

CONTAINER ORCHESTRATION AND INFRASTRUCTURE

AUTOMATION LAB

NAME- Shubhi Dixit

BATCH- 05

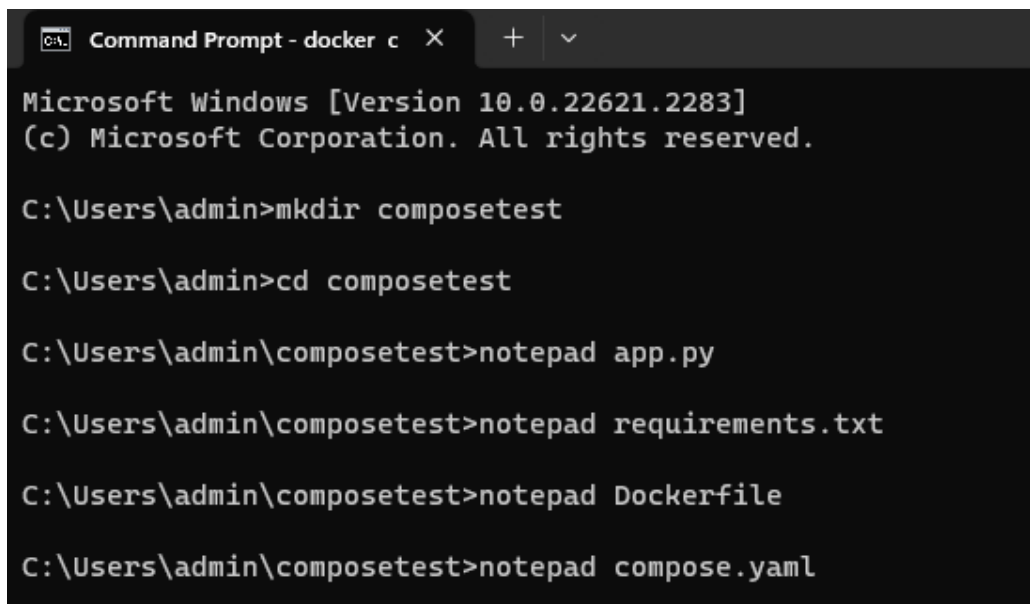
SAP ID- 500094571

Docker Compose

Step 1- Create the directory “composetest”

Step 2- Change the current directory to “composetest”

Step 3- Create 4 files named “app.py”, “requirements.txt”, “Dockerfile” and “compose.yaml”



```
Command Prompt - docker c  X + v
Microsoft Windows [Version 10.0.22621.2283]
(c) Microsoft Corporation. All rights reserved.

C:\Users\admin>mkdir composetest

C:\Users\admin>cd composetest

C:\Users\admin\composetest>notepad app.py

C:\Users\admin\composetest>notepad requirements.txt

C:\Users\admin\composetest>notepad Dockerfile

C:\Users\admin\composetest>notepad compose.yaml
```

```
app.py
File Edit View

import time
import redis
from flask import Flask

app = Flask(__name__)
cache = redis.Redis(host='redis', port=6379)

def get_hit_count():
    retries = 5
    while True:
        try:
            return cache.incr('hits')
        except redis.exceptions.ConnectionError as exc:
            if retries == 0:
                raise exc
            retries -= 1
            time.sleep(0.5)

@app.route('/')
def hello():
    count = get_hit_count()
    return 'Hello World! I have been seen {} times.\n'.format(count)
```

```
requirements.txt
File Edit View

flask
Redis
|
```

```
Dockerfile
File Edit View

# syntax=docker/dockerfile:1
FROM python:3.7-alpine
WORKDIR /code
ENV FLASK_APP=app.py
ENV FLASK_RUN_HOST=0.0.0.0
RUN apk add --no-cache gcc musl-dev linux-headers
COPY requirements.txt requirements.txt
RUN pip install -r requirements.txt
EXPOSE 5000
COPY . .
CMD ["flask", "run"]
```

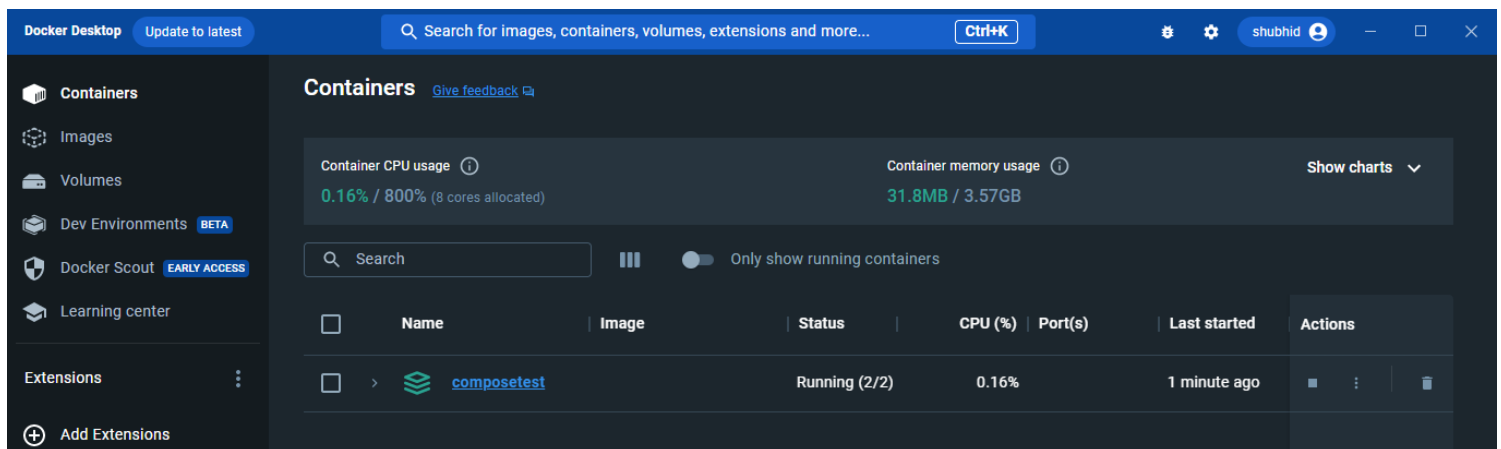
```
compose.yaml
X +
File Edit View

services:
  web:
    build: .
    ports:
      - "8000:5000"
  redis:
    image: "redis:alpine"
```

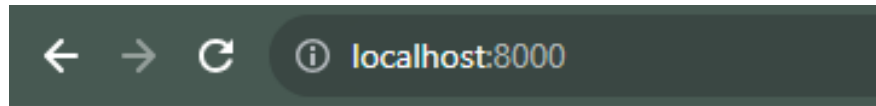
Step 4- Use the command “docker-compose up”, this will start all the services defined in your docker-compose.yml file and will automatically create a container.

```
C:\Users\admin\composetest>docker compose up
[+] Building 30.9s (15/15) FINISHED                                docker:default
=> [web internal] load build definition from Dockerfile            0.0s
=> => transferring dockerfile: 329B                               0.0s
=> [web internal] load .dockerignore                              0.0s
=> => transferring context: 2B                                     0.0s
=> [web] resolve image config for docker.io/docker/dockerfile:1  3.8s
=> [web auth] docker/dockerfile:pull token for registry-1.docker.io 0.0s
=> CACHED [web] docker-image://docker.io/docker/dockerfile:1@sha256:ac85f380a63b13dfcefa89046420e1781752bab202122f8f50032edf31be0021 0.0s
=> [web internal] load metadata for docker.io/library/python:3.7-alpine 2.9s
=> [web auth] library/python:pull token for registry-1.docker.io 0.0s
=> [web 1/6] FROM docker.io/library/python:3.7-alpine@sha256:9d9b05fc8acdc85a9fc0da1da11a8e90f76b88bd36fabb8f57c4c7ef027fbcc9 3.9s
=> => resolve docker.io/library/python:3.7-alpine@sha256:9d9b05fc8acdc85a9fc0da1da11a8e90f76b88bd36fabb8f57c4c7ef027fbcc9 0.0s
=> => sha256:f26771d857d7bfe2ecd624f357e8391f27f30ec6960d4c1240babf76a8391466 243B / 243B 0.3s
=> => sha256:9d9b05fc8acdc85a9fc0da1da11a8e90f76b88bd36fabb8f57c4c7ef027fbcc9 1.65kB / 1.65kB 0.0s
=> => sha256:0c844a18f7b7b7177cdbe35d5ec934a7801bab3470817321902a6f57c7f67c24 1.37kB / 1.37kB 0.0s
=> => sha256:1b091ebaa5db12afd53b9c1fd5cd9fe95751ffb789c2ce5e530e6a66f535d1f8 6.87kB / 6.87kB 0.0s
```

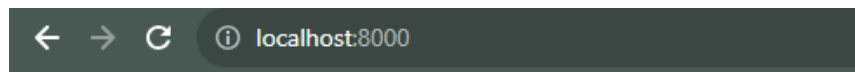
```
Command Prompt - docker c X + v
=> [web 3/6] RUN apk add --no-cache gcc musl-dev linux-headers 13.5s
=> [web 4/6] COPY requirements.txt requirements.txt 0.0s
=> [web 5/6] RUN pip install -r requirements.txt 5.1s
=> [web 6/6] COPY . . 0.0s
=> [web] exporting to image 0.9s
=> => exporting layers 0.9s
=> => writing image sha256:3cc8ff9f624f2d18cd1933736b582d5e5126d2c20e95e13ed408c6cea98fc6c6 0.0s
=> => naming to docker.io/library/composetest-web 0.0s
[+] Running 3/3
  ✓ Network composetest_default Created 0.1s
  ✓ Container composetest-redis-1 Created 0.2s
  ✓ Container composetest-web-1 Created 0.2s
Attaching to composetest-redis-1, composetest-web-1
composetest-redis-1 | 1:C 19 Sep 2023 16:22:34.645 # 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.
composetest-redis-1 | 1:M 19 Sep 2023 16:22:34.647 * o000o000o000o Redis is starting o000o000o000o
composetest-redis-1 | 1:C 19 Sep 2023 16:22:34.647 * Redis version=7.2.1, bits=64, commit=00000000, modified=0, pid=1, just started
composetest-redis-1 | 1:C 19 Sep 2023 16:22:34.647 # Warning: no config file specified, using the default config. In order to specify a config file use redis-server /path/to/redis.conf
composetest-redis-1 | 1:M 19 Sep 2023 16:22:34.647 * monotonic clock: POSIX clock_gettime
composetest-redis-1 | 1:M 19 Sep 2023 16:22:34.649 * Running mode=standalone, port=6379.
composetest-redis-1 | 1:M 19 Sep 2023 16:22:34.650 * Server initialized
composetest-redis-1 | 1:M 19 Sep 2023 16:22:34.650 * Ready to accept connections tcp
composetest-web-1 | * Serving Flask app 'app.py'
composetest-web-1 | * Debug mode: off
composetest-web-1 | WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
composetest-web-1 | * Running on all addresses (0.0.0.0)
composetest-web-1 | * Running on http://127.0.0.1:5000
composetest-web-1 | * Running on http://172.18.0.3:5000
composetest-web-1 | Press CTRL+C to quit
composetest-web-1 | 172.18.0.1 - - [19/Sep/2023 16:23:04] "GET / HTTP/1.1" 200 -
composetest-web-1 | 172.18.0.1 - - [19/Sep/2023 16:23:04] "GET /favicon.ico HTTP/1.1" 404 -
```



Step 5- Now use the browser to see whether the services are working properly or not.



Hello World! I have been seen 1 times.



Hello World! I have been seen 6 times.

Step 6- Use the command “docker-compose down”, this will stop and remove the containers, networks, and volumes defined in your docker-compose.yml file.

```

composetest-web-1 | WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
composetest-web-1 | * Running on all addresses (0.0.0.0)
composetest-web-1 | * Running on http://127.0.0.1:5000
composetest-web-1 | * Running on http://172.18.0.3:5000
composetest-web-1 | Press CTRL+C to quit
composetest-web-1 | 172.18.0.1 - - [19/Sep/2023 16:23:04] "GET / HTTP/1.1" 200 -
composetest-web-1 | 172.18.0.1 - - [19/Sep/2023 16:23:04] "GET /favicon.ico HTTP/1.1" 404 -
composetest-web-1 | 172.18.0.1 - - [19/Sep/2023 16:24:00] "GET / HTTP/1.1" 200 -
composetest-web-1 | 172.18.0.1 - - [19/Sep/2023 16:24:01] "GET / HTTP/1.1" 200 -
composetest-web-1 | 172.18.0.1 - - [19/Sep/2023 16:24:02] "GET / HTTP/1.1" 200 -
composetest-web-1 | 172.18.0.1 - - [19/Sep/2023 16:24:05] "GET / HTTP/1.1" 200 -
composetest-web-1 | 172.18.0.1 - - [19/Sep/2023 16:24:06] "GET / HTTP/1.1" 200 -
Gracefully stopping... (press Ctrl+C again to force)
Aborting on container exit...
[+] Stopping 2/2
  ✓ Container composetest-web-1    Stopped          10.5s
  ✓ Container composetest-redis-1  Stopped          0.7s
canceled

C:\Users\admin\composetest>docker compose down
[+] Running 3/3
  ✓ Container composetest-redis-1  Removed          0.0s
  ✓ Container composetest-web-1    Removed          0.0s
  ✓ Network composetest_default    Removed          0.2s

C:\Users\admin\composetest>

```