Python Coding Practice

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For Your Information

- Created by: Guido van Rossum, 1989-1991
- Why: The creator wanted something easy to use.
- Is it really that easy? Yes (and no)
- Very readable with little memory management.
- https://people.sc.fsu.edu/~jburkardt/
- https://docs.python.org/3/tutorial/index.html
- https://www.tutorialsteacher.com/python
- https://www.w3schools.com/python/default.asp
- https://www.tutorialspoint.com/python/ ⟵ great place to start.

A Little More About Python

- Python2 $\longrightarrow$ Python3; support for Python2 will end 2020.
- Python is fully object oriented. Everything is considered object.
- Famous for AI and machine learning $\longrightarrow$ Pytorch, Keras, TensorFlow
- Interpreter language but can be compiled $\longrightarrow$ Cython, Numba
- Very well documented. Every module/libraries are documented online.
- Package management by package installer $\longrightarrow$ pip, pip3
- pip $\longrightarrow$ https://pypi.org/project/pip/
- **Py**thon **P**ackage **I**ndex $\longrightarrow$ pypi, https://pypi.org/
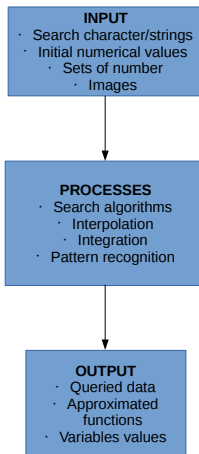- https://github.com/ $\longleftarrow$ another place to look.

A Little Bit About Anaconda

- No, its not a different programming language.
- Anaconda is a *complete environment* for Python programming.
- Most major scientific package (NumPy, SciPy etc) are included.
- Package installer *conda*

  ```
  user@pc−name:~/conda install any_package
  ```

- https://www.anaconda.com/

Before we get started, does anyone want to get out?

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- Coding paradigm
    - programming language $==$ English (sorry, Mandarin not required)
    - syntax is based on English
    - coding is a reduction of English instructions
- Syntax must be remembered
    - read the manual $\longrightarrow$ documentations are vital
    - memorize THE MOST COMMONLY USED syntax only
    - good algorithm will always beats bad algorithm
- I don't remember every syntax so you have to bare with me (..)

Loop in Python3

- for-loop

```python
#Example of simple loop
import numpy as np
imax = 64
a = np.ndarray(shape=(imax), dtype=float)
for i in range(imax):
        a[i] = 1.0
```

Loop in Python3

- Loop with string data.

```python
words = ['I', 'me', 'you', 'him']
for w in words:
    print(w, len(w))
```

Loop in Python3

- while-loop.

```
1  i=1
2  while  i <6:
3      print ( i )
4      i  +=1
5
6  i=1
7  while  i <6:
8      print ( i )
9      if  i ==4:
10         break
11     i  +=1
```

file: py-while.py

Standard template

- This is a standard template slide.
- Modify by adding items.

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Thank You!
Questions?