

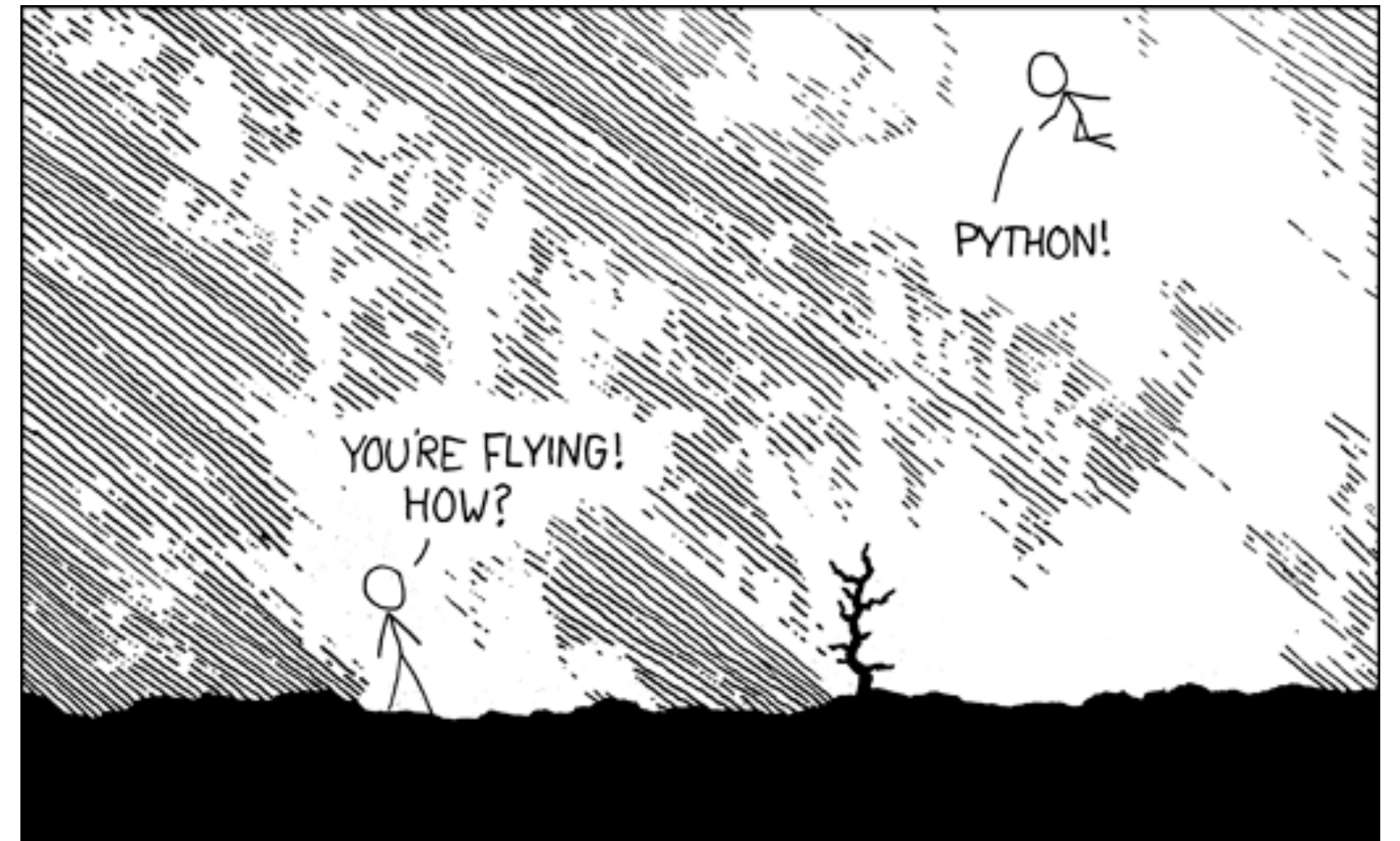
Python Scripting - Part 1

Fall 2018

PCfB Class 4

September 21, 2018

webs



Why Python?

Enhanced readability

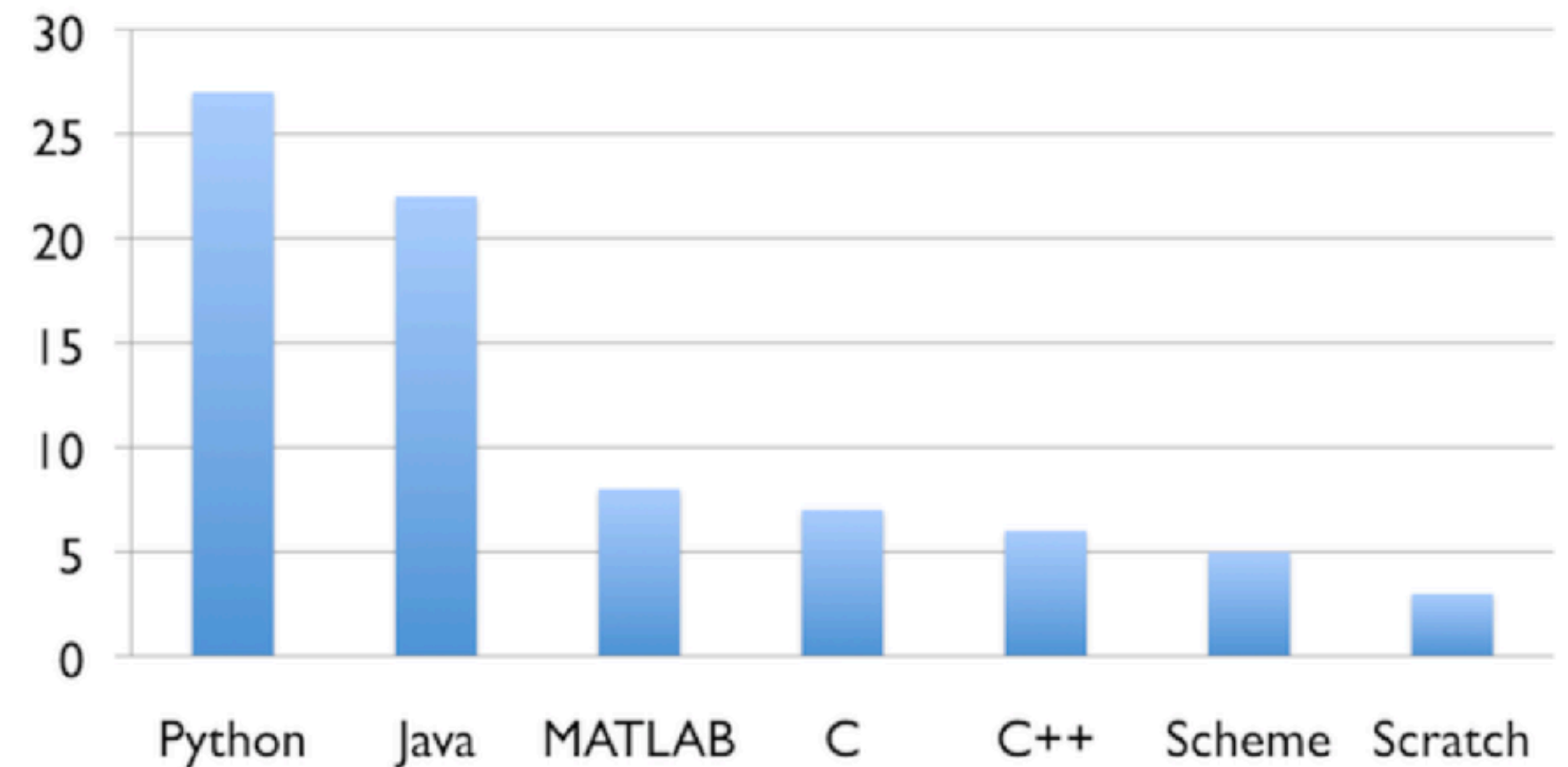
PYTHON

```
print('hello world')
```

JAVA

```
public class Main {  
    public static void main(String[] args) {  
        System.out.println("hello world");  
    }  
}
```

Number of top 39 U.S. computer science departments that use each language to teach introductory courses



Analysis done by Philip Guo (www.pgbovine.net) in July 2014, last updated 2014-07-29

Still very powerful

NETFLIX

Google



Dropbox



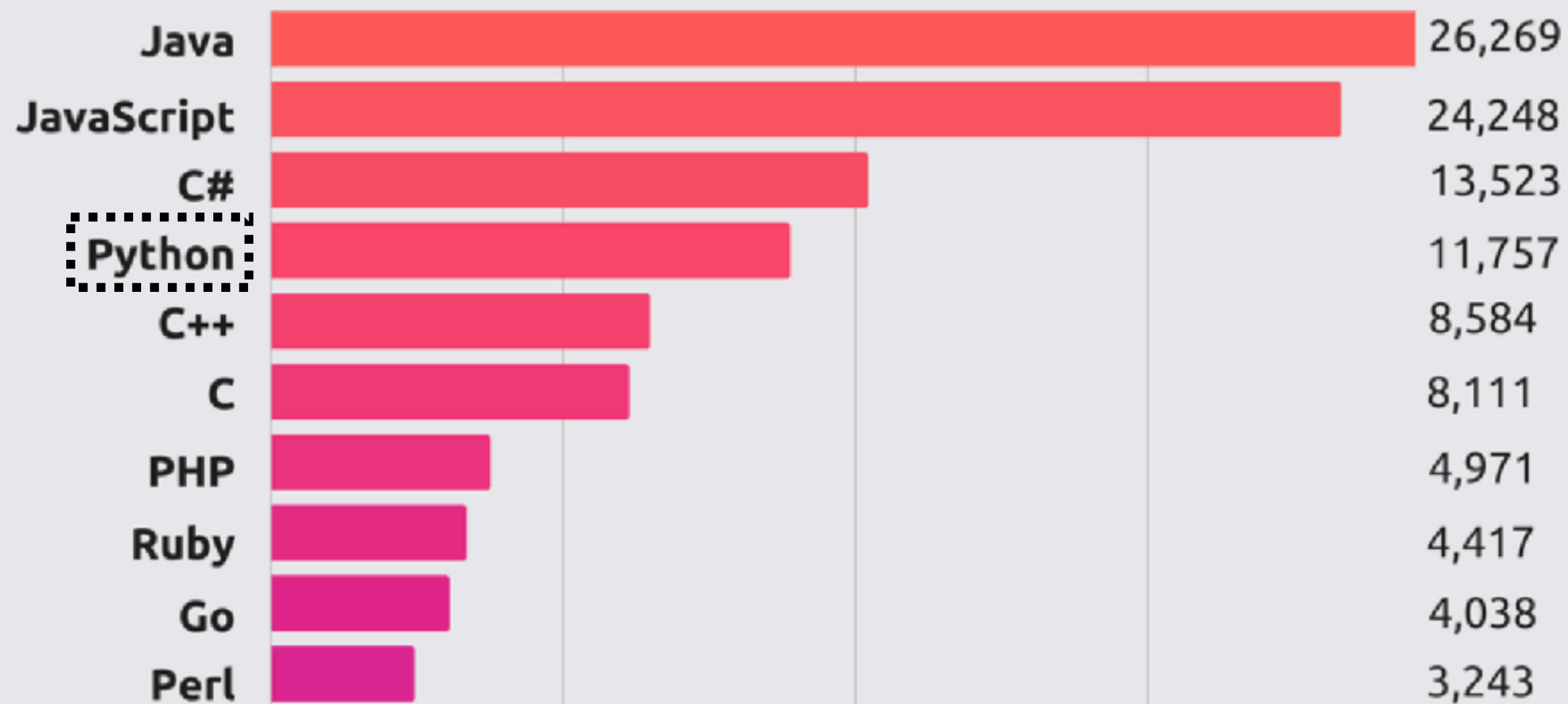
Instagram



Very popular

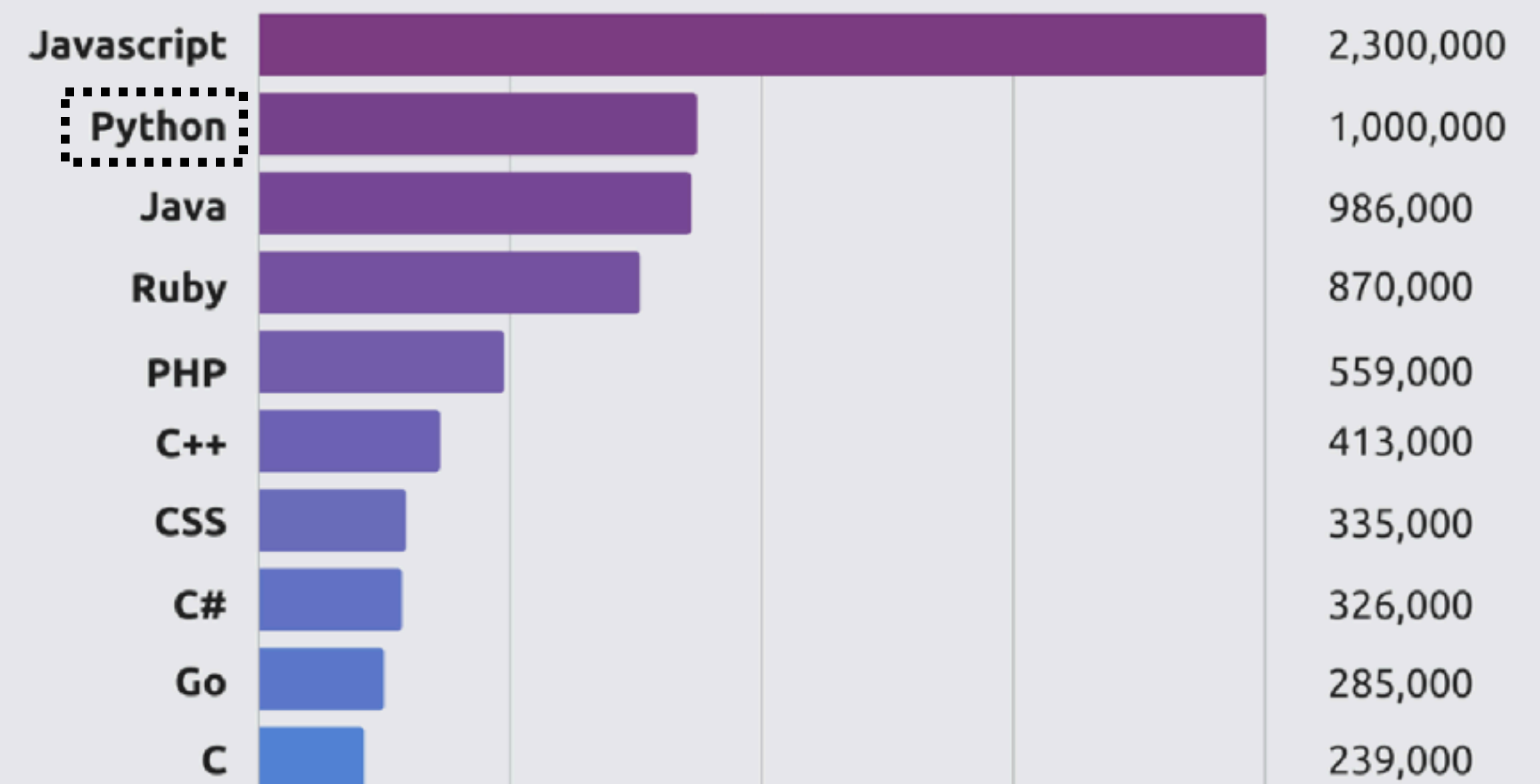
Most In-Demand Languages

Indeed Job Openings - Dec. 2017



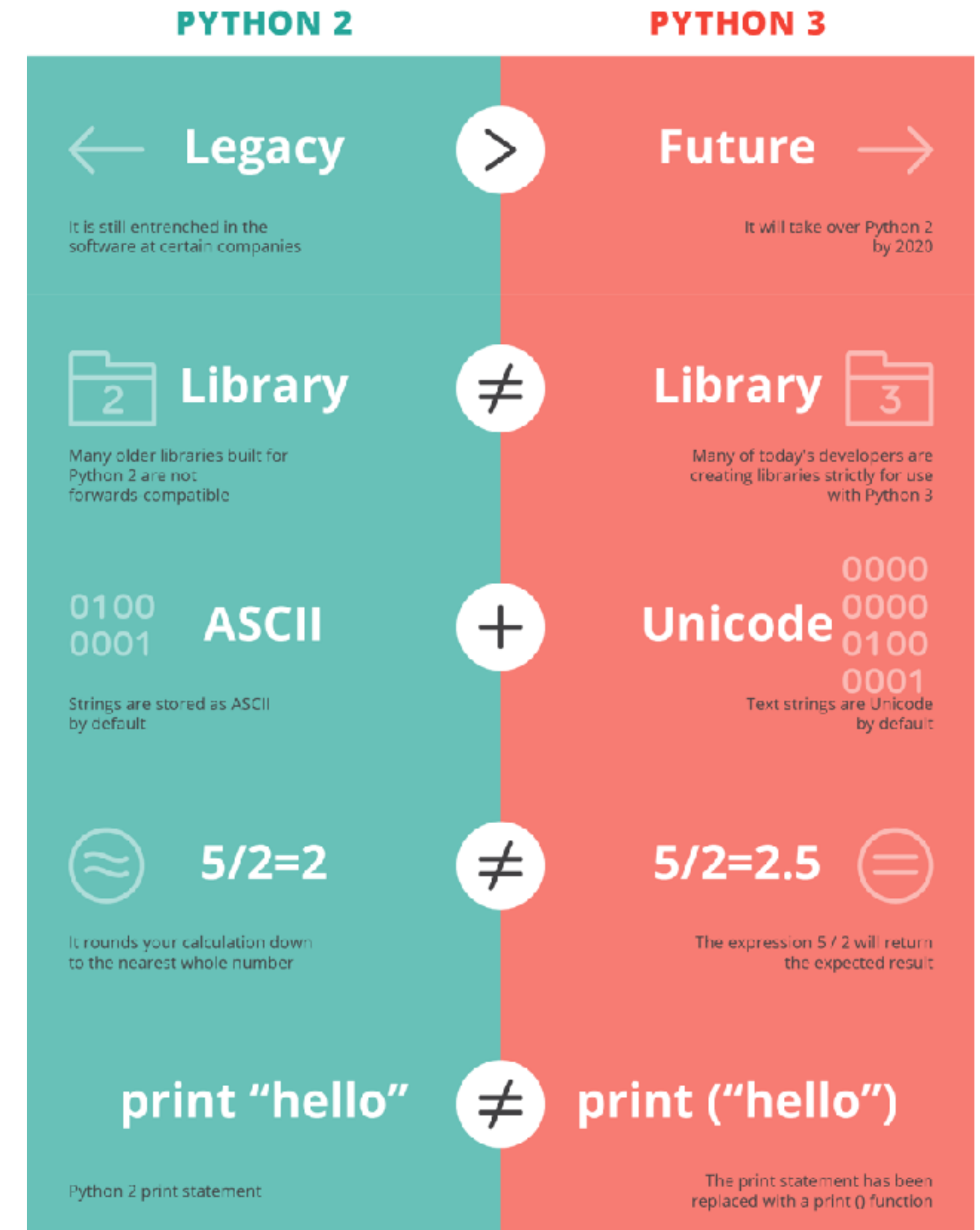
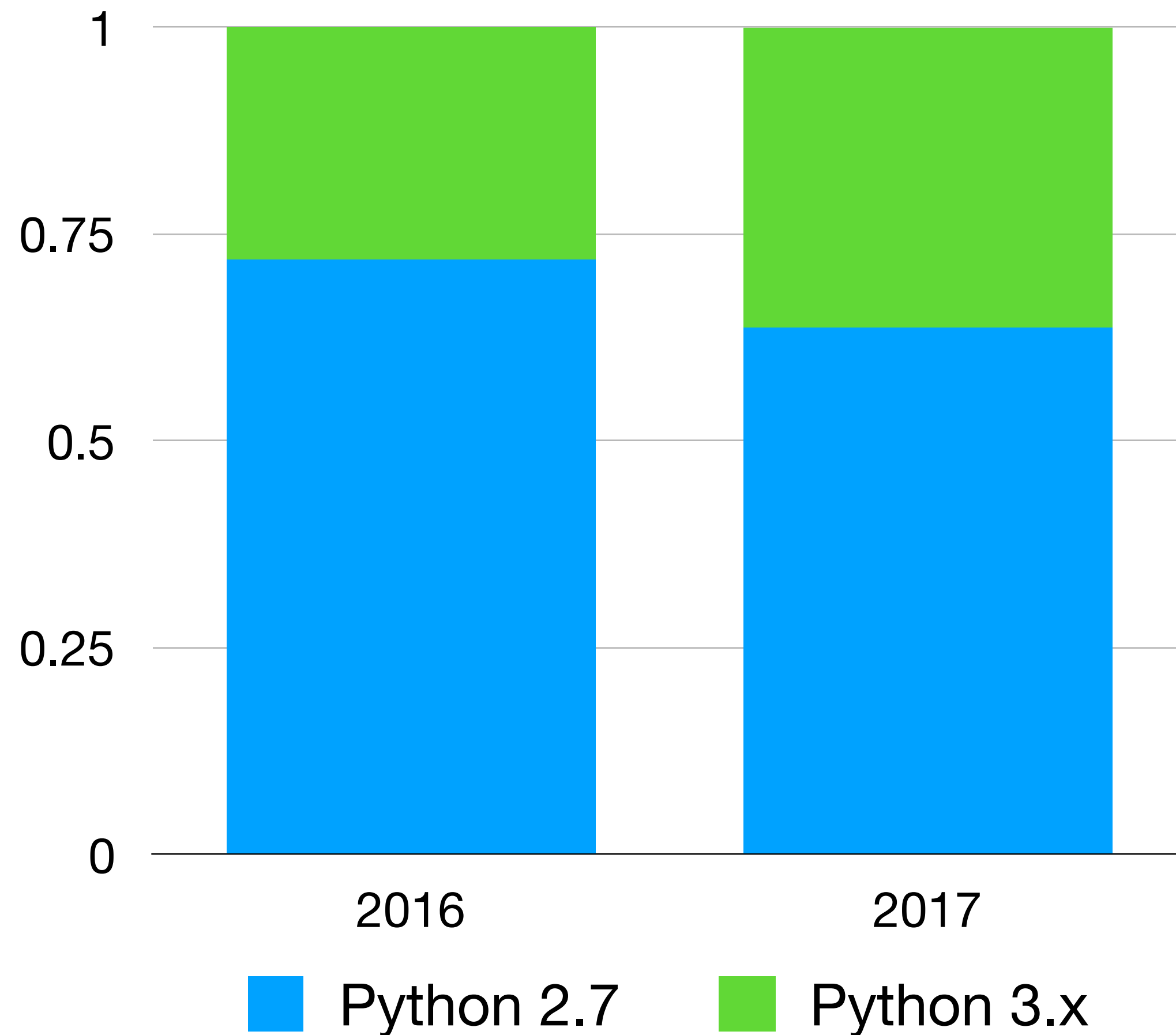
Most Pull Requests 2017

GitHub



Python 2 vs 3

Proportion of commercial projects



Ways to use Python

1. Stand-alone scripts

- Code saved in text file, executed on command line
- As described in PCfB book

2. Interactive mode via command line

- Enter commands 1-by-1 on command line
- Good for testing

3. Jupyter notebook

- Rich, web-based interface; results presented inline
- Good for teaching purposes and sharing code

To make a text file a Python script

1. Use the file extension “.py”

- not a requirement, but helpful
- will result in useful color-coding within text editor

2. Tell the Shell which program to use to interpret your code

- Needs to be the first line in your script
- `#!/usr/bin/env python`

#Comment, #comment, #comment

- Used to:
 - Guide others through your script
 - Indicate assumptions being made
 - Document changes made across versions
- You really can't have too many comments!
- Most will probably be more useful to YOU than others

Integer division in Python

- Default behavior in Python 2 is for mathematical operations with integers to also generate integers as results
- Therefore, remainders will be truncated when one integer is divided by another
 - For example: $5/2 = 2$
- Use this line at the beginning of script to modify behavior:
 - `from __future__ import division`

Exercises

- Jupyter Notebook
- Interactive mode via terminal
- Stand-alone script