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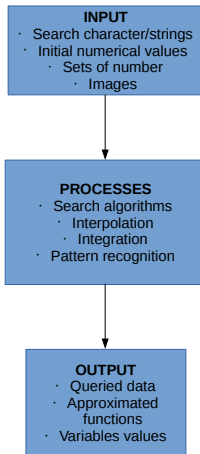
Before we get started, does anyone want to get out?

- 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
    (⸝⸝)

Hello, Python!

- Symbols to remember.

```
1  #everything about the basics
2
3  '''
4  This is how you put a long comment.
5  : <- colon
6  ; <- semi-colon
7  () <-parentheses
8  [] <-brackets
9  {} <- braces
10 # <- hash sign
11 ' <- apostrophe
12 " <- quote mark
13 .....
14 Thats about everything you need to know/remember
15 '''
```

file: py-hello.py

Hello, Python!

- The print() function.

```python
1  print("Hello,world!")
2  print("Hello, Python 3\n") # "\n"; next line
3  money=4.0
4  print("I have %f B, in a yacht somewhere"%money)
5  var0 = 1
6  var1 = 1.07
7  print("To print float number %f and integer %d"%(
       var1, var0))
8  str1 = "Another way "
9  str2 = "to add something."
10 print(str1+str2)
11 print(str1+"\t"+str2) # "\t" for tab spacing
```

file: py-hello.py

Loop in Python3

- for-loop

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

Loop in Python3

- Loop with string data.

```
1  words = ['I', 'me', 'you', 'him']
2  for w in words:
3    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.

Standard template

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Thank You!
Questions?