**Step 1: Verify Docker Installation (2 Minutes)**

1. Open a terminal or command prompt.
2. Run the following command to check if Docker is installed and running:

**docker --version**

✅ Expected Output (Example):

Docker version 24.0.5, build 91d3b99

1. If Docker is installed correctly, run:

**docker run hello-world**

✅ Expected Output: Docker will pull and run a small test container, displaying "Hello from Docker!"

**📌 Step 2: Create a Simple Web Application (3 Minutes)**

Let's create a simple **Python web server** using Flask.

1. Create a new project folder:

**mkdir docker-web-app**

**cd docker-web-app**

1. Inside the folder, create a new Python file:

**touch app.py**

1. Open app.py and add the following code:

app.py

1. Save and close the file.

**📌 Step 3: Create a Dockerfile (3 Minutes)**

Now, let's containerize our web app using **Dockerfile**.

1. In the same **docker-web-app** folder, create a Dockerfile:

**touch Dockerfile**

1. Open Dockerfile and add the following content:

Dockerfile

1. Save and close the file.

**📌 Step 4: Build the Docker Image (3 Minutes)**

Now, let's build a **Docker Image** for our web application.

1. In the terminal, navigate to the **docker-web-app** folder and run:

**docker build -t my-docker-web-app .**

1. Docker will read the Dockerfile, install dependencies, and create an image.  
   ✅ Expected Output:

Successfully built <image-id>

Successfully tagged my-docker-web-app:latest

**📌 Step 5: Run the Web Application as a Container (2 Minutes)**

Now, let's run our containerized web application.

1. Run the following command to start a container:

**docker run -d -p 5000:5000 --name webapp my-docker-web-app**

* + -d → Runs the container in the background.
  + -p 5000:5000 → Maps **port 5000** on the container to **port 5000** on your local machine.
  + --name webapp → Assigns the container a name (webapp).
  + my-docker-web-app → Uses the image we built.

1. Check if the container is running:

**docker ps**

✅ Expected Output: It should show a running container with the name webapp.

**📌 Step 6: Access the Web Application (2 Minutes)**

1. Open a web browser and go to:

**http://localhost:5000**

1. ✅ Expected Output: You should see:

Hello, Docker!

**📌 Step 7: Stop and Remove the Container (2 Minutes - Optional)**

If you’re done testing, you can stop and remove the container.

1. Stop the container:

**docker stop webapp**

1. Remove the container:

**docker rm webapp**

1. If you want to remove the image as well:

**docker rmi my-docker-web-app**