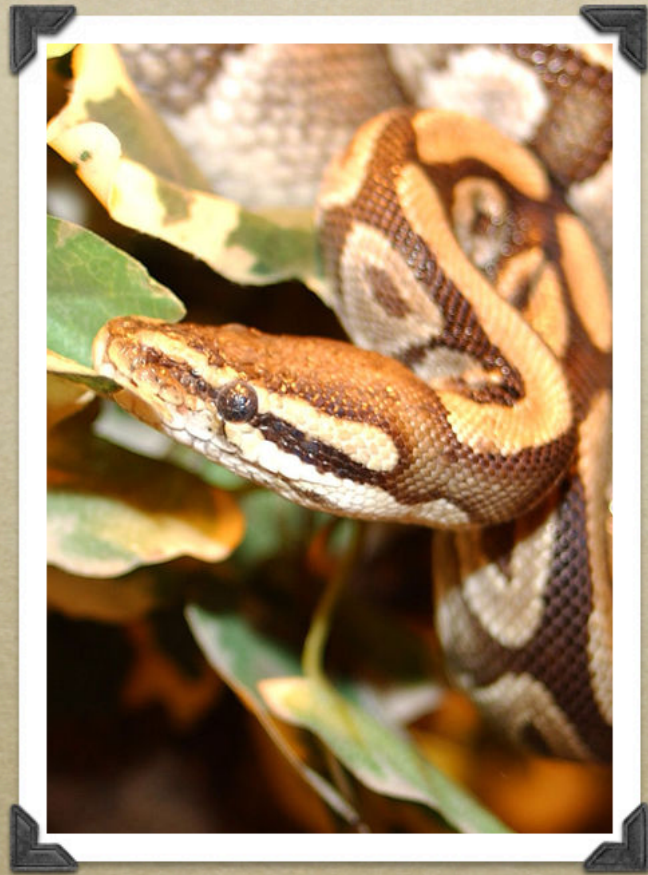


Python

A Basic Introduction



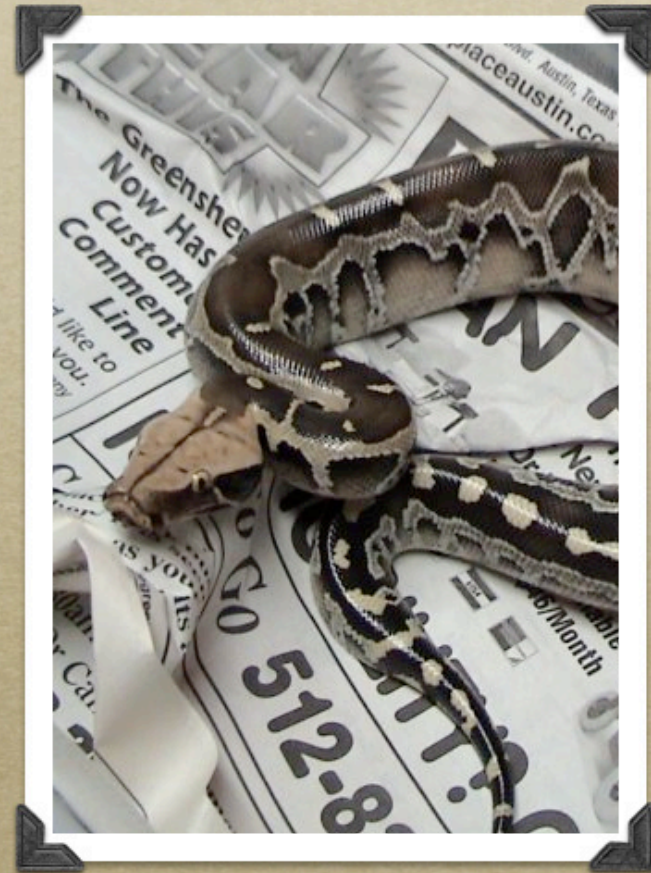
What is Python?

- Common name for the *Boidae* family
 - Specifically *Pythonidae*
- Non-venomous constricting snakes

- Typically found in Australia, Southeast Asia, India, and Africa

Basics of Python

- 4.5 to 6 meters in length
- Range of colors from nondescript brown to vibrant green
- Some exhibit vestigial bones of the pelvis and rear legs



Source: <http://en.wikipedia.org/wiki/Python>
Photo Credit: <http://en.wikipedia.org/wiki/User:Dawson>



What is Python?

- Interpreted programming language
 - Scripting language
- Dynamic Type System
- Automatic Memory Management
- Dynamic Name Resolution

Basics of Python

- Designed to be readable
 - Many constructs use simple words rather than punctuation
 - Blocks defined with indentation/whitespace

C, C++, Java

```
int doSomethingTrivial(int x)
{
    if (x > 12) {
        return x / 2;
    } else {
        return x * 2;
    }
}
```

Perl

```
sub doSomethingTrivial {
    my $x = shift;
    if ($x > 12) {
        return $x / 2;
    } else {
        return $x * 2;
    }
}
```

Python

```
def doSomethingTrivial(x):
    if x > 12:
        return x / 2
    else:
        return x * 2
```

Python Types

- Integers
- Floating Point Numbers
- Arbitrary-precision Arithmetic
- Complex Numbers
- Immutable Strings
- Lists and Dictionaries

Dynamic Typing

- Values, not variables, have type
 - All variables hold references to objects
 - References are passed to functions by-value, thus cannot modify the value source variables reference

Objects, Objects Everywhere

- Everything in Python is an object
 - Variables, Strings, Arrays, Tuples, Dictionaries, Functions, Exceptions, Classes, Class Instances
- Introspection, dynamism

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