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# Introduction to the Python Programming Language

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*Why Python*

*Python Versions*

*Using Python*

*Assignment*

*Data Types*

*Duck Typing*

*Operators*



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# 1. Why Python

- Developed by Guido van Rossum
- Scripting
- Rapid Prototyping
- Python is a helpful dragon



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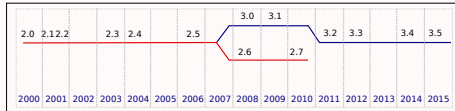
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## 2. Python Versions

- Python Series 2x
- Python Series 3x
- 3x is **not** backward compatible with 2x



- 2x will no longer be supported after 2020
- I'll be using Python 3.5 on a Linux system



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## 3. Using Python

- Command line: type python at a terminal:

```
$ python3.5
Python 3.5.2 (default, Nov 23 2017, 16:37:01)
[GCC 5.4.0 20160609] on linux
Type "help", "copyright", "credits" or "license"
>>> print("Hello")
Hello
```

- File:
  - Use an editor to put commands in a file called `hello.py`
  - type `python hello.py`

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## 4. Assignment

- **Variables:** begin with letter, followed by letters or digits:  
x, sum, name1, name2, ...

- Move what is on the right hand side to the memory location designated by the variable on the left side:

$x = 17$

- Not an equation:  
 $x = x + 1$

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## 5. Data Types

- Integer: 4, -9
- Float: 4.3, -9.2, 0.5
- String: "hello", 'good bye'

Python knows these types and we can check:

```
>>> x = 9
>>> type(x)
<class 'int'>
>>> x = 2.5
>>> type(x)
<class 'float'>
>>> x = 'cat'
>>> type(x)
<class 'str'>
>>> x = "zebra"
>>> type(x)
<class 'str'>
```

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## 6. Duck Typing

- If it “walks” like an integer, “talks” like an integer, then it’s an integer:

```
x = 5
```

- The type of x is integer

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## 7. Operators

- `+`, `-`, `*`, `/`, `**`
- What value is printed for:  
`print 2+3*4`
- What value is printed for:  
`print 2**3**2`
- There is an established precedence order for operators: PEMDAS  
First do what's in **parentheses**, then exponentiation, multiplication, division, addition, and subtraction.
- Most operators are left associative



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