Getting started with Dockers

Objective:

Let's execute a few Docker commands to experiment with Dockers. You will download and install a Docker image from the Docker Hub site https://hub.docker.com/

Docker images are read-only templates that contain instructions for creating a container.
A Docker image is a snapshot of a library and its dependencies required inside a container needed to run.

1- First, make sure "Docker Desktop Service" is running
Start a Terminal session (best as Administrator)

You can stop and start this service by typing:
net stop com.docker.service
net start com.docker.service

Best to just run Docker desktop which starts the docker service and enables the docker CLI.

2- Lets try to install a Docker on your PC.

docker run -d -p 81:80 nginx

This command will pull an nginx image and then creates a container to run it.
If the image exists, it will not download (pull) the image. It may take a minute to run this particular container!

Port 81 will be used for nginx but you can change this to any free port on your PC.

NGINX is an open-source web server software used for reverse proxy, load balancing, and caching.

3- Test this docker by browsing to: http://localhost:81/
Please note **http://** not **https://**

4- Type the following command in the Terminal window to view all the images installed on your PC:

docker images

Take a note of the **nginx's** image ID.

5- Type the following command to view all the Dockers that are currently running:

docker ps

Take a note of the **nginx's** container ID.

6- Type **docker stop** <nginx ID>
Tip: Just type a few starting letters of the **nginx**'s container ID.

7- Refresh the browser at http://localhost:81/
You will encounter "This site can't be reached"

8- Start the container by typing **docker start** <nginx ID>

9- Refresh the browser at http://localhost:81/
and notice the web page is fine.

10- Remove the **nginx's** container by name – Type **docker ps**
This command shows all the currently running dockers

```
CONTAINER ID   IMAGE   COMMAND                  CREATED         STATUS         PORTS                NAMES
7be4b20c3d21   nginx   "/docker-entrypoint.…"   5 seconds ago   Up 4 seconds   0.0.0.0:80->80/tcp   loving_proskuriakova
```

(please note the random name created for this container! We can change it)

Type**:** **docker stop <docker name>** (from the right column)
docker rm <docker name> (from the right column)

Tip: You can see that it is easier to remove a docker using a few letters of its ID!

11- Type: **docker images** to see all the images on your PC.

12- Remove the **nginx's** image by typing: **docker rmi** <imageid>
(just type just part of the image ID)

13- Type: **docker pull nginx**
To get the docker image only, but will not run it

14- Type **docker ps -a**
and notice there is no **nginx** container
The **-a** option displays all Docker containers, including those that have stopped running.

15- Practice removing this image before moving to the next section

Search Docker Hub from the command line

16- To search your docker hub repo, you must first login.
Login to docker hub by typing**:** **docker login**

17- Search for possible images of Nginx

18- Type the following command and view the list:
docker search nginx

19- Pull an image down with the command
docker pull nginx

20- Let's tag this image. Tag lets us edit an image and save it to our own personal registry
docker tag nginx *your-Docker Hub-user name /my-nginx*

21- view the images which are saved locally
docker images

22- Push this image to your Docker Hub.
docker push *your-Docker Hub-user name /my-nginx*

You can now search for your copy of nginx either in the Docker hub site or in command line:
docker search *your-Docker Hub-user name /my-nginx*

23- You can delete our local image(s)
docker ps
docker rmi nginx
docker rmi *your-Docker Hub-user name/my-nginx*

24- Let's install Nginx with a name of **nginxDemo**
But this time run it on client port 8080 instead
docker run -d -p 81:80 --name nginxDemo nginx

-d : detached, logs aren't outputted to the terminal
-p : port publishing, <host port (your PC)>:<container port (nginx docker)>
--name : what you want to name the container, if no name is given a random name is given
The last word (**nginx**) is what image to build the container from

25- Check all the images running: **docker ps**

26- Try Test the Nginx docker in a browser:
http://localhost:81

Make changes to your Nginx container

27- Interact with the nginx container
You can execute a command within a running Docker container and run commands inside a container to interact with the processes running in it. The following command runs a bash

command which is the Unix's shell command (terminal)

docker exec -it nginxDemo bash

-it flag means interactive

28- Update package manager and install the Nano editor.
Type the following command in the Nginx Terminal:

apt update
apt install nano -y

apt update: update the package index files on the system, which contain information about available packages and their versions. It downloads the most recent package information from the sources listed in the "/etc/apt/sources.list.d" file that contains your sources

The -y option stands for yes! This prevents the system from prompting you with questions during installation and automatically accepts the default settings.

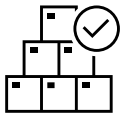
29- Modify the Nginx's start up screen:
cd /usr/share/nginx/html

and then edit it by typing: **nano index.html**

Make some changes (style/text), save and then exit the nano editor
(view the bottom of the screen for how to save)

Escape the terminal interaction by typing: **exit**

30- Test the changes that you've made
http://localhost:81/



Congratulations, you have successfully created a Docker, modified the code inside the docker and learned about the basic docker CLI command.