Task 1:

We first start by creating the dockerfile in the *task1* folder for the main app (*main.py*) and we include the following lines in order to dockerize this app:

- **`FROM python:3.13.1`** → *Defines and creates the base image, which includes using the python language, version 3.13.1, since this is the language the app is running on.*
- **`WORKDIR /app`** → *Sets the directory to the /app folder inside the container where the commands will be run.*
- **`COPY . .`** → *Copies all files from the current task1 folder into the /app folder in the container.*
- **`RUN pip install -r requirements.txt`** → *Installs all dependencies (Numpy, Pandas, Matplotlib) required for the app, which are all listed in the requirements.txt file in the same folder.*
- **`CMD ["python", "main.py"]`** → *Runs the app "main.py" when a container is created from this image.*

We then run `docker build -t task1 .` which builds the image in docker named "task1" for the application based on the dockerfile found in the task1 folder, then we run `docker run --volume task1:/app task1`, which will create a new container from the image we built, and creates a volume (named "task1") and mounts it in the /app folder, which will store the generated plot from the application into the volume in the *output* folder. No changes have been made to code in `main.py` or requirements.