Lab 12: Introduction to Docker

Setup

Go to https://www.docker.com/ and download Docker Desktop

Exercise 1: Verify Docker Installation

1. Open a terminal

2. Run: **docker --version**

3. Expected output: Docker version information

Exercise 2: Run Your First Container (Hello World)

1. Run: **docker run hello-world**

- What happens:

    o Docker pulls the image from Docker Hub

    o Runs the container

    o Prints a confirmation message

    o Container exits

Exercise 3: List Images and Containers

1. To list downloaded images run: **docker images**

2. List running containers: **docker ps**

Note

There are multiple modes to run a docker container for. This is a summary of most famous ways to run

Flag	Mode	What happens to your terminal?	Common Use Case
-d	Detached	Terminal stays free, container runs in background.	Databases, Web Servers
-it	Interactive	Terminal "enters" the container.	Running a Bash shell, manual debugging
None	Foreground	Terminal displays logs and is "locked" until finished.	Short viewing live logs

Exercise 4: Run an Interactive Linux Container

1. Run an Ubuntu container: **docker run -it ubuntu**

2. You are now inside the Ubuntu Linux container shell.

3. Try the Linux container by running:

   1. **ls**

   2. **uname -a**

4. Exit the container: **exit**

Deliverables

Screenshot of Step 4 commands executed and their outputs

Exercise 5: Run an NGINX Web Server

1. Run NGINX: **docker run -d -p 8080:80 nginx**

2. Explanation:

   o   -d → run in background (detached)

   o   -p 8080:80 → map port 8080 (host) to 80 (container)

   o   nginx → image name

3. Verify the container is running: **docker ps**

4. Open a browser and visit: http://localhost:8080
   You should see the **NGINX welcome page**

Deliverables

Screenshot of NGINX welcome page

Exercise 6: Stop and Remove the NGINX Container

1. Find the container ID: **docker ps**

2. Stop the container: **docker stop <container_id>**

3. Remove the container: **docker rm <container_id>**

Deliverables

Screenshot of the three commands and their outputs