Docker Hands-On Guide for Beginners

# 🧩 Prerequisites:

- Basic command-line knowledge  
- Install Docker Desktop:  
 - Windows/Mac: https://www.docker.com/products/docker-desktop  
 - Ubuntu:  
 sudo apt update  
 sudo apt install docker.io  
 sudo systemctl start docker  
 sudo systemctl enable docker

# 1️⃣ Verify Docker Installation

Run the following commands to check installation:

docker --version

docker run hello-world

# 2️⃣ Basic Docker Commands

|  |  |
| --- | --- |
| Command | Purpose |
| docker ps | List running containers |
| docker ps -a | List all containers |
| docker images | List downloaded images |
| docker rm <container\_id> | Remove a container |
| docker rmi <image\_id> | Remove an image |
| docker stop <container\_id> | Stop a container |

# 3️⃣ Create a Simple Python App

app.py

print("Hello from Docker!")

Dockerfile

FROM python:3.10  
WORKDIR /app  
COPY app.py .  
CMD ["python", "app.py"]

# 4️⃣ Build and Run the Docker Image

Build the image:

docker build -t hello-docker .

Run the container:

docker run hello-docker

# 5️⃣ Dockerizing a Web App (Flask Example)

app.py

from flask import Flask  
app = Flask(\_\_name\_\_)  
  
@app.route("/")  
def home():  
 return "Hello from Flask in Docker!"  
  
if \_\_name\_\_ == "\_\_main\_\_":  
 app.run(host="0.0.0.0", port=5000)

requirements.txt

flask

Dockerfile

FROM python:3.10  
WORKDIR /app  
COPY . .  
RUN pip install -r requirements.txt  
CMD ["python", "app.py"]

Run it:

docker build -t flask-app .  
docker run -p 5000:5000 flask-app

# 🧹 Clean Up (Optional)

docker container prune  
docker image prune