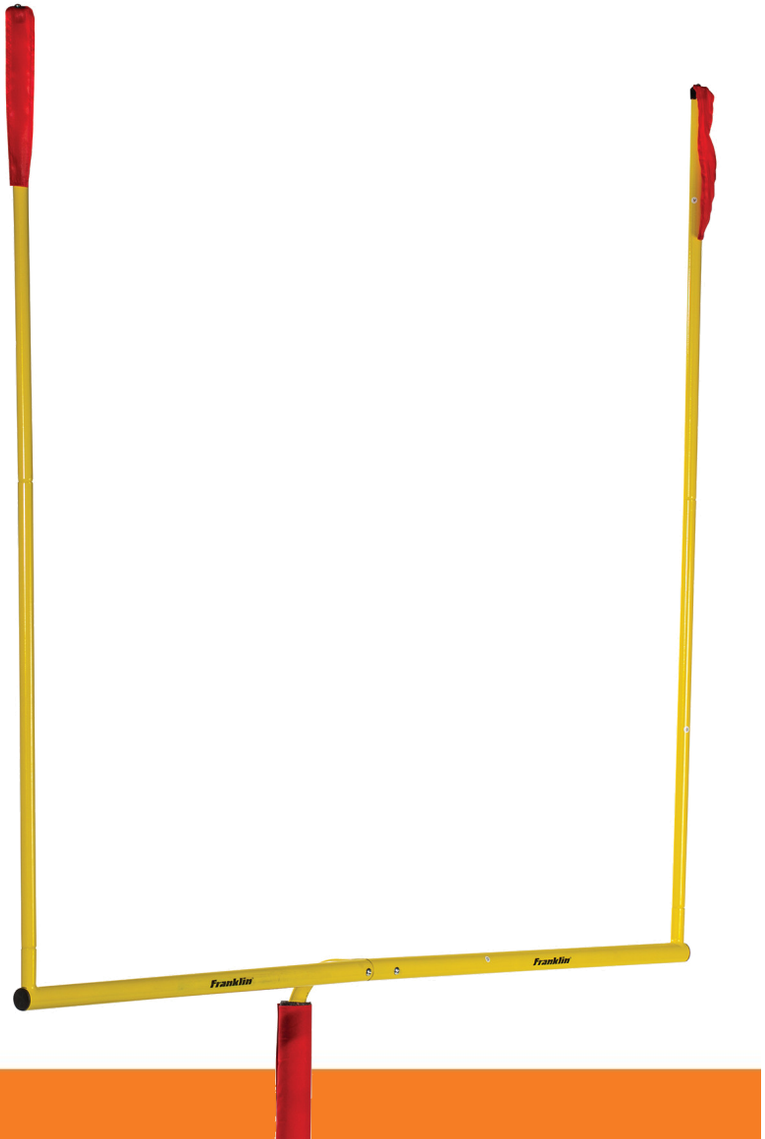
Big Picture

Develop Intelligence

Goals

1. List 5 Python features
2. Define 'pythonic'
3. Devise a personal learning approach



Roadmap

1. Python from 30,000'
2. Python Philosophy
3. Learning
4. Executing Python Code

Develop
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Python from 30,000'

Develop Intelligence

Python is...

- 30 years old
- Open source
- Interpreted (mostly)
- Benevolent dictator: Guido Van Rossum

Language Details

- High-Level
- Multi-paradigm
- Dynamic typing (mostly)
- Automatic memory management

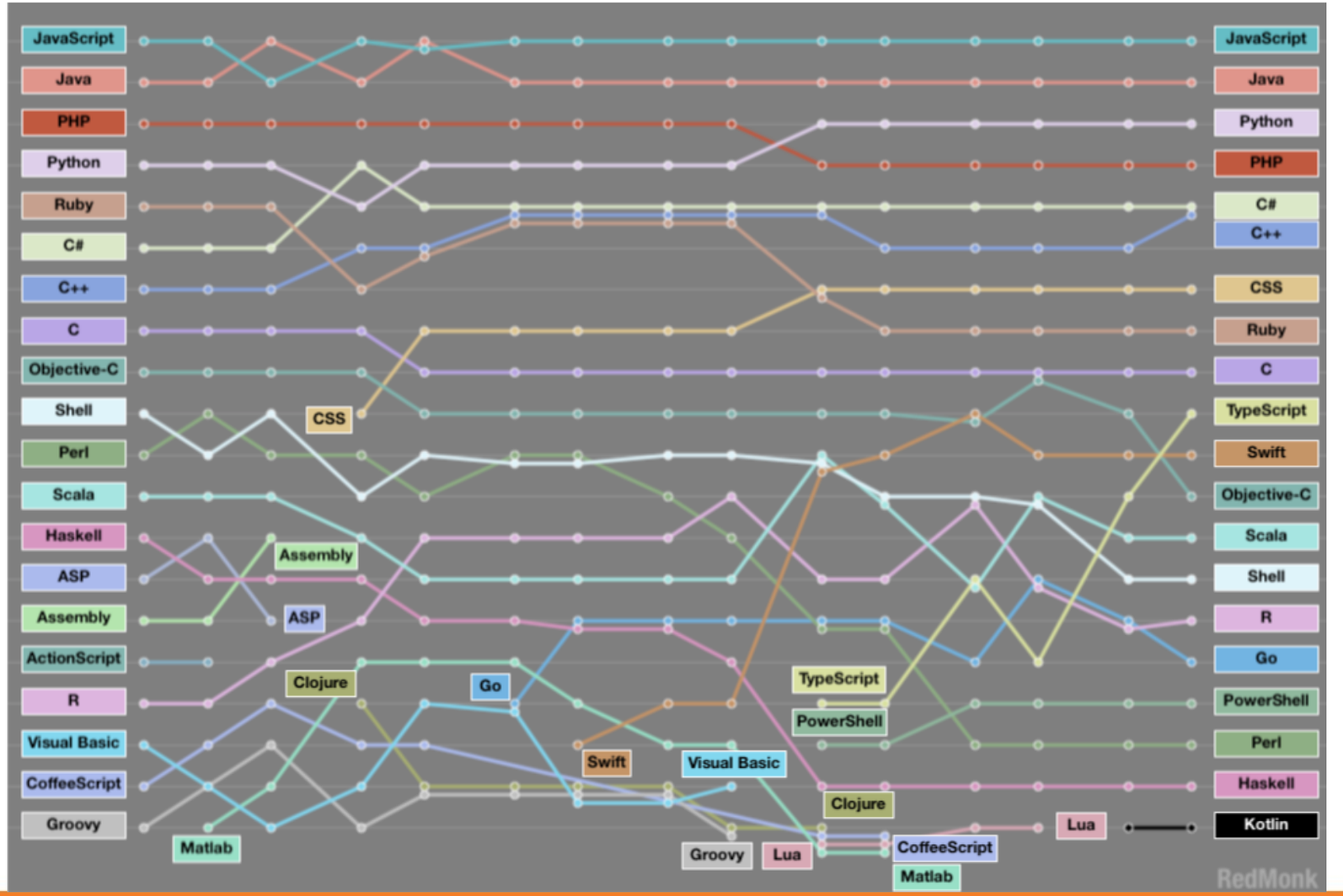
Python is Scripty

A script is what you give the actors, but a program is what you give the audience.

Python is Everywhere

- Multi-platform
- Widely used
- Lots of libraries
- Lots of learning resources

Python is ***really*** Popular



Popular is Good!

- Tons of software:
  - Libraries
  - Tooling
- Tons of resources:
  - Books
  - Videos
  - Blogs

Who Uses Python?

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- Some software engineers
  - e.g. Dropbox
- Lots of non-software people who write lots of software
  - As a calculator
  - As glue
  - e.g. Finance, IT Operations, Big Data, Math, Science

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Python Philosophy

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Vocab: **Pythonic**

*The idioms of a programming language are defined by its users. Over the years, the Python community has come to use the adjective **Pythonic** to describe code that follows a particular style.*

Pythonic Means...

*Python programmers prefer to be **explicit**, to choose **simple over complex**, and to maximize **readability**.*

Zen

- Beautiful is better than ugly.
- Explicit is better than implicit.
- Simple is better than complex.
- Complex is better than complicated.
- Flat is better than nested.
- ...

```
1 import this
```

Batteries included

Python has long maintained the philosophy of "batteries included" -- Having a rich and versatile standard library which is immediately available, without making the user download separate packages.

Example Batteries

- Web Server
- Math & Statistics
- File compression
- Unit tests
- Performance profiling

Pythonic syntax

- C Sharp

```
// Lots of ceremony
using System;
public class Program {
    public static void Main(){
      Console.WriteLine("Hello World");
    }
}
```

- Python:

```
# Straight to the point
print("Hello World")
```

Python Complaints

1. Hacky *e.g. Dunder methods*
2. Not always fast
3. No static type checking *(historically)*
4. Not great dependency management
5. Not great mobile
6. Paradox of choice

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Learning

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Know Thyself

- Active engagement
- Multiple tracks work best
- Accept you will suck for a while

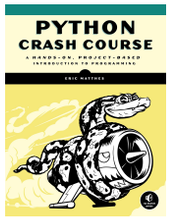
Tracks

- Books
- Videos
  - Youtube, Pluralsight
- Koans
  - e.g. Project Euler
- Flash Cards
- Projects

Resources: Books

Head First Python

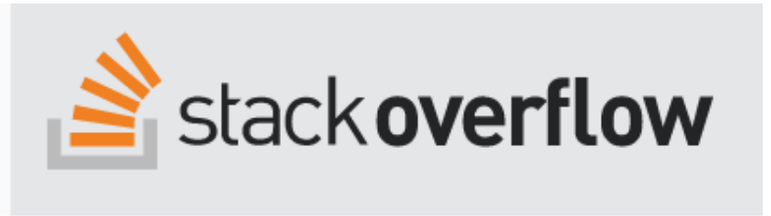
The Python Apprentice



Python Crash Course

Resources: Online

W3Schools



Stack Overflow

Real Python

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Executing Python Code

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Options

1. Interactively via command-line REPL
2. Interactively via IDE
   - e.g. VS Code
1. Via interpreter
2. Natively (e.g. py2exe)

Firing up the REPL

- For Linux/MacOS

```
python3
```

- For Windows

```
py
```

- To quit, type `exit()`

Using IDLE

- **I**ntegrated **D**evelopment **E**nvironment
- Comes with Python
- Not very good
- Proto version of Jupyter

Jupyter

- Multi-language, but Python-
- Interactive
- Popular with data people
- *Makes the scientific paper obsolete* -- The Atlantic

Lab 0: Whirlwind Tour

Setup & Casting

- Let's get set up
- Follow along
- Goals
    1. Aquire
    2. Install
    3. Run
    4. Poke around

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Review

1. List 5 Python features
2. Define 'pythonic'
3. Devise a personal learning approach