing 7.18: Showing a Compose services logs

```
$ sudo docker-compose logs
docker-compose logs
Attaching to composeapp_redis_1, composeapp_web_1
redis_1 | ( ' , .-' | ` , ) Running in
stand alone mode
redis_1 | |`-.-'.....-`.....-`-.-'|`-.-'| Port: 6379
redis_1 | |`-.-'.....-`.....-`-.-'|`-.-'| PID: 1
. . .
```

```
ubuntu $
ubuntu $ docker-compose logs
Attaching to composeapp_redis_1, composeapp_web_1
redis_1 | 1:C 19 Mar 2024 20:10:39.682 # WARNING Memory overcommit must be enabled! Without it, a background save or replication may fail under low memory condition. Being disabled, it can also cause failures without low memory condition, see https://github.com/jemalloc/jemalloc/issues/1328. To fix this issue add 'vm.overcommit_memory = 1' to /etc/sysctl.conf and then reboot or run the command 'sysctl vm.overcommit_memory=1' for this to take effect.
redis_1 | 1:C 19 Mar 2024 20:10:39.687 * oOoOoOoOoOoOo Redis is starting oOoOoOoOoOoOo
redis_1 | 1:C 19 Mar 2024 20:10:39.687 * Redis version=7.2.4, bits=64, commit=00000000, modified=0, pid=1, just started
redis_1 | 1:C 19 Mar 2024 20:10:39.687 # Warning: no config file specified, using the default config. In order to specify a config file use redis-server /path/to/redis.conf
redis_1 | 1:M 19 Mar 2024 20:10:39.687 * monotonic clock: POSIX clock_gettime
redis_1 | 1:M 19 Mar 2024 20:10:39.688 * Running mode=standalone, port=6379.
redis_1 | 1:M 19 Mar 2024 20:10:39.690 * Server initialized
redis_1 | 1:M 19 Mar 2024 20:10:39.690 * Ready to accept connections tcp
```


Listing 7.19: Stopping running services

```
$ sudo docker-compose stop
Stopping composeapp_web_1...
Stopping composeapp_redis_1...
```

```
ubuntu $
ubuntu $ docker-compose stop
Stopping composeapp_redis_1 ... done
ubuntu $
```

Listing 7.20: Verifying our Compose services have been stopped

```
$ sudo docker-compose ps
Name                Command             State      Ports
-----
composeapp_redis_1  redis-server        Exit 0
composeapp_web_1    python app.py       Exit 0
```

```
ubuntu $
ubuntu $ docker ps
CONTAINER ID   IMAGE     COMMAND             CREATED   STATUS    PORTS     NAMES
ubuntu $
ubuntu $ docker-compose ps
Name                Command             State      Ports
-----
composeapp_redis_1  docker-entrypoint.sh redis ...   Exit 0
composeapp_web_1    python app.py       Exit 128
ubuntu $
```

Listing 7.21: Removing Compose services

```
$ sudo docker-compose rm
Going to remove composeapp_redis_1, composeapp_web_1
Are you sure? [yN] y
Removing composeapp_redis_1...
Removing composeapp_web_1...
```

```
ubuntu $ docker-compose stop
Stopping composeapp_redis_1 ... done
ubuntu $ docker-compose rm
Going to remove composeapp_redis_1
Are you sure? [yN] y
Removing composeapp_redis_1 ... done
ubuntu $ docker-compose down
Removing network composeapp_default
ubuntu $
```

Listing 7.22: Showing no Compose services

```
$ sudo docker-compose ps
Name      Command      State      Ports
-----
```

```
ubuntu $
ubuntu $ docker-compose ps
Name      Command      State      Ports
-----
ubuntu $
```

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