

Applied Statistical Methods

Installation of Python and VSC

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Installation of Python

- Python: <https://www.python.org>
 - ▶ Windows: install with default settings plus Add Python.exe to PATH
 - ★ The default settings come with the IDLE (Integrated Development and Learning Environment) shell which is a default editor that accompanies Python. Coding with it is interactive which is good for beginners.
 - ★ Try our first line of code `print("Hello, world!")` in IDLE
 - ★ type `exit()` or `Ctrl+C` if there is any Syntax Error
 - ▶ Mac: <https://youtu.be/jHV8e9DO5bg> or <https://docs.python.org/3/using/mac.html#getting-and-installing-macpython>

Installation of Visual Studio Code

- Visual Studio Code is bound with Jupyter and Pylance Python extensions.
- Download: Visual Studio Code (<https://code.visualstudio.com/>)
- Windows: install with default settings and install the **Python extensions**: Python, Pylance and Jupyter
- Mac: <https://youtu.be/2RoWZXcbPjw>

Installation of Visual Studio Code

- Run your Python code in an interactive way: Ctrl+Shift+P -> Python: Start REPL
 - ▶ REPL means Read-Eval-Print Loop, a computer environment where user inputs are read and evaluated, and then the results are returned to the user.
 - ▶ Type exit() in the TERMINAL to go back to the Script Mode. You cannot debug your script otherwise.
- Now create a Jupyter Notebook and run Python code by cells. The following is the problem when I was installing ipykernel
 - ▶ Warning message: Running cells with 'Python 3.11.0 64-bit' requires ipykernel package. Run the following command to install 'ipykernel' into the Python environment. Command:
`'c:/Users/xzhang2/AppData/Local/Programs/Python/Python311/python.exe -m pip install ipykernel -U --user --force-reinstall'`
 - ▶ and then error message: error: Microsoft Visual C++ 14.0 or greater is required. Get it with "Microsoft C++ Build Tools":
<https://visualstudio.microsoft.com/visual-cpp-build-tools/>
- I solved the problem following
<https://www.partitionwizard.com/partitionmanager/microsoft-visual-c-14-is-required.html>

Installation of Visual Studio Code

- Another solution: Install Anaconda (<https://www.anaconda.com/products/distribution>) and use the python version in Anaconda as a kernel for Jupyter Notebook.
 - ▶ The conda environment will be introduced. It is not recommended.
 - ▶ see this video: <https://youtu.be/h1sAzPojKMg>

Installation of Python packages

- [Installing Python Packages](https://docs.python.org/3/installing/index.html) <https://docs.python.org/3/installing/index.html>
- For now, let's install the libraries NumPy, Pandas, Matplotlib, statsmodels, and Scikit-learn or sklearn using pip.

```
python -m pip install numpy
python -m pip install pandas
python -m pip install matplotlib
python -m pip install statsmodels
python -m pip install scikit-learn
```

- Check the installed libraries

```
pip list
```

- Upgrade a library

```
python -m pip install --upgrade numpy
```

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