How to run Python scripts using Docker

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Running a Python script is one of the most common tasks in automation. However, managing dependencies across different systems can be a challenge. That's where Docker comes in. Docker allows you to package a Python script along with all the necessary dependencies into a container, ensuring it runs the same way on every machine. Today's article will walk you through the process of creating an actual Python script and running it inside a Docker container.

Write Python script

Create a project directory to store your Python script and Dockerfile. Once created, navigate to this directory using the cd command :

```
mkdir docker_file_organizer cd docker_file_organizer
```

Create a script called 'organize_files.py' to scan a directory and group files into directories based on their extensions:

```
nano organize_files.py
```

Paste the following code into the 'organize_file.py' file. Here, we use two built-in Python modules, named **os** and **shutil** , to handle files and create directories dynamically:

```
import os import shutil SOURCE_DIR = "/files" def organize_by_extension(directory
?
 {ext}/") except Exception as e: print(f"Error organizing files: {e}") if __name_
```

In this script, we sort the files in a given directory based on their extensions. We use the **os** module to list the files, check if each entry is a file, extract the file extensions, and create directories named after those extensions (if they don't already exist). Then, we use the **shutil** module to move each file into its corresponding directory. For each move, a message showing the new location of the file is output.

Create Dockerfile

Now, let's create a Dockerfile to define the environment in which the script will run:

```
FROM python:latest LABEL maintainer="you@example.com" WORKDIR /usr/src/app COPY
```

We use this Dockerfile to create a container in Python , add a script to it, and make sure the script runs automatically when the container starts:

Build Docker image

Before you can build a Docker image, you first need to install Docker. Then, run the following command to package everything into a Docker image:

```
sudo docker build -t file-organizer .
```

It reads the Dockerfile, combines the Python setup and scripts so they are ready to run in a single container image:

Create a sample folder with the files

To see the script in action, create a test directory called 'sample_files' with a few files of different types. Create these files just to clutter the directory a bit and see how the Python script handles it:

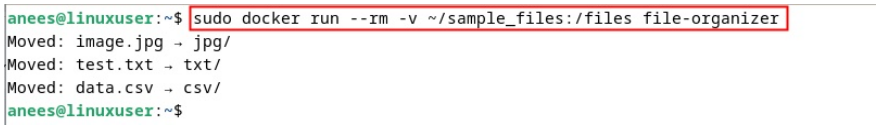
```
mkdir ~/sample_files touch ~/sample_files/test.txt touch ~/sample_files/image.jp
```

Run scripts inside Docker

Finally, run the Docker container and mount the sample directory into it. The **-v** flag mounts the local '~/sample_files' directory into the '/files' directory in the container, allowing the Python script to read and sort the files on your host:

```
docker run --rm -v ~/sample_files:/files file-organizer
```

Here, the article uses the **--rm** option to automatically delete the container after it finishes running, helping to save disk space:



Finally, use the tree command to check if the files are sorted into directories based on their extensions:

```
tree sample_files
```

Note : The tree command does not come pre-installed on most systems. You can easily install it using a package manager like apt on Ubuntu , brew on macOS, etc.

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