Assignment

NOTE: Do not forget to see manual page using "--help" option in command when searching for options/commands for a particular task.

1. Install Docker, either on your native OS or on a VM. Make sure it runs. type "docker -v" to check if it's installed.

try below commands for help

docker --help ---> This command shows all available options and commands to work with images and containers

docker images --help ---> This command shows all the avaialble options and commands to work with docker images

docker ps --help ---> This command shows all the avaialble options and commands to work with docker containers

2. Find a image from dockerhub of your choice(recommeded: nginx), don't use browser, pull the official image from dockerhub

Ans. docker pull nginx

3. List all the available images in your machine/vm, make sure you see recently pulled image in the list.

Ans. docker images

4. Find out the "Full" ImageId of the image that you pulled and write it below.

Ans. docker images –no-trunc

5. Create a container of your image

Ans. docker run test

6. List all the running containers

Ans. docker container ls

7. List all the running and stopped containers

Ans. docker container ls –all

8. Find out the "Full" containerId of the container and write it below.

Ans. docker ps

9. Find out how many image layers are used to build this image.

Ans. docker history test

10. Get the Apache Tomcat 7 server image from the docker hub.

Ans. docker pull tomcat

11. Run the Apache Tomcat 7, I mean create a container of Apache Tomcat.

Ans. docker run –it –-rm tomcat:7.0

12. Find out what is the IP Address of the Apache Tomcat Container that it is running on

Ans. curl localhost:8888

13. Which Port it is using?

Ans. docker ps tomcat

14. Try to access the Tomcat's home page from your machine/vm.

Ans.

15. What is the disk size of Apache Tomcat image?

Ans. docker system df –v

16. Find out list of all environment variables that is configured for tomcat image, can you see JAVA\_HOME and CATALINA\_HOME? What did you notice about it?

Ans.

17. Find out which port is exposed for tomcat?

Ans. docker ps tomcat

18. Run multiple conntainers of tomcat on different port and access it's home page.

19. Pull ubuntu os from dockerhub, try to pull 2 images of ubuntu, Except the latest one.

20. Run the container of ubuntu in attached mode.

21. Run the container of another ubuntu in detached mode.

22. Check how many ubuntu containers are running and stopped

23. Is the tomcat container running? If no, start one.

24. Check the logs, generated by tomcat container(don't forget to make request to tomcat's home page to see the log).

25. Check if ubuntu conatiner is running? If no, start one in attached mode to the terminal.

26. Login as root user in ubuntu container

27. Create a file with any name in root directory

28. Install software of your choice in ubuntu container using "apt-get install"

29. Now exit the ubuntu shell, are you back to your host machine, if not, come back to the host machine.

30. Check if the ubuntu container is running.

31. Create a new ubuntu container out of the same image as that previous container in attached mode.

32. Login as a root user

33. Check if you can see the file created in previous container, you will not see the file as well as software that you installed in the previous container. Now kill this Container.

34. Do you have the previous ubuntu container where you created the file and installed the software? If no reapeat step 25 to 29.

35. Create an Image out of the existing container.

36. Now Create a Container out of this image and login into it to see if you can see the file and software installed by you in the previous container.

37. Do you have running tomcat container? If yes, Stop it and kill all tomcat container.

Ans. docker ls

docker stop tomcat

docker rm tomcat

38. Create an index.html file with following code in it:-

<h1>This is Tomcat Container</h1>

Now, Start a tomcat container in such a way that on hitting its URL for home page it should show the above html page.

39. type below command:-

docker images --help

write atleast 1 command using each option above and prove their concepts as described in the --help.

Now, try to run command that proves the concept of following three options:-

1. –a

Ans. show all images

1. –f

Ans. filter output based on conditions.

1. –q

Ans. show only numeric IDs

40. type below command:-

docker ps –help

write atleast 1 command using each option above and prove their concepts as described in the --help.

Now, try to run command that proves the concept of following six options:-

1. –a

Ans. show all containers

1. –f

Ans. filter output based on conditions provided

1. –q

Ans. only display numeric IDs

1. –n

Ans. show n last created containers

1. –l

Ans. show latest created container

1. –s

Ans. display total file size

41. Type below command:-

docker --help

you will various sections of commands apart from options like "Managemnet Commands" and "Commands".

Write some texts below describing the use of "Management Commands".

Use each command mentioned below and prove its concepts as described in the --help desription. write what you have understood from the output of the command after its successful execution.

1. Cp

ans. Copy files/folders between a container and a local file system.

1. create

ans. creates a new container

1. export

ans. exports a container’s filesystem as a TAR archive.

1. history

ans. shows history of the image.

1. info

ans. displays system-wide information

1. login

ans. login to a docker registry

1. logout

ans. logout from a docker registry

1. rename

ans. renames a container

1. save

ans. save one or more images to a TAR archive

1. stats

ans. display live stream of container resource streaming statistics

11. top

ans. display running processes of a container

42. Kill all running container in one liner command.

Ans. docker kill $(docker ps –q)

43. Delete all images in one liner command.

Ans. docker rmi $(docker images –q)

44. Create a simple Dockerfile, build it and run it.

45. Create one or more Dockerfile that demostrate the following commands in Dockerfile (Write a PoC for each in one or more Dockerfile)

1. USER

2. RUN

3. ENV

4. CMD

5. RUN

6. ENTRYPOINT

7. EXPOSE

8. VOLUME

46. Dockerhub:-

Find a application you care about on docker hub.

Launch the container.

Install another application in it.

Save (commit) the image.

Upload that to docker hub in your account and share it with a colleague, ask them to use your image and run the container out of it in their machine/vm.