**Jupyter with Virtual Environment On Windows**

Objective: run Jupyter in a virtual environment using a separate kernel, which will have a distinct Python version and its own packages.

Use scoop to install Python; 3.9 in this example.

Use virtualenv to create the virtual environment.

Use ipykernel to create the Python kernel for Jupyter to run in.

[Here is a video that covers some of the key points for more detail and background](https://www.youtube.com/watch?v=QAoVN3Omb9Q).

Make sure you are completely logged out of any Jupyter Notebooks and that you have uninstalled **Python from Windows Add or Remove Programs** (yes, this might break things on your computer, but this step is required).

1. [Install Scoop](https://scoop.sh/)

2. Use Scoop to install the Python version of your choice, e.g. Python 3.9.

To find out what versions you already have installed: scoop list

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To find out where it is located: scoop prefix python39



3. Create a new Virtual Environment ([install pip](https://pip.pypa.io/en/stable/installation/)) in a workspace of your choosing, e.g. s:\code\uw\IMT573

install virtualenv if not already: pip install virtualenv

virtualenv -p="C:\Users\steve\scoop\apps\python39\current\python.exe" py39\_venv

virtualenv -p "C:\Users\steve\scoop\apps\python38\current\python.exe" py38\_venv

virtualenv -p "C:\Users\steve\scoop\apps\python312\current\python.exe" py312\_venv --verbose

**Important** cd into the new environment directory and out of scoop:

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Activate the virtual environment

cd uw\IMT573\py39\_env

.\Scripts\activate

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**Note** that the above command **copies** the Python version from scoop and puts in the virtual directory, which is where you want to run Python from inside Jupyter going forward, and NOT from scoop. Ie you want to run Python from the virtual environment and not from Scoop even though you will now have two similar Python environments installed.

Double check the non-scoop directory:

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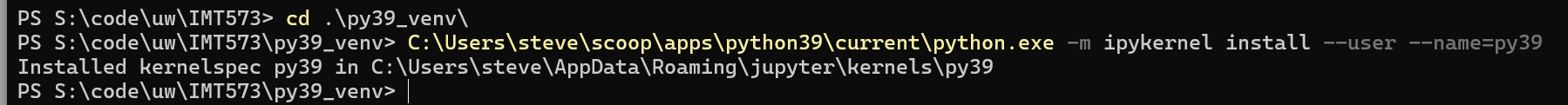
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4. Install ipykernel from the **virtual environment** location of your desired Python. Make sure ipykernel is installed with the desired Python version (if you have multiple), e.g.:

S:\code\uw\IMT574\py39\_venv\Scripts\python.exe -m pip install ipykernel  
S:\code\uw\IMT573\py38\_venv\Scripts\python.exe -m pip install ipykernel  
S:\code\uw\IMT570\py312\_venv\Scripts\python.exe -m pip install ipykernel

5. Create a new **Kernel** from the **virtual environment** location of your desired Python. Make sure ipykernel is installed with the desired Python version (if you have multiple), e.g.:

S:\code\uw\IMT574\py39\_venv\Scripts\python.exe -m ipykernel install --user --name=py39  
S:\code\uw\IMT573\py38\_venv\Scripts\python.exe -m ipykernel install --user --name=py38  
S:\code\uw\IMT570\py312\_venv\Scripts\python.exe -m ipykernel install --user --name=py312



Upgrade pip if needed:

S:\code\uw\IMT573\py39\_venv\Scripts\python.exe -m pip install --upgrade pip

6. Check to make sure that the Jupyter kernel (py39 in this example) is pointing to the correct Python INSIDE the virtual environment (and NOT to the scoop Python). Search for kernel.json. The key is that you are looking for python.exe inside the virtual environment \Scripts directory and **not Scoop**.

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7. Add Python packages while the environment is activated from the command line. While it is possible to !pip install xxxx from Jupyter, it is not recommended.

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8. **To install packages:** Make sure you are in the new virtual environment directory and it is activated.  
Install your packages with the proper versions:

pip install urllib3==1.26.15 requests-toolbelt==0.10.1

pip install censusgeocode

9. From inside the main directory of the virtual environment **with it activated**, launch Jupyter

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Make sure you have the correct kernel chosen

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From within the Notebook ensure you have the proper kernel running

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Packages will now have to be installed from that venv because if you !pip install from a Jupyter notebook cell it might use a different Python kernel.