LAB EXPERIMENT - 5

Multi-container setup using docker compose

Docker Compose is a tool used to create and run multi-container docker applications. A YAML file is used to configure an application's service.

In this experiment, we will create a two-service configuration with MySQL as database and Nginx image as web server.
The steps that need to be followed are:

1. Install docker-compose in your machine, if not already installed.

   Command1: sudo curl -L https://github.com/docker/compose/releases/download/1.21.2/docker-compose-$(uname -s)-$(uname -m) -o /usr/local/bin/docker-compose
   Command2: sudo chmod +x /usr/local/bin/docker-compose

   The installation can be verified by using "docker-compose --version"

```
atishay@atishay-HP-15-Notebook-PC:~$ sudo curl -L https://github.com/docker/compose/releases/download/1.21.2/docker-compose-$(uname -s)-$(uname -m) -o /usr/local/bin/docker-compose
[sudo] password for atishay:
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   633  100   633    0     0   5231      0 --:--:-- --:--:-- --:--:--  5231
100 10.3M  100 10.3M    0     0  4713k      0  0:00:02  0:00:02 --:--:-- 7145k
atishay@atishay-HP-15-Notebook-PC:~$ $ sudo chmod +x /usr/local/bin/docker-compose
$: command not found
atishay@atishay-HP-15-Notebook-PC:~$ chmod +x /usr/local/bin/docker-compose
chmod: changing permissions of '/usr/local/bin/docker-compose': Operation not permitted
atishay@atishay-HP-15-Notebook-PC:~$ sudo chmod +x /usr/local/bin/docker-composeatishay@atishay-HP-15-Notebook-PC:~$ docker-compose --version
docker-compose version 1.21.2, build a133471
atishay@atishay-HP-15-Notebook-PC:~$
```

2. Make a .env file with the value of environment variables of MySQL as follows:
   MYSQL_ROOT_PASSWORD=<password>
   MYSQL_DATABASE=<database-name>
   MYSQL_USER=<username>
   Provide the values of these variables in the file.

```
atishay@atishay-HP-15-Notebook-PC:~$ vim evs.env
atishay@atishay-HP-15-Notebook-PC:~$
```

```
MYSQL_ROOT_PASSWORD=ubuntu20
MYSQL_DATABASE=nginxdb
MYSQL_USER=root
```

3. Make a YAML configuration file with the name “docker-compose.yml” and provide the configuration of containers in this file.
   Here, we are defining two services namely databases and web. Databases service uses mysql image container and port 3307 of the container is bound to port 3306 of the machine. The environment file created in the previous step is specified for the value of environment variables.
   Web service uses nginx image containers and port 80 of the container is bound to the port 80 of the machine. The web service depends on the database service.

```
atishay@atishay-HP-15-Notebook-PC:~$ vim docker-compose.yml
atishay@atishay-HP-15-Notebook-PC:~$
```

```
version: '3'
services:
        databases:
                image: mysql
                ports:
                        - "3307:3306"
                env_file:
                        - evs.env
        web:
                image: nginx
                ports:
                        - "80:80"
                depends_on:
                        - databases
```

4. Run the services specified in the above files as follows:
   Command: docker-compose up

```
atishay@atishay-HP-15-Notebook-PC:~$ docker-compose up -d
Creating network "atishay_default" with the default driver
Pulling databases (mysql:)...
latest: Pulling from library/mysql
45b42c59be33: Already exists
b4f790bd91da: Pull complete
325ae51788e9: Pull complete
adcb9439d751: Pull complete
174c7fe16c78: Pull complete
698058ef136c: Pull complete
4690143a669e: Pull complete
f7599a246fd6: Pull complete
35a55bf0c196: Pull complete
790ac54f4c47: Pull complete
18602acc97e1: Pull complete
365caa3500d0: Pull complete
Digest: sha256:b1cc887ed32cc6c2f217b12703bd05f503f2037892c8bb226047fe5dff85a109
Status: Downloaded newer image for mysql:latest
Pulling web (nginx:)...
latest: Pulling from library/nginx
45b42c59be33: Already exists
8acc495f1d91: Pull complete
ec3bd7de90d7: Pull complete
19e2441aeeab: Pull complete
f5a38c5f8d4e: Pull complete
83500d851118: Pull complete
Digest: sha256:f3693fe50d5b1df1ecd315d54813a77afd56b0245a404055a946574deb6b34fc
Status: Downloaded newer image for nginx:latest
Creating atishay_databases_1 ... done
Creating atishay_web_1       ... done
atishay@atishay-HP-15-Notebook-PC:~$
```

5. Now to check whether the above service is running, use the curl command to visit nginx webpage.

```
atishay@atishay-HP-15-Notebook-PC:~$ curl localhost:80
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
    body {
        width: 35em;
        margin: 0 auto;
        font-family: Tahoma, Verdana, Arial, sans-serif;
    }
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
<p>If you see this page, the nginx web server is successfully installed and
working. Further configuration is required.</p>

<p>For online documentation and support please refer to
<a href="http://nginx.org/">nginx.org</a>.<br/>
Commercial support is available at
<a href="http://nginx.com/">nginx.com</a>.</p>

<p><em>Thank you for using nginx.</em></p>
</body>
</html>
atishay@atishay-HP-15-Notebook-PC:~$
```