## **📁 Project Structure**

my\_docker\_app/

│

├── app.py

├── Dockerfile

└── build\_image.py ← (You run this)

## **🔹 1. app.py (Example App)**

# app.py

print("Hello from Dockerized Python App!")

## **🔹 2. Dockerfile**

# Use an official Python image

FROM python:3.9-slim

WORKDIR /app

COPY app.py .

CMD ["python", "app.py"]

## **🔹 3. build\_image.py (Python Script to Build Docker Image)**

import subprocess

image\_name = "my-python-app"

try:

print(f"Building Docker image '{image\_name}'...")

subprocess.run(["docker", "build", "-t", image\_name, "."], check=True)

print(f"✅ Successfully built image '{image\_name}'")

except subprocess.CalledProcessError as e:

print("❌ Error building Docker image:", e)

## **🏃‍♂️ How to Run**

1. Open terminal

Go to the folder:  
  
cd path/to/my\_docker\_app

Run the script:  
  
  
python build\_image.py

To run the Docker image:  
  
  
docker run my-python-app

## **✅ Output**

Building Docker image 'my-python-app'...

✅ Successfully built image 'my-python-app'

Hello from Dockerized Python App!

### **📄 Dockerfile**

FROM python:3.9-slim

✅ **What it does:**

* This tells Docker to **start with an existing image**: python:3.9-slim
* This is a **lightweight version of Python 3.9**, with minimal extra software
* It's like saying: "Give me a small Linux box with Python 3.9 pre-installed"

WORKDIR /app

✅ **What it does:**

* Sets the **working directory inside the container** to /app
* Any command you run after this (like COPY, RUN, etc.) will **run inside this folder**
* It's like doing cd /app inside the Docker container

Dockerfile

CopyEdit

COPY app.py .

✅ **What it does:**

* Copies the file app.py **from your current local directory** (where Dockerfile lives)
* Into the Docker container's /app directory (set by WORKDIR)
* . means "copy it into the current folder in the container" → which is /app

Dockerfile

CopyEdit

CMD ["python", "app.py"]

✅ **What it does:**

* This tells Docker:  
   👉 “When someone runs this container, **run**: python app.py”
* This is the **default command** the container will execute
* This should be in JSON format (square brackets with quotes) for best practice

### **🔧 Small Fix: Add a space between CMD and the bracket**

Change this:

CMD["python", "app.py"]

CMD ["python", "app.py"]

Otherwise, Docker will give a syntax error.

## **🧠 Summary Table**

| **Line** | **Meaning** |
| --- | --- |
| FROM python:3.9-slim | Start with a tiny Linux box with Python 3.9 installed |
| WORKDIR /app | Go into the /app folder inside the container |
| COPY app.py . | Copy your local app.py into the container's /app |
| CMD ["python", "app.py"] | Run python app.py when container starts |