Python

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Tools

Tools and Softwares to use

- Anaconda
  - Jupyter
  - Sypder
- Editor + CMD/Terminal
  - Notepad++ (windows only)
  - Sublime
  - Atom etc.
- Git and Github
  - Create your **github** account
  - On windows install **gitbash**

Anaconda

- Anaconda is distribution of Python which comes with bunch of tools
- We will use Anaconda3 and tools which come along:
  - Jupyter (mostly)
  - Spyder
- Install Python 3.x version from here:
  - https://www.anaconda.com/distribution/

* For windows if asked to add to PATH, put tick in check box

Notepad++ and Terminal

- You can write python code/scripts in any text editor and run from terminal.
- In any text editor, write your python code and save file with extension *.py*
- Now open a terminal in same folder as your python script and run like this:

  python <filename>

replace file name with your script name and don't put <>

Git and Github

- Git is a tool for version control
- Github is a website that allows people to collectively work on a project
- On Mac/Linux ***git*** comes preinstalled or you can install if running **git** on terminal gives error
- On windows install ***gitbash*** to use git.

Other Tools and Stuff

- Try other **IDE** to write python code like **PyCharm**.
- Books:
  - Learning Python (Beginners)
  - Programming Python (Intermediate)
  - Python Cookbook, Fluent Python (Advanced)
- **pip**: This is important to understand packaging and dependency management

What is Python

Python: Language

- Python is a Programming Language
- Python is an interpreted language.
- But it uses a hybrid model to improve performance
- Dynamically typed and case sensitive

Compiled vs Interpreted

- Compilation:
  - Convert to binary and save
  - Run saved binary
- Interpretation:
  - Read one instruction at a time
  - Convert to binary and run
  - Repeat till done
- **Compiled** languages are ***faster*** than interpreted.
- **Interpreted** one give ***platform independence***.

Which python are we using

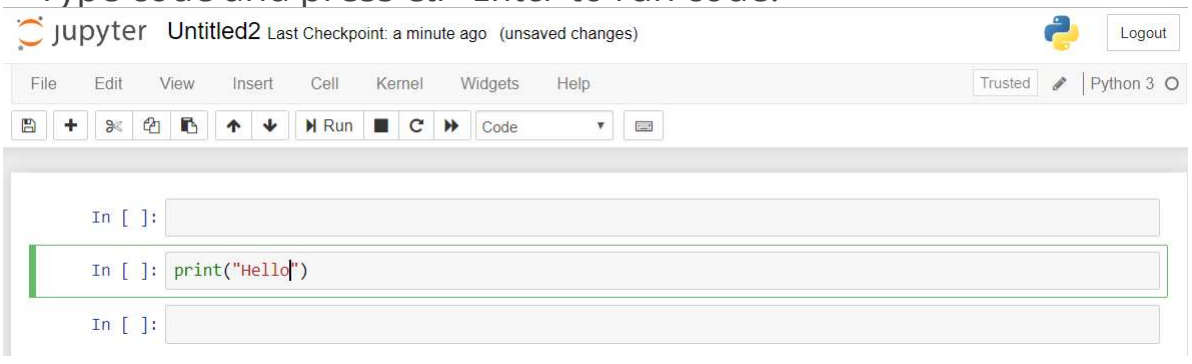
- Anaconda: collection of some tools(Jupyter etc.) and libraries (pandas, numpy etc.) along with Cpython. That justifies the size difference
- Cpython: official Python implementation (available at python.org)
- Source code of Cpython is written in C programming language
- There are other implementations like Jython, PyPy etc.

Running Python Code

Jupyter Notebook

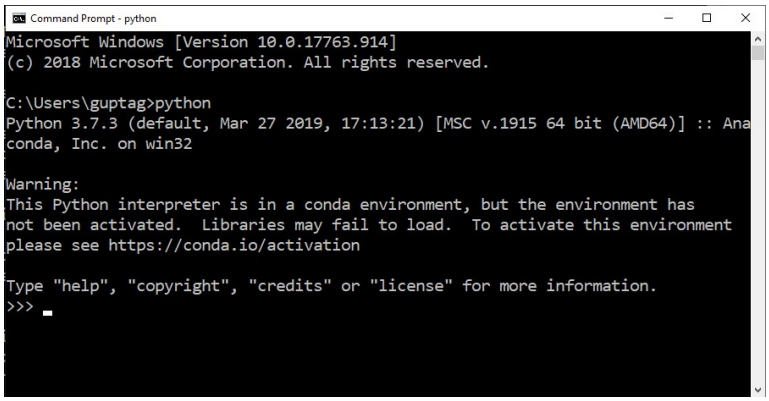
- Jupyter Notebook opens in browser
- On top right there is new button: with Python3 and Folder options

- *New → Python3 :* Creates new notebook (with extension .ipynb)
- Cells: a block where you write code
- Type code and press *Ctr+Enter* to run code.



Python Interpreter

- Open a terminal or CMD and type python (in small)
- Notice **>>>**
- Check Version 3.x.x 3.7.7 here
- Should not be 2.x.x



Notepad++ and Terminal

- You can write python code in a text editor and run in a terminal.
- In a text editor, write your code and save file with extension ***.py***
- Now open terminal in folder where python script is saved and run like this:

  python <filename>

  * replace file name with script name and don't put <>

  Example: if file is saved as test.py

  python test.py

DIY

- Read about operator precedence

  https://docs.python.org/3/reference/expressions.html#operator-precedence

- What is **PYTHONPATH**