Containerization using Docker

Assignment 1 – Data Persistence in Docker

Notes(s): NA

Task 1 (Working with Volumes)

1. List all volumes currently created.

   Note: Initially there would be zero volumes reflecting.

2. Create a new docker volume and name it as “myfirstvol”
3. List volumes again and verify that a volume is created with name “myfirstvol”
4. Using inspect command note the Mountpoint and Scope for the newly created volume
5. Move inside the directory “var/lib/docker/volumes/myfirstvol/_data/” on host and verify if the newly created volume “myfirstvol” is appearing in the mountpath as well or not
6. Delete the volume “myfirstvol”

Task 2 (Using Docker Volumes for Data persistence)

1. Create a container name "*mycontainer*" from image *alpine:latest* and in the same command mount a volume at location /vol/test/ and name it as "*mytestvol*"

   - Container Name: myContainer
   - Volume Name: mytestvol

   Note: "mytestvol" is the volume which was non-existent initially and got created only during step #1

   ```
   Suggested Command:

   $ docker container run -itd - -name mycontainer - -mount
   source=mytestvol,target=/vol/test/  alpine:latest
   ```

2. List volumes again to verify if a volume with name as "mytestvol" has been created, and move to path /var/lib/docker/volumes/ on host to verify if "mytestvol" is appearing at the location or not,

   ```
   $ docker volume ls
   ```

3. Exec into the container "mycontainer" created in step #1

   ```
   $ docker container exec -it mycontainer sh
   ```

4. Move inside directory /vol/test/ in the container and create a file here with following content

   ```
   $ echo "This is to validate data persistence through
   volumes" >> /vol/test/datafile
   ```

5. Exit out of the container and go to the following path on the host:

   ```
   /var/lib/docker/volumes/mytestvol/_data/
   ```

   where you should be able to see a file appearing with name "datafile" which was created in step #4 inside the container.

6. Cat the “datafile” and you should observe it reflects the same content which was given in step #4 inside the container i.e. *“This is to validate data persistence through volumes”*.

7. Delete the container “myContainer” and list the volumes again.

8. You will observe the volume “mytestvol” created in step #1 still appears in volumes list result, also you can see the content of *“/var/lib/docker/volumes/myfirstvol/_data/datafile”*, thus exhibiting the persistence of data even when the container is stopped/removed.

Task 3 (Mounting the existing volume onto another container)

1. Create another container “myseccontainer” and mount already existing volume “mytestvol” on to target location /vol/test2/ using a ubuntu image.

   ```
   $ docker container run -dit --name myseccontainer --mount source=mytestvol,target=/vol/test2/ ubuntu
   ```

2. Exec inside the container “myseccontainer” and move inside the path /vol/test2/.

3. A file with name as “datafile” should be appearing here.

4. Cat the file and you should see the same content which was created in step#4, which is as follows:

   “This is to validate data persistence through volumes”

Task 4 (Cleanup)

1. Use either docker rm or docker prune commands to delete all resources on your docker host.