**Docker Worksheet – Part 1**

### **Introduction to Containers & Docker** Objectives:

* Understand Docker’s architecture and basic CLI commands
* Run and interact with containers from public images

## Part 1: Docker Basics & Architecture

### Step 1: Check if Docker is installed

Open your terminal and type:  
  
docker --version

docker info

### Step 2: Understand the architecture (via command)

Run:

docker system info

Note down:

* Server version
* Number of containers/images
* Storage driver

## Part 2: Pulling and Running Containers

### Step 3: Pull your first image

docker pull hello-world

Run it:

docker run hello-world

You should see a "Hello from Docker!" message.

### Step 4: Run a real container (NGINX web server)

#### 4.1 Pull the NGINX Image

docker pull nginx

**What this does:**

* Downloads the **NGINX** image from Docker Hub (the default public registry).
* This image includes a fully working NGINX web server based on Linux.

**Check**: You should see messages like “Pull complete” and “Downloaded newer image for nginx:latest”.

#### 4.2 Run the NGINX Container

docker run -d -p 8080:80 nginx

**What this does:**

* docker run: Start a new container.
* -d: Run it in **detached mode** (in the background).
* -p 8080:80: Map your **local machine's port 8080** to the container’s **port 80** (default web server port).
* nginx: The image to use.

**Tip**: This means when you open http://localhost:8080, your browser connects to the NGINX running inside the container.

#### 4.3 Test the Running Web Server

* Open your browser.
* Go to: <http://localhost:8080>

You should see the default NGINX welcome page like:  
“Welcome to nginx!”

#### 4.4 Check Which Containers Are Running

docker ps

**What you’ll see:**

* Container ID
* Image name (nginx)
* Ports (0.0.0.0:8080->80/tcp)
* Status (Up x minutes)

#### 4.5 Stop the Container

First, copy the **container ID** from docker ps output.

docker stop <container\_id>

Example:

docker stop 1a2b3c4d5e6f

This **stops** the container but doesn't delete it.

#### 4.6 Remove the Container

Now remove it:

docker rm <container\_id>

This **permanently deletes** the stopped container.