

Assignment 5

Question 1

Creating a container and running it

```
pushpak@osboxes:~/my_web_content$ docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS          NAMES
23b3d4c4ee5b   ubuntu-python  "python3"               14 minutes ago Exited (0)    13 minutes ago clever_fermat
pushpak@osboxes:~/my_web_content$ docker run -d --name httpd_container -p 8500:80 -v ~/my_web_content:/usr/local/apache2/htdocs httpd
73d68753c098f385bb633b30ba1fc9b4b06c9f5689095b828d46c46ac7ccdc7a
pushpak@osboxes:~/my_web_content$ docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS          NAMES
73d68753c098   httpd          "httpd-foreground"      24 seconds ago Up 23 seconds  0.0.0.0:8500->80/tcp, [::]:8500->80/tcp   httpd_container
23b3d4c4ee5b   ubuntu-python  "python3"               14 minutes ago Exited (0)    13 minutes ago clever_fermat
pushpak@osboxes:~/my_web_content$ curl http://localhost:8500
It works
pushpak@osboxes:~/my_web_content$
```

Question 2

Modifying index.html and running it on curl

```
pushpak@osboxes:~/my_web_content$ echo "Updated Content - Hello from Docker!" > index.html
pushpak@osboxes:~/my_web_content$ cat index.html
Updated Content - Hello from Docker!
pushpak@osboxes:~/my_web_content$ curl http://localhost:8500
Updated Content - Hello from Docker!
pushpak@osboxes:~/my_web_content$
```

Creating 10 clusters using bash

```
#!/bin/bash

for port in {8510..8520}; do
    docker run -d --name "my_httpd_container_$port" -p ${port}:80 -v ~/my_web_content:/usr/local/apache2/docs httpd
done
```

-- INSERT --

```
pushpak@osboxes:~/my_web_content$ echo "Updated Content - Hello from Docker!" > index.html
pushpak@osboxes:~/my_web_content$ cat index.html
Updated Content - Hello from Docker!
pushpak@osboxes:~/my_web_content$ curl http://localhost:8500
Updated Content - Hello from Docker!
pushpak@osboxes:~/my_web_content$ vi container-create.sh
pushpak@osboxes:~/my_web_content$ vi container-create.sh
pushpak@osboxes:~/my_web_content$ chmod +x container-create.sh
pushpak@osboxes:~/my_web_content$ ./container-create.sh
6625cad7d35b57e9cfa051ef3c9b8bed4f35e0c82ca43c9708727c4153d402f4
4006a5fa89be039b31091e7d0e23dea0f4bbb9dab8035edd51b93f9309586ea
fde3b9db80e472e5a16cf9e0a2ddd7ab23b2d155e8466587c3f554de1b142379
679e423cfaaaa7bde9f4d866b405be59d7a3c381d74e88473d37f925835bb19c
56cdb78dbf0b8f16b02e85da526023535c7c16bab1ee221516446680ab7482c2
709cc636f0432d8ffcd0b9e8f69b40bb5each0401af5104bda34a16b4f4618b
d858f13fd8a37f3b16ae5489aafbfd01c037e5337fa57136a977a7c138d3103e
084e010060dbbbb61b221cf47c38f5020def088b979a2642d05a5f6985a947e2
fa4b3c183738c4feed0b15fbc81a3777412d37dc8f14c44cc8577cb60c7c26e
449be936f8caf7f52d531f985eb35fcce08394e7fa0148b650fec650db538fb
09191dbc6c4fef9eb80ac06438d6afbc7cfc8ac3b561cc72410c0d583efaa661
pushpak@osboxes:~/my_web_content$
```

Output from the url

```
pushpak@osboxes:~/my_web_content$ ./running-url.sh
Sending request to http://localhost:8510
Updated Content - Hello from Docker!

Sending request to http://localhost:8511
Updated Content - Hello from Docker!

Sending request to http://localhost:8512
Updated Content - Hello from Docker!

Sending request to http://localhost:8513
Updated Content - Hello from Docker!

Sending request to http://localhost:8514
Updated Content - Hello from Docker!

Sending request to http://localhost:8515
Updated Content - Hello from Docker!

Sending request to http://localhost:8516
Updated Content - Hello from Docker!

Sending request to http://localhost:8517
Updated Content - Hello from Docker!

Sending request to http://localhost:8518
Updated Content - Hello from Docker!

Sending request to http://localhost:8519
Updated Content - Hello from Docker!

Sending request to http://localhost:8520
Updated Content - Hello from Docker!

Finished sending requests to all URLs.
pushpak@osboxes:~/my_web_content$
```

Question 3

Creating network named hpcsas

```
pushpak@osboxes:~/my_web_content$ docker network create hpcsas
404a786cb4eb0981b9a9a491904e3a0988384ec4114cba1b4f8450303b71f831
pushpak@osboxes:~/my_web_content$ docker network ls
NETWORK ID          NAME                DRIVER              SCOPE
40364d1bd102        bridge              bridge              local
e1d8af70be54        host                host                local
404a786cb4eb        hpcsas              bridge              local
e268a5244637        none                null                local
pushpak@osboxes:~/my_web_content$
```

Creating the container and Run the python container

```
pushpak@osboxes:~/my_web_content$ docker network create hpcsas
404a786cb4eb0981b9a9a491904e3a0988384ec4114cba1b4f8450303b71f831
pushpak@osboxes:~/my_web_content$ docker network ls
NETWORK ID          NAME                DRIVER              SCOPE
40364d1bd102        bridge              bridge              local
e1d8af70be54        host                host                local
404a786cb4eb        hpcsas              bridge              local
e268a5244637        none                null                local
pushpak@osboxes:~/my_web_content$ docker run --name dbserver --network hpcsas -e MYSQL_ROOT_PASSWORD=pass@123 -d mysql:latest
b235d3aff5336d9433b5404a3bd84eb3f366989abaaf8a7197cbc44016a0f4a3
pushpak@osboxes:~/my_web_content$ vi test.py
pushpak@osboxes:~/my_web_content$ docker run --rm --network hpcsas -v $(pwd):/app python:3.9-slim bash -c "pip install mysql-connector-p
ython && python /app/test.py"
Collecting mysql-connector-python
  Downloading mysql_connector_python-9.1.0-cp39-cp39-manylinux_2_28_x86_64.whl (34.4 MB)
    34.4/34.4 MB 193.3 kB/s eta 0:00:00
Installing collected packages: mysql-connector-python
Successfully installed mysql-connector-python-9.1.0
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It
is recommended to use a virtual environment instead: https://pip.pypa.io/warnings/venv

[notice] A new release of pip is available: 23.0.1 -> 24.3.1
[notice] To update, run: pip install --upgrade pip
Connected to MySQL Server
Database 'students' created or already exists.
Table 'batch24' created or already exists.
pushpak@osboxes:~/my_web_content$
```

Code

```
import mysql.connector
from mysql.connector import Error

try:
    # Establish a connection to the MySQL container
    connection = mysql.connector.connect(
        host="dbserver", # The MySQL container name
        user="root",
        password="pass@123"
    )

    if connection.is_connected():
        print("Connected to MySQL Server")

        # Create a cursor object
        cursor = connection.cursor()

        # Create a database
        cursor.execute("CREATE DATABASE IF NOT EXISTS students")
        print("Database 'students' created or already exists.")

        # Switch to the 'students' database
        cursor.execute("USE students")

        # Create a table
        cursor.execute("""
        CREATE TABLE IF NOT EXISTS batch24 (
            id INT AUTO INCREMENT PRIMARY KEY,
            name VARCHAR(100) NOT NULL,
            age INT NOT NULL
        )
        """)
        print("Table 'batch24' created or already exists.")

except Error as e:
    print(f"Error: {e}")
finally:
    if connection.is_connected():
        cursor.close()
        connection.close()
```