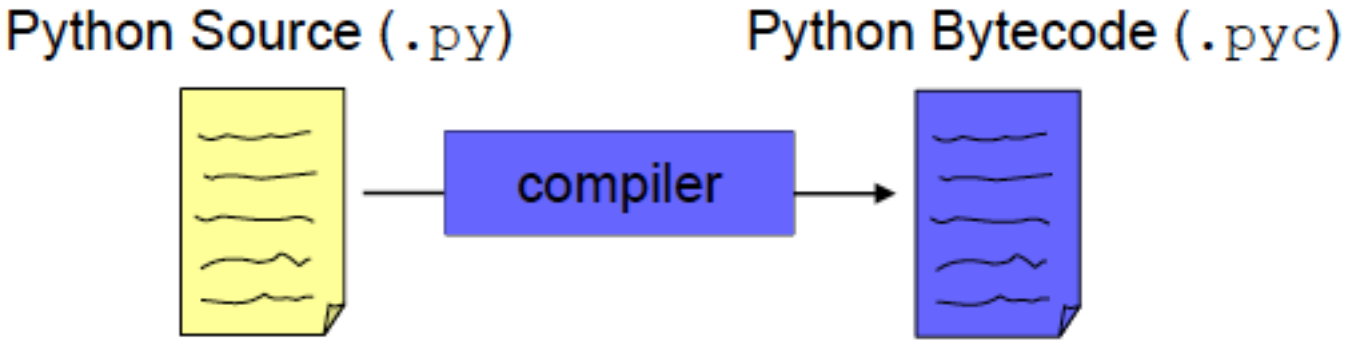
Technical Lab 1

Today's agenda

- What is Python?
- Why Python?
- Basic Syntax
- Lab

Python is…

- **…Interpreted**
- Python is compiled to an intermediate format called bytecode, which is understood by a virtual machine.



- This model is similar to Java's and is designed to allow you to "Write Once, Run Anywhere"

Python is…

- **…Dynamically typed**
- variable types are determined at runtime depending on what you assign to them

```
# int
a = 1
# string
a = "a"
# list
a = [1,2,3]
# dictionary
a = {1:2,3:4}
```

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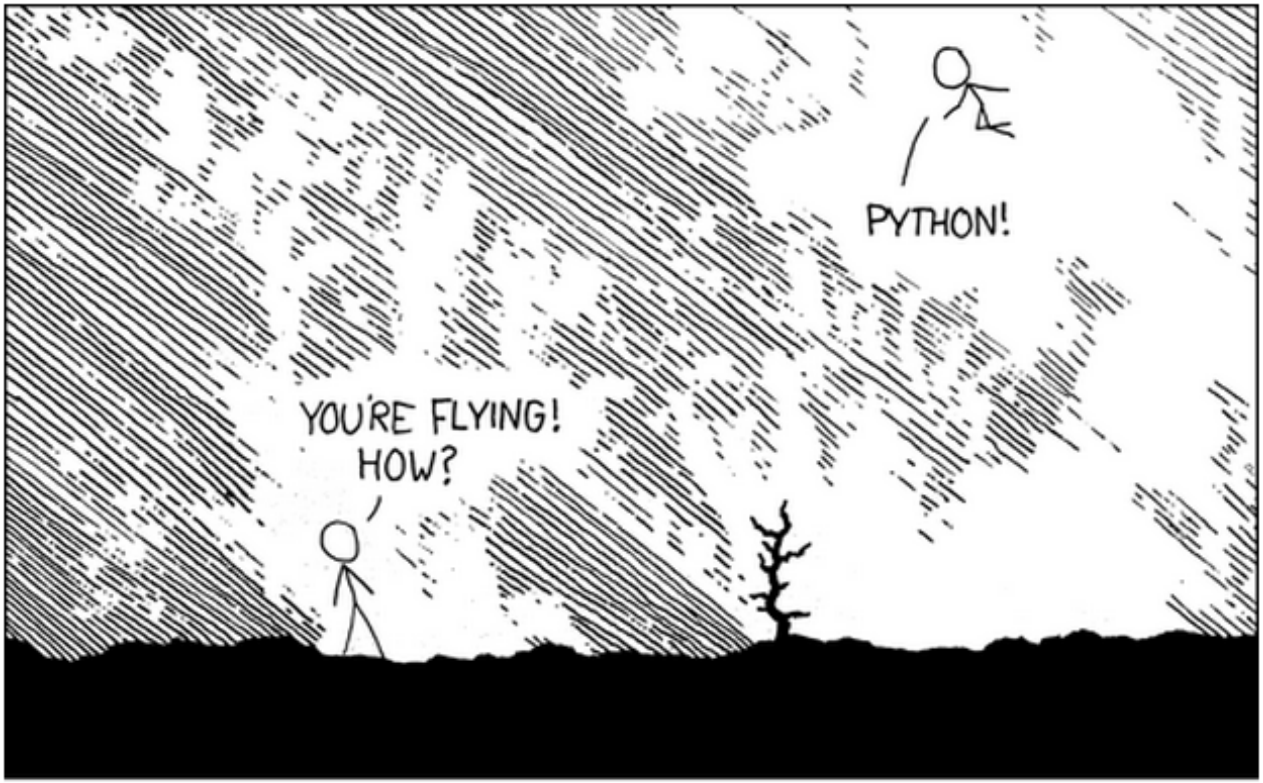
Python because…

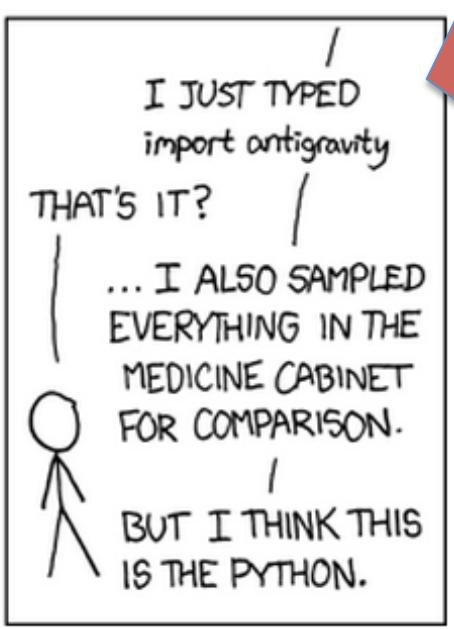
- Python's interpreted nature makes it portable and architecture-agnostic; if a machine runs Python, it will run your code.

- Python, like Java, includes many convenient built-in functions and data structures which are already optimized for its virtual machine.


PYTHON!
YOU'RE FLYING! HOW?

I LEARNED IT LAST NIGHT! EVERYTHING IS SO SIMPLE!
HELLO WORLD IS JUST print "Hello, world!"

I DUNNO... DYNAMIC TYPING? WHITESPACE?
COME JOIN US! PROGRAMMING IS FUN AGAIN! IT'S A WHOLE NEW WORLD UP HERE!
BUT HOW ARE YOU FLYING?

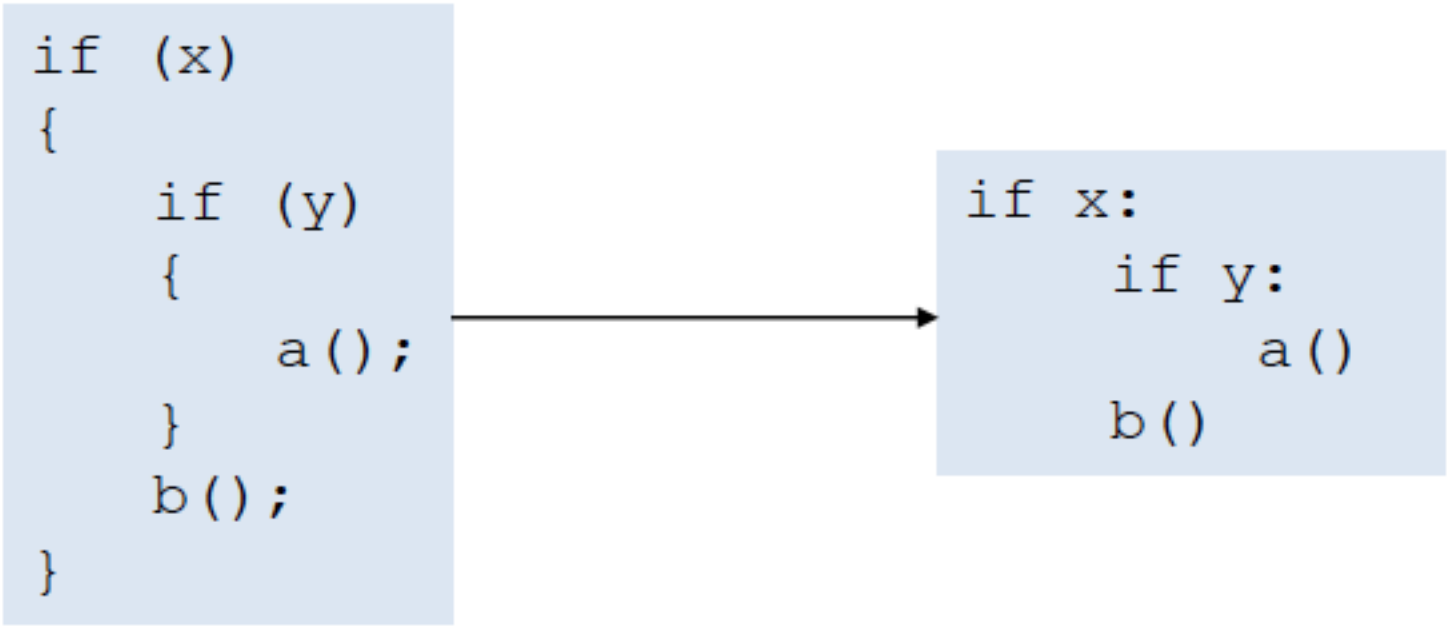

I JUST TYPED import antigravity
THAT'S IT?
... I ALSO SAMPLED EVERYTHING IN THE MEDICINE CABINET FOR COMPARISON.
BUT I THINK THIS IS THE PYTHON.

Python because…

- Useful data structures (dictionaries, tuples, lists, etc.) are built-in and do not need to be separately imported
- Lack of a separate compile step speeds rapid prototyping and debugging
- Dynamic typing speeds up development –no need to explicitly specify method argument types beforehand

Python because…

- Python's syntax is designed to be readable and fast to write. In addition to dynamic typing, whitespace is used as a block delimiter, and semicolons are notusually necessary:



Python for us because…

- We want each of you to reach millions of users, and don't want to waste time building the pipes and plumbing

- Python is supported by a number of good frameworks, led by
  - Google AppEngine, and its progenitor
  - Django

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Syntax

- As mentioned before, blocks are delimited with whitespace: use spaces, not tabs (most python editors will convert tabs to spaces for you)

```
if x:
    if y:
        a()
    b()
```

```
accum = 0
for i in range(0:5)
    accum += i
```

Syntax

- Semicolons are only used to separate multiple statements on the same line, which is discouraged:

```
if (x)
{
    a();
    b();
}
```



```
if x:
    a(); b()
```

Syntax

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```
if (x)
{
    a();
    b();
}
```



```
if x:
    a(); b()
```

Syntax

- Single line comments are denoted with hash (#), multiline with three quotes """

```
# This is a comment
foo()
```

```
"""
This is a
longer comment
"""
foo()
```

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