Setting up VSCode

VSCode Setup

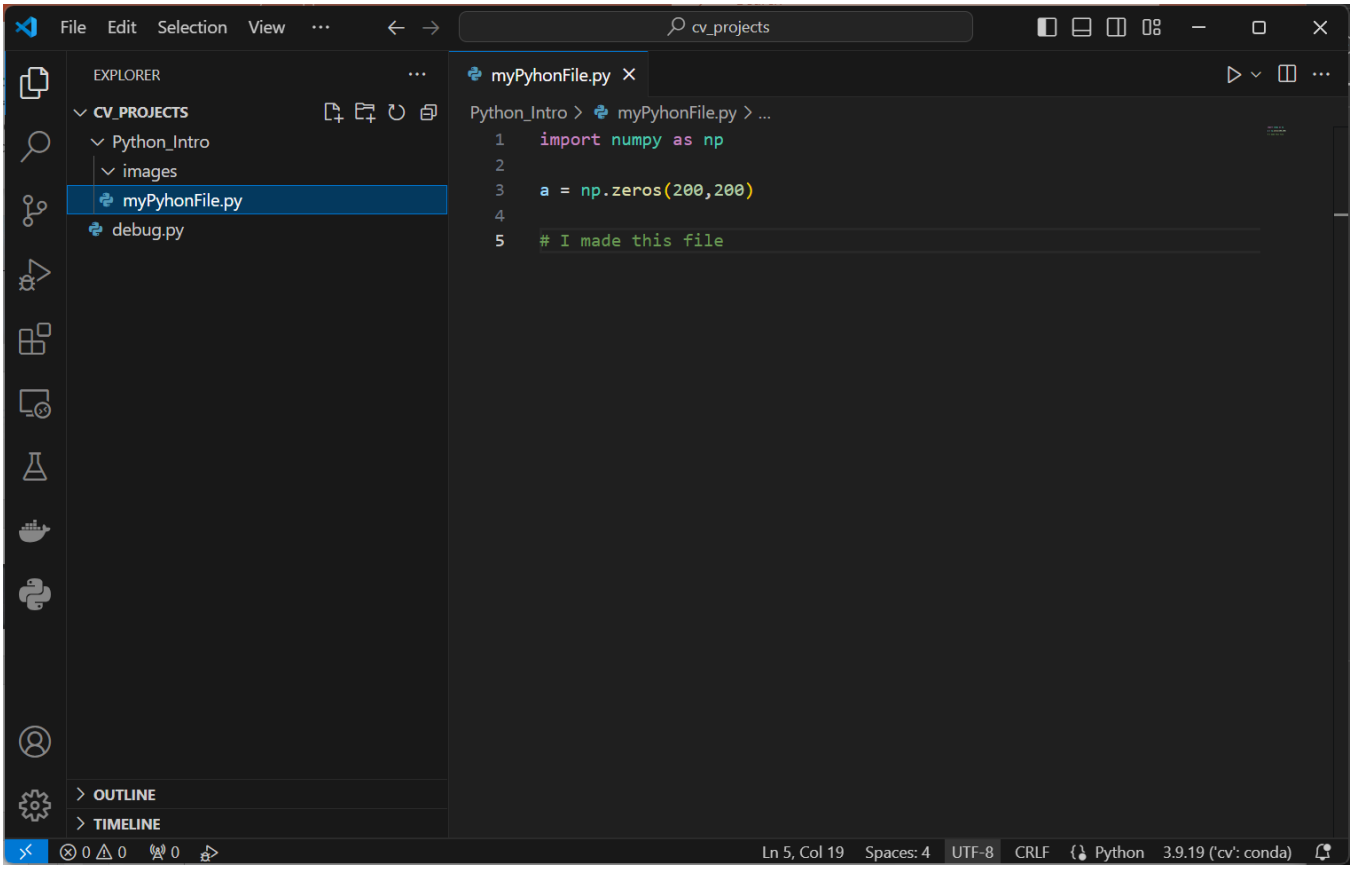
VSCode is a GUI-based text editor and development environment. VSCode is already installed on departmental machines, and can be downloaded for local machines from the VSCode website. Once installed, we're going to set up VSCode to use our virtual environment. *VSCode is the only IDE that this course officially supports*.

This guide assumes that you have already installed conda and set up a virtual environment on your computer. If you haven't done this yet, please follow the Python Setup Guide first.

Creating and Opening a Projects Folder

Once you are in VSCode, click `'File -> Open Folder`. Navigate to where you would like your CV projects folder to be and click the `New Folder` button. Name your folder `cv_projects` and click `Create`. Select the folder you just created and then click `Open`. You are now in the `cv_projects` directory.

We recommend putting the projects you work on for this course in this folder. It will look something like this:



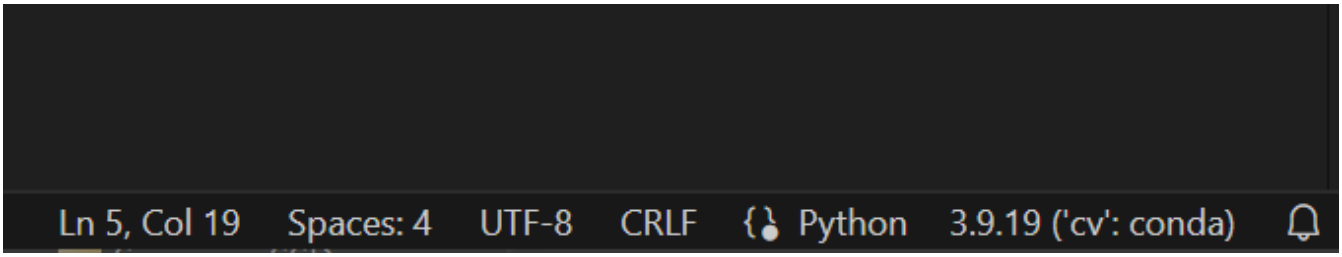
Python extensions

The first time you open a Python file within VSCode, it will ask to install Python extensions. Please do that!

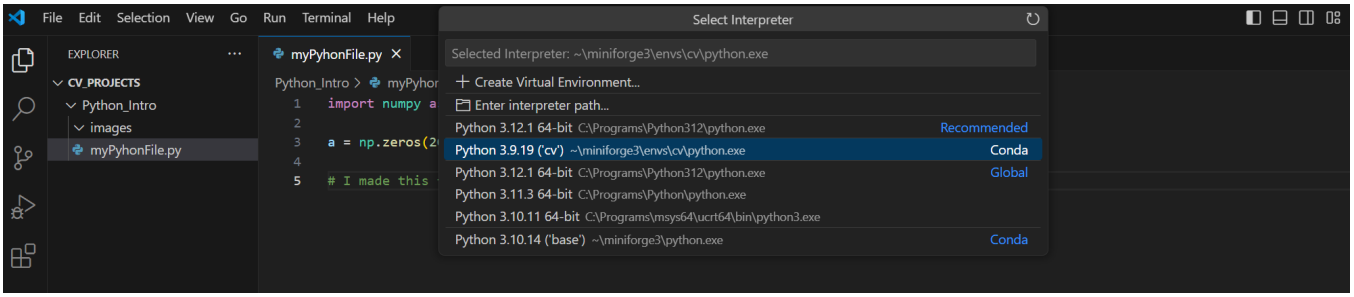
We recommend making sure that you have `Python` and `Pylance` from Microsoft installed.

Selecting Python Interpreter in VSCode

With a python file open, look in the bottom right hand corner of your VSCode screen. You should see that VSCode has selected a python interpreter. If it says `3.9.XX ('cv': conda)`, then you are good to go.



If it does not say `3.9.XX ('cv': conda)`, click on the text (it's actually a button). It will open up the following menu:



On this menu, select the Python 3.9 cv conda environment.

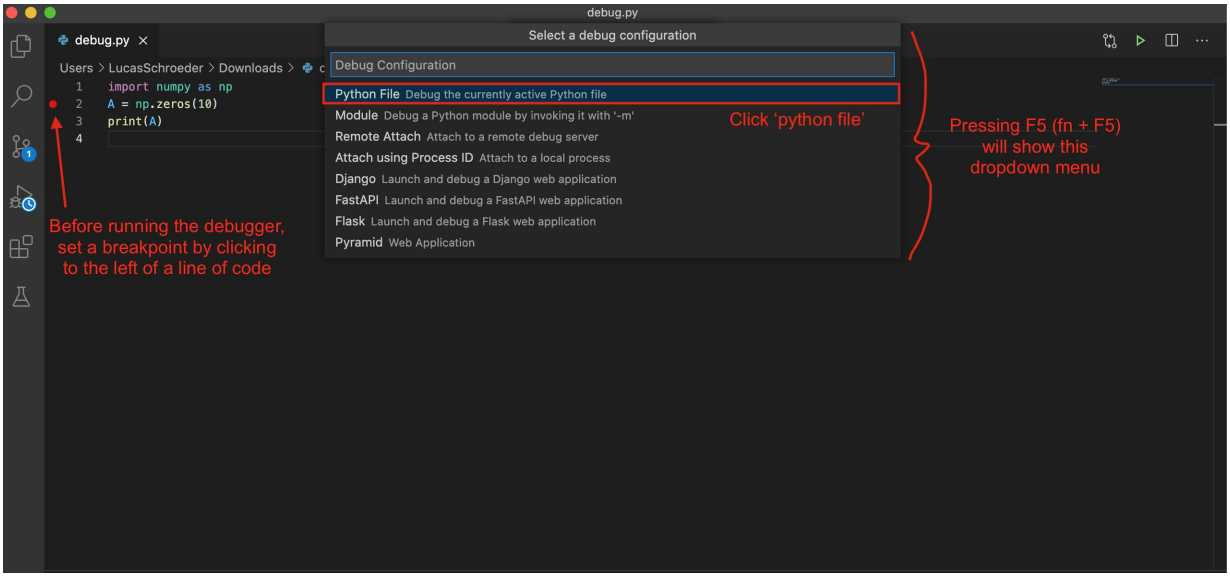
Debugging

With the `Python` extension installed, we can debug code. This is much more powerful and flexible than using `print` statements, because we can interactively inspect the state of the program. Within the `Debug Console`, we can even execute arbitrary code, like querying

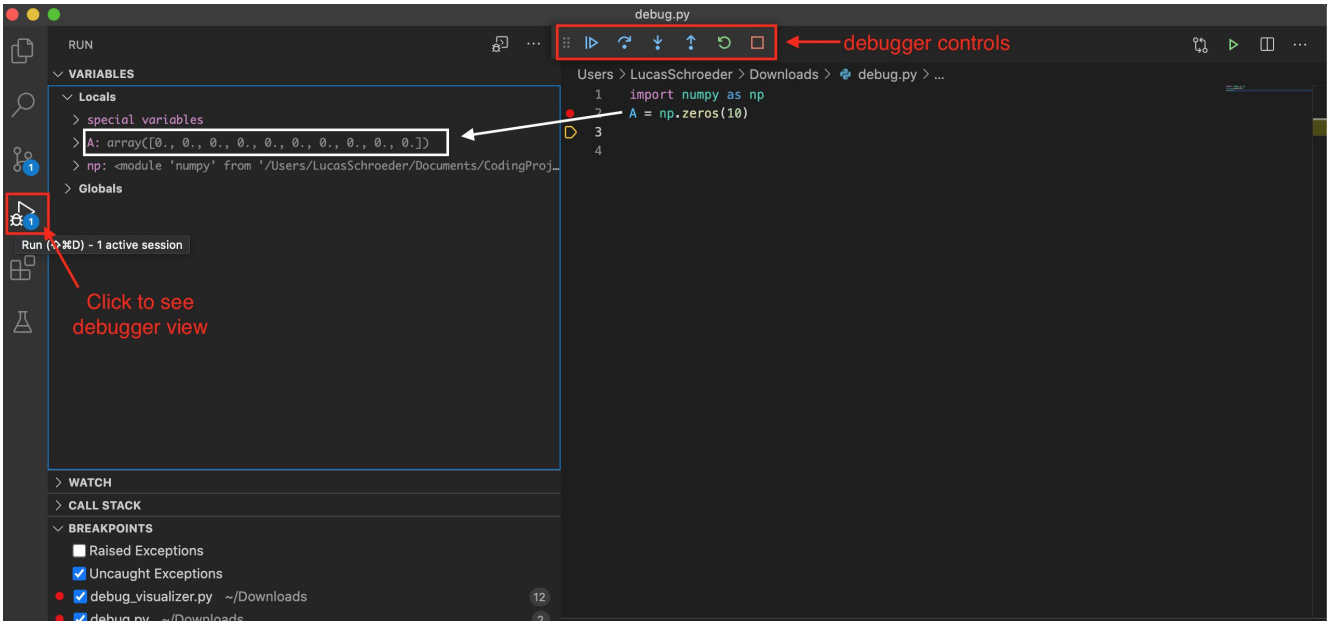
variables interactively and writing conditionals.

Debugging Steps

1. Set a breakpoint by clicking to the left of a line of code
2. Press `F5` to start the debugger. If a dropdown menu appears, select `Python File` to set up the debugger configuration to properly debug the python file:



3. Expand the debugger view by clicking on its icon in the left toolbar.
4. Use the tools to step through the code. You have the ability to:
    - run the code until you hit a breakpoint
    - step into a function (investigate code that defines a function)
    - step over a function (move to the next line in the current function)
    - step out of a function (return to the next line after the current function was called)
    - restart
    - stop



For more detailed information, please see this VS Code page. It has information on how to enter the debugger and how to set and navigate breakpoints.

VS Code should automatically detect the configuration and run the debugger properly when you press `F5` when editing your main file. If it does not work, check the version of python that VS Code has selected by looking at the bottom left corner. You should see be the `cv_env` virtual environment that you created from above. You can change the version by clicking on the version displayed in the bottom left and selecting a different one using the drop down menu. If this setup does not work, please come to TA hours.