






NETWORK PROGRAMMING IN PYTHON

INTRODUCTION TO PYTHON PROGRAMMING I

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WHAT WILL BE COVERED

- Part 1:
 - Python's various installation walkthrough 
 - Running python shell 
 - Python as my calculator $\times - + \div$
 - Python's beautiful heart 
 - Printing like a hero 
 - My first python script 

HOW TO INSTALL PYTHON

- Python is cross platform
- Various install points:
 - Directly on system
 - Seperated from system - virtual environments (recommended)
 - [Python2 or Python3](#)

“ Note however that for this class it is a requirement to install and use version $\geq 3.5.0$. Most of the preliminary codes written will work in version $\geq 2.7.11$ but you will have to endure a little bit caveats.

”

RUNNING PYTHON IN THE SHELL

```
$ python3
```

Output

```
Python 3.6.0 (default, Dec 24 2016, 00:01:50)  
[GCC 4.2.1 Compatible Apple LLVM 8.0.0 (clang-800.0.42.1)] on darwin  
Type "help", "copyright", "credits" or "license" for more information.  
>>>
```

Try this:

```
>>> print("Hello", "World!")
Hello World!
>>> print(12+10)
22
>>> print("Ghana is great")
Ghana is great
>>> print("What is this")
What is this
>>> 8+9
17
>>> 16-8
8
>>> False
False
>>> True
True
```

PYTHON AS MY CALCULATOR

```
>>> 12 + 6
18
>>> 9 - 3
6
>>> 9 / 4
2.25
>>> 25 * 5
125
>>> 26 // 7
3
>>> 26 % 7
5
>>> 5 ** 3
125
```

PYTHON'S BEAUTIFUL HEART

DATA TYPES

- -973
- 210624583337114373395836055367340864637790190801098222508621955072
- "Infinitely Demanding"
- 'Obed Ademang'
- 'positively $\alpha\beta\gamma \div \text{©}$ '
- ""
- "Hard Times"[5]
- "giraffe"[0]

DATA TYPES CONT'D

“ **Integer** and **String** types are immutable. In theory it means once you set their value you cant change them. In practice it is never like that. ”

Lets see how to change the string to int and vice versa

OBJECT REFERENCES (VARIABLES)

```
>>> x = "blue"  
>>> y = "green"  
>>> z = x  
>>> z  
'blue'
```

“ The = operator is not the same as the variable assignment operator in some other languages. The = operator binds an object reference to an object in memory. If the object reference already exists, it is simply re-bound to refer to the object on the right of the = operator; if the object reference does not exist it is created by the = operator. ”

COLLECTION DATA TYPES

- Tuples
 - Tuples are created using commas (,). This is the default collection data type in python. Tuples are immutable.
- Lists
 - Lists are created using square brackets - "[]" and commas (,).
- Dictionaries
 - Do a better research on dictionaries. **protip:** Dictionaries are created using squigly brackets and commas ({}). Dictionaries are key - pair value assignments.

LOGICAL OPERATIONS

IDENTITY OPERATORS

“ The is operator is a binary operator that returns True if its left-hand object reference is referring to the same object as its right-hand object reference. ”

```
a = ["Retention", 3, None]
b = ["Retention", 3, None]
a is b
b = a
a is b
```

“ The purpose of the identity operator is to see whether two object references refer to the same object, or to see whether an object is None. If we want to compare object values we should use a comparison operator instead ”

COMPARISON OPERATORS

- “ Python provides the standard set of binary comparison operators, with the expected semantics: < less than, <= less than or equal to, == equal to, != not equal to, >= greater than or equal to, and > greater than. These operators compare object values, that is, the objects that the object references used in the comparison refer to. ”
- “ One particularly nice feature of Python’s comparison operators is that they can be chained. ”

MEMBERSHIP OPERATORS

“ For data types that are sequences or collections such as strings, lists, and tuples, we can test for membership using the in operator, and for nonmembership using the not in operator. ”

LOGICAL OPERATORS

“ Python provides three logical operators: and, or, and not. Both and and or use short-circuit logic and return the operand that determined the result—they do not return a Boolean (unless they actually have Boolean operands) ”

“ The not unary operator evaluates its argument in a Boolean context and always returns a Boolean result. ”