Python Development Environment (Picominer)

Development: Linux (Ubuntu 20+)
[It should work in Windows, but not tested]

Step 1: Python Package Manager
Install Poetry
Instructions: https://python-poetry.org/

Step 2: Python Virtual Environment
Setup pyenv
Instructions: https://github.com/pyenv/pyenv

Step 3: Python Virtual Environment Plugin
Setup: pyenv-virtualenv
Instructions: https://github.com/pyenv/pyenv-virtualenv

Step 4: Install Python 3.8.10 or 3.8.12 of your choice.
pyenv install 3.8.10

Step 5: Create a virtual environment
Setup: DataScience-3.8.10 (You can give any name of your choice)
But for consistency, you may use DataScience-3.8.10
Command: pyenv virtualenv 3.8.10 DataScience-3.8.10
[3.8.10 might have been created in step 4 above]

Step 6: Activate your DataScience-3.8.10 virtual environment
[From your Linux Terminal]
command: pyenv activate DataScience-3.8.10
To deactivate, use pyenv deactivate from the terminal prompt above.

Step 7: Download the poetry config file.
https://drive.google.com/drive/folders/1CZoCKYzGxmDTTt7nBGWwr9dNW6CzwDzA?usp=sharing
Save the pyproject.toml file in a separate directory.

Download the desktop-icons folder.

Step 8: Setting up Orange3 for data mining.
[(DataScience-3.8.10) $: From the Terminal that you have activated the virtual environment, step 6 above].
(DataScience-3.8.10) $: shortcutter orange-canvas

[This will create 2 files (orange-canvas.desktop). One file in ~Desktop/ and the second file in ~/.local/share/applications]

Navigate from your Home (~)
cd .local/share/applications

Open the file orange-canvas.desktop
Add the following line of Icon
Icon=<your desktop icon path>/orange3-icon-256.png

Terminal=false

Note: You might have to delete the file orange-canvas.desktop from your ~/Desktop folder. it is not needed. You can launch the app from the APP launcher [Show Applications of Linux]

Step 9: Setting up Spyder for data mining.
[(DataScience-3.8.10) $: From the Terminal that you have activated the virtual environment, step 6 above].
(DataScience-3.8.10) $: shortcutter spyder

[This will create 2 files (spyder.desktop). One file in ~Desktop/ and the second file in ~/.local/share/applications]

Navigate from your Home (~)
cd .local/share/applications
Open the file spyder.desktop
Add the following line of Icon
Icon=<your desktop icon path>/spyder-icon.png

Terminal=false

Note: You might have to delete the file spyder.desktop from your ~/Desktop folder. it is not needed. You can launch the app from the APP launcher [Show Applications of Linux]

Step 10: You can launch Orange3, Spyder from Show Applications in Linux
You can add them to Favorites once you opened the Apps.
App icons will appear in the Task bar.

Step 11: Setting up JupyterLab Desktop for Data Mining
Instructions: https://github.com/jupyterlab/jupyterlab-desktop
For example, go to releases.
https://github.com/jupyterlab/jupyterlab-desktop/releases/tag/v3.2.4-1

Download the desktop version (.deb file).

Open a new terminal (You need not be in the Virtual Environment)
$> cd to the directory where you downloaded the .deb file.
sudo apt install ./<.deb file>

Now you need to configure the Python Virtual Environment "DataScience-3.8.10" in the JupyerLab IDE

JupyerLab IDE needs some more steps, you can see
https://github.com/jupyterlab/jupyterlab-desktop/blob/master/user-guide.md#Customizing-the-Bundled-Python-Environment

Open a new terminal (You need not be in the Virtual Environment)
$ cd /opt
$ sudo chown -R <username:username> JupyterLab/
[username -> your Linux user]

Go to Show Applications -> JuputerLab
This will launch the JupyterLab
You can add it to Favorites. App icon will appear in the Task bar.

Now you open JupyterLab IDE
You can find in the status bar -> conda:jlab_server
Click on it.
It will ask to choose a python environment.
Now you need to choose the Python that in the DataScience-3.8.10
Usually, it is ~/.pyenv/versions/DataScience-3.8.10/bin/python3

Save and Restart.

This will point the JupyterLab IDE to use the DataScience-3.8.10 environment.

Step 12: Summary
Python Environment: 3.8.10
Virtual Environment: DataScience-3.8.10
Tools: pyenv, pyenv-virtualenv
Package Manager: Poetry
DM Tools: orange3, Spyder, JupterLab

Step 13: Using PyCharm
You can install PyCharm and use the DataScience-3.8.10 environment.
This is also a very good IDE for Python development.

Step 14: Adding new python packages to the DataScience-3.8.10 environment.
Use Poetry.
Open a New Terminal.
CD to the directory in Step 7 (Save the pyproject.toml file in a separate directory.) above.
Activate Python Environment
$ pyenv activate DataScience-3.8.10
poetry add <python library>

Step 15: Updating python packages in DataScience-3.8.10 environment.
Use Poetry.
Open a New Terminal.
CD to the directory in Step 7 (Save the pyproject.toml file in a separate directory.) above.
Activate Python Environment

$ pyenv activate DataScience-3.8.10
poetry update

NOTE: Be careful while updating. Sometimes, you will encounter version conflicts.
Read Poetry documentation and proceed accordingly.

Step 16. Installing additional Packages in Orange3.
Note: orange3 will use the DataScience-3.8.10 environment automatically. You need not run from a Terminal.
Launch Orange3 (from Show Applications of Linux)
Go to Options -> Add-Ons
Selects all check-boxes
Apply.