

Day 19 Task:

Docker for DevOps Engineers

Task-1

- Create a multi-container docker-compose file which will bring **UP** and bring **DOWN** containers in a single shot (Example - Create application and database container)

```
ubuntu@ip-172-31-92-131: ~/!  ×  +  v
version : "3.3"
services:
  web:
    build : .
    ports :
      - "8000-8003:3000"
  db:
    image: mysql
    ports:
      - "3306:3306"
    environment:
      MYSQL_ROOT_PASSWORD: "test@123"
~
~
```

- Use the ``docker-compose scale`` command to increase or decrease the number of replicas for a specific service. You can also add `[replicas]`(<https://stackoverflow.com/questions/63408708/how-to-scale-from-within-docker-compose-file>) in deployment file for **auto-scaling**.
- Use the ``docker-compose ps`` command to view the status of all containers, and ``docker-compose logs`` to view the logs of a specific service.
- Use the ``docker-compose down`` command to stop and remove all containers, networks, and volumes associated with the application

```
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/Node-CICD-TODO$ docker-compose up --scale web=3 -d
Creating network "node-cicd-todo_default" with the default driver
WARNING: The "web" service specifies a port on the host. If multiple containers for this service are created on a single
host, the port will clash.
Creating node-cicd-todo_db_1 ... done
Creating node-cicd-todo_web_1 ... done
Creating node-cicd-todo_web_2 ... done
Creating node-cicd-todo_web_3 ... done
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/Node-CICD-TODO$ docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS
ff7de6c1a8aa   node-cicd-todo_web   "node app.js"           6 seconds ago   Up 3 seconds   0.0.0.0:8002->3000/tcp, :::8002->3000/tcp
506d36300dc6   node-cicd-todo_web   "node app.js"           6 seconds ago   Up 3 seconds   0.0.0.0:8003->3000/tcp, :::8003->3000/tcp
df6eb02a6591   node-cicd-todo_web   "node app.js"           6 seconds ago   Up 3 seconds   0.0.0.0:8001->3000/tcp, :::8001->3000/tcp
471e109f99a4   mysql            "docker-entrypoint.s..." 6 seconds ago   Up 3 seconds   0.0.0.0:3306->3306/tcp, :::3306->3306/tcp
node-cicd-todo_db_1
```

Task-2

- Learn how to use Docker Volumes and Named Volumes to share files and directories between multiple containers.
- Create two or more containers that read and write data to the same volume using the `docker run --mount` command.
- Verify that the data is the same in all containers by using the docker exec command to run commands inside each container.
- Use the docker volume ls command to list all volumes and docker volume rm command to remove the volume when you're done

```
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/Node-CICD-TODO$ cd ..
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects$ mkdir volume
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects$ cd volume/
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume$ mkdir todo_app_volume
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume$ cd todo_app_volume/
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume/todo_app_volume$ pwd
/home/ubuntu/90daysofdevops/Projects/volume/todo_app_volume
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume/todo_app_volume$ ls
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume/todo_app_volume$ docker volume create --name my_todo_volume --opt type=none --opt device=/home/ubuntu/90daysofdevops/Projects/volume/todo_app_volume --opt o=bind my_todo_volume
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume/todo_app_volume$ docker volume ls
DRIVER      VOLUME NAME
local       6f67e435709da456c6b1fa121166d2a8d24e78949156606a80109fa7ff9cd4f7
local       b0f19de48abf1eeecdd510964d6d4597201f3fa4e7cebb9125d3f56be8ead55
local       my_todo_volume
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume/todo_app_volume$ cd ../../Node-CICD-TODO/
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/Node-CICD-TODO$ vim docker-compose.yml
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/Node-CICD-TODO$ |
```

```
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/Node-CICD-TODO$ vim docker-compose.yml
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/Node-CICD-TODO$ docker-compose up -d
Creating network "node-cicd-todo_default" with the default driver
Creating node-cicd-todo_db_1 ... done
Creating node-cicd-todo_web_1 ... done
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/Node-CICD-TODO$ cd ../volume/todo_app_volume/
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume/todo_app_volume$ ls
Dockerfile  README.md  app.js  docker-compose.yml  dockerimage.tar  node_modules  package-lock.json  package.json  views
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume/todo_app_volume$ docker volume inspect my_todo_volume
[
  {
    "CreatedAt": "2023-01-19T21:05:57Z",
    "Driver": "local",
    "Labels": {},
    "Mountpoint": "/var/lib/docker/volumes/my_todo_volume/_data",
    "Name": "my_todo_volume",
    "Options": {
      "device": "/home/ubuntu/90daysofdevops/Projects/volume/todo_app_volume",
      "o": "bind",
      "type": "none"
    },
    "Scope": "local"
  }
]
```

```
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume/todo_app_volume$ docker volume inspect my_todo_volume
[
  {
    "CreatedAt": "2023-01-19T21:05:57Z",
    "Driver": "local",
    "Labels": {},
    "Mountpoint": "/var/lib/docker/volumes/my_todo_volume/_data",
    "Name": "my_todo_volume",
    "Options": {
      "device": "/home/ubuntu/90daysofdevops/Projects/volume/todo_app_volume",
      "o": "bind",
      "type": "none"
    },
    "Scope": "local"
  }
]
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume/todo_app_volume$ touch from_local.txt
touch: cannot touch 'from_local.txt': Permission denied
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume/todo_app_volume$ sudo touch from_local.txt
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume/todo_app_volume$ docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS
NAMES
04d872fb3fa4   node-cicd-todo_web   "node app.js"           3 minutes ago   Up 3 minutes   0.0.0.0:8000->3000/tcp, :::8000->3000/tcp
node-cicd-todo_web_1
25067d3d4264   mysql           "docker-entrypoint.s..." 3 minutes ago   Up 3 minutes   0.0.0.0:3306->3306/tcp, :::3306->3306/tcp, 33060/tcp
node-cicd-todo_db_1
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume/todo_app_volume$ docker exec -it 04d872fb bash
OCI runtime exec failed: exec failed: unable to start container process: exec: "bash": executable file not found in $PATH: unknown
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume/todo_app_volume$ docker exec -it 04d872fb sh
/app # ls
Dockerfile      app.js          dockerimage.tar  node_modules     package.json
README.md        docker-compose.yml  from_local.txt   package-lock.json  views
/app # |
```

```

ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume/todo_app_volume$ docker volume inspect my_todo_volume
[
  {
    "CreatedAt": "2023-01-19T21:05:57Z",
    "Driver": "local",
    "Labels": {},
    "Mountpoint": "/var/lib/docker/volumes/my_todo_volume/_data",
    "Name": "my_todo_volume",
    "Options": {
      "device": "/home/ubuntu/90daysofdevops/Projects/volume/todo_app_volume",
      "o": "bind",
      "type": "none"
    },
    "Scope": "local"
  }
]
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume/todo_app_volume$ touch from_local.txt
touch: cannot touch 'from_local.txt': Permission denied
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume/todo_app_volume$ sudo touch from_local.txt
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume/todo_app_volume$ docker ps
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS        PORTS
NAMES
04d872fb3fa4   node-cicd-todo_web                 "node app.js"           3 minutes ago Up 3 minutes   0.0.0.0:8000->3000/tcp, :::8000->3000/tcp
node-cicd-todo_web_1
25067d3d4264   mysql                              "docker-entrypoint.s..." 3 minutes ago Up 3 minutes   0.0.0.0:3306->3306/tcp, :::3306->3306/tcp, 33060/tcp
node-cicd-todo_db_1
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume/todo_app_volume$ docker exec -it 04d872fb bash
OCI runtime exec failed: exec failed: unable to start container process: exec: "bash": executable file not found in $PATH: unknown
ubuntu@ip-172-31-92-131:~/90daysofdevops/Projects/volume/todo_app_volume$ docker exec -it 04d872fb sh
/app # ls
Dockerfile      app.js          dockerimage.tar  node_modules    package.json
README.md        docker-compose.yml  from_local.txt   package-lock.json  views
/app #

```