

Creating a Python Virtual Environment

Instructions

All of the Python scripts used in the Hands-On sections of this course require the installation of several libraries and packages. Instead of installing these packages on your local system, in this activity we will create a virtual environment for this course.

A virtual environment is an isolated playground where you can install libraries and packages and keep them separate from the rest of your projects.

This type of environment is useful when versions of libraries change over time, so you can keep the versions your project is working with.

NOTE: Step 3 is shown in 2 versions, first for Windows users, and then for macOS. Use the one corresponding to your operative system

Step 1. Open your local terminal shell. First, open your local terminal shell and go to your *big-data-2* directory.

Type *ls* to display your files.

```
1  ls
```

Directory: C:\Users\██████████\Desktop\coursera\big-data-2

Mode		LastWriteTime	Length	Name
----		-----	-----	----
d-----		2/29/2024 11:17 AM		csv
d-----		2/29/2024 12:30 PM		graph
d-----		2/29/2024 12:23 PM		image
d-----		2/29/2024 11:24 AM		json
d-----		4/12/2024 4:27 PM		sensor
d-----		4/8/2024 12:22 PM		vector
-a-----		4/15/2024 11:05 AM	430	requirements.txt

Step 2. Create the virtual environment. Run *python3 -m venv big-data-2-env*.

```
1  python3 -m venv big-data-2-env
```

In this example, we are naming our virtual environment *big-data-2-env*. You can replace that part of the command with whatever name you prefer, although we recommend to keep it with this name as this will be displayed across the module.

Type *ls* again. You will notice a new folder which represents the environment you just created.

```
1  ls
```

Directory: C:\Users\██████████\Desktop\coursera\big-data-2

Mode		LastWriteTime	Length	Name
----		-----	-----	----
		4/15/2024 1:05 PM		big-data-2-env
d-----		2/29/2024 11:17 AM		csv
d-----		2/29/2024 12:30 PM		graph
d-----		2/29/2024 12:23 PM		image
d-----		2/29/2024 11:24 AM		json
d-----		4/12/2024 4:27 PM		sensor
d-----		4/8/2024 12:22 PM		vector
-a-----		4/15/2024 11:05 AM	430	requirements.txt

Step 3. Activate the virtual environment (Windows). Run the following command to activate your environment:

```
1  .\big-data-2-env\Scripts\Activate
```

Step 3. Activate the virtual environment (macOS). Run the following command to activate your environment:

```
1  source big-data-2-env/bin/activate
```

Once the virtual environment is activated, the name should appear on the left side of your terminal:

```
(big-data-2-env) PS C:\Users\██████████\Desktop\coursera\big-data-2>
```

Step 4. Install libraries and packages. As you might have noticed earlier, our *big-data-2* folder contains a *requirements.txt* file. This file contains all the libraries and packages to run the python scripts for this course. For their installation within your virtual environment, run *pip install -r requirements.txt*.

```
1  pip install -r requirements.txt
```

Once the packages are installed, you should see a message of successful installation.

```
Successfully installed contourpy-1.2.1 cycler-0.12.1 fonttools-4.51.0 kiwisolver-1.4.5 matplotlib-3.8.4 numpy-1.26.4 packaging-24.0 pillow-10.3.0 pyparsing-3.1.2 python-dateutil-2.9.0.post0 pytz-2024.1 six-1.16.0
(big-data-2-env) PS C:\Users\██████████\Desktop\coursera\big-data-2>
```

As we stated earlier, these packages have been installed within your virtual environment, but not in your local system.

Step 5. Deactivate your virtual environment. To deactivate the virtual environment, simply run *deactivate*.

```
1  deactivate
```