# Python
## e suas baterias inclusas


**Givanaldo Rocha de Souza**

givanaldo.rocha@ifrn.edu.br

Professor de Sistemas de Informação

IFRN – Campus Parnamirim


# Quem já conhece a linguagem Python?

O QUE É

# PYTHON?

# O que é Python?

BY LUISGUS

**Guido van Rossum**
https://gvanrossum.github.io/

Criou a linguagem Python em 1991.

Trabalho no Google de 2005 a 2012.

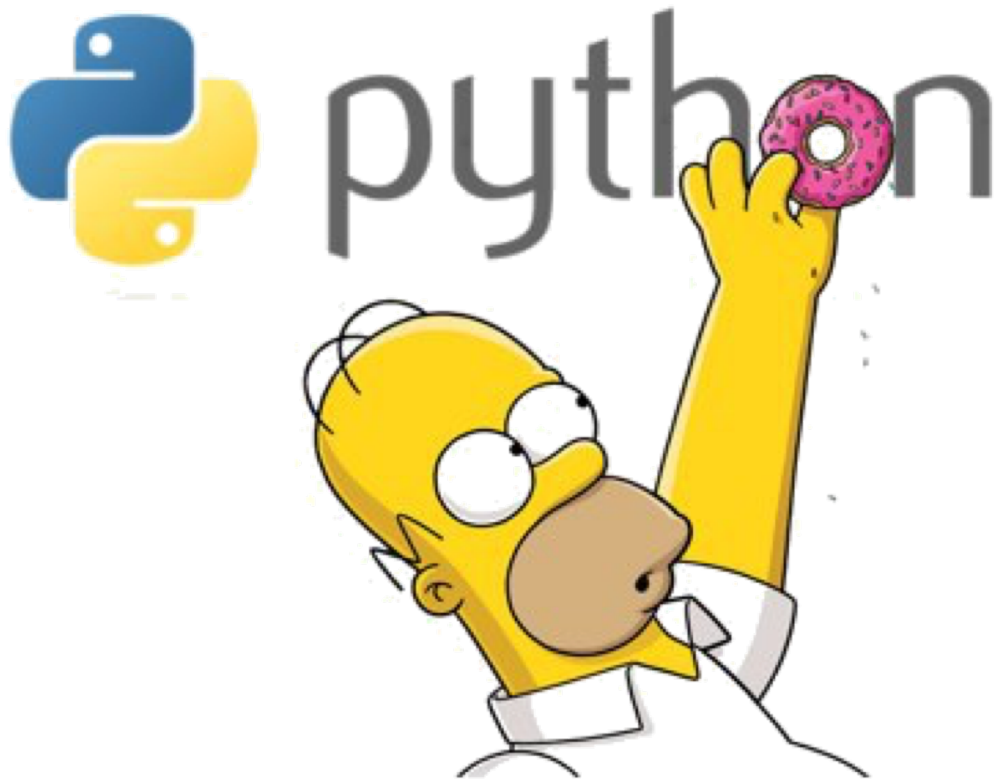
Atualmente trabalha no Dropbox.

*Há mais de seis anos, em dezembro de 1989, eu estava procurando por um projeto de programação como "hobby" que me mantivesse ocupado durante a semana próxima ao Natal. Meu escritório... estaria fechado, mas eu tinha um computador em casa e não muito mais do que isso em mãos. Eu decidi escrever um interpretador para a nova linguagem de scripting sobre a qual eu vinha pensando ultimamente: uma descendente da ABC que agradaria a hackers de Unix/C.*


AND NOW: AT LAST!
ANOTHER FILM COMPLETELY DIFFERENT FROM SOME OF THE OTHER FILMS WHICH AREN'T QUITE THE SAME AS THIS ONE IS
MONTY PYTHON AND THE HOLY GRAIL
BUDGET BEN HUR LOOK LIKE AN EPIC
"MONTY PYTHON AND THE HOLY GRAIL"
GRAHAM CHAPMAN, JOHN CLEESE, TERRY GILLIAM, ERIC IDLE, TERRY JONES, MICHAEL PALIN


MONTY PYTHON
O SENTIDO DA VIDA
Monty Python's Meaning of Life
de Terry Jones
ELENCO GRAHAM CHAPMAN, JOHN CLEESE, TERRY GILLIAM, ERIC IDLE, TERRY JONES, MICHAEL PALIN
EXCLUSIVO NOS CINEMAS
ESPAÇO FILMES

# Vamos falar de Python agora...




Versões atuais: 2.7.15 e 3.7.0

http://www.python.org/download

** Python puro (CPython)

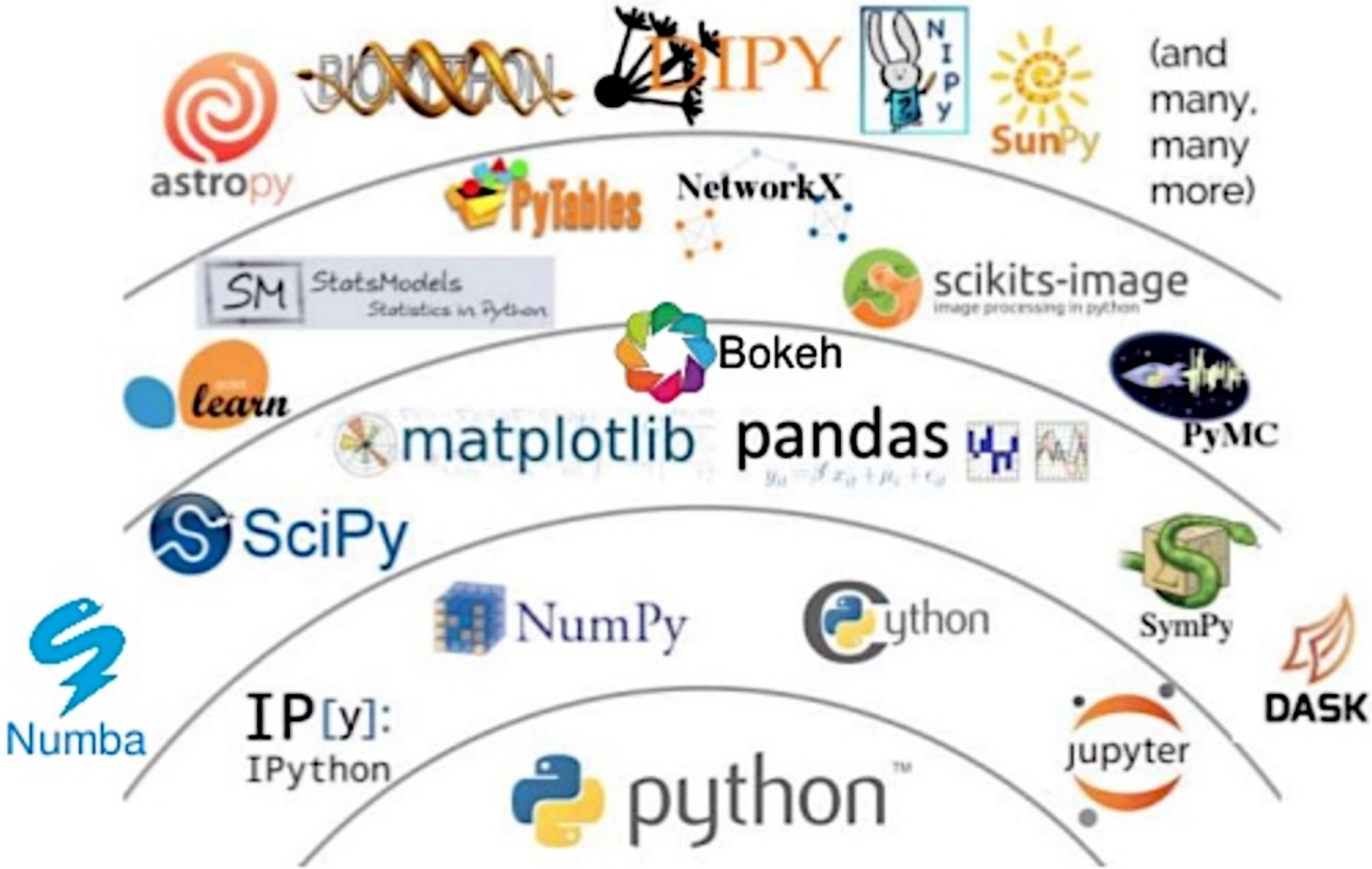
**Windows:** necessário instalar.

**Linux e Mac:** já instalado, verificar se é a versão mais recente.

# Instalação alternativa


http://anaconda.org

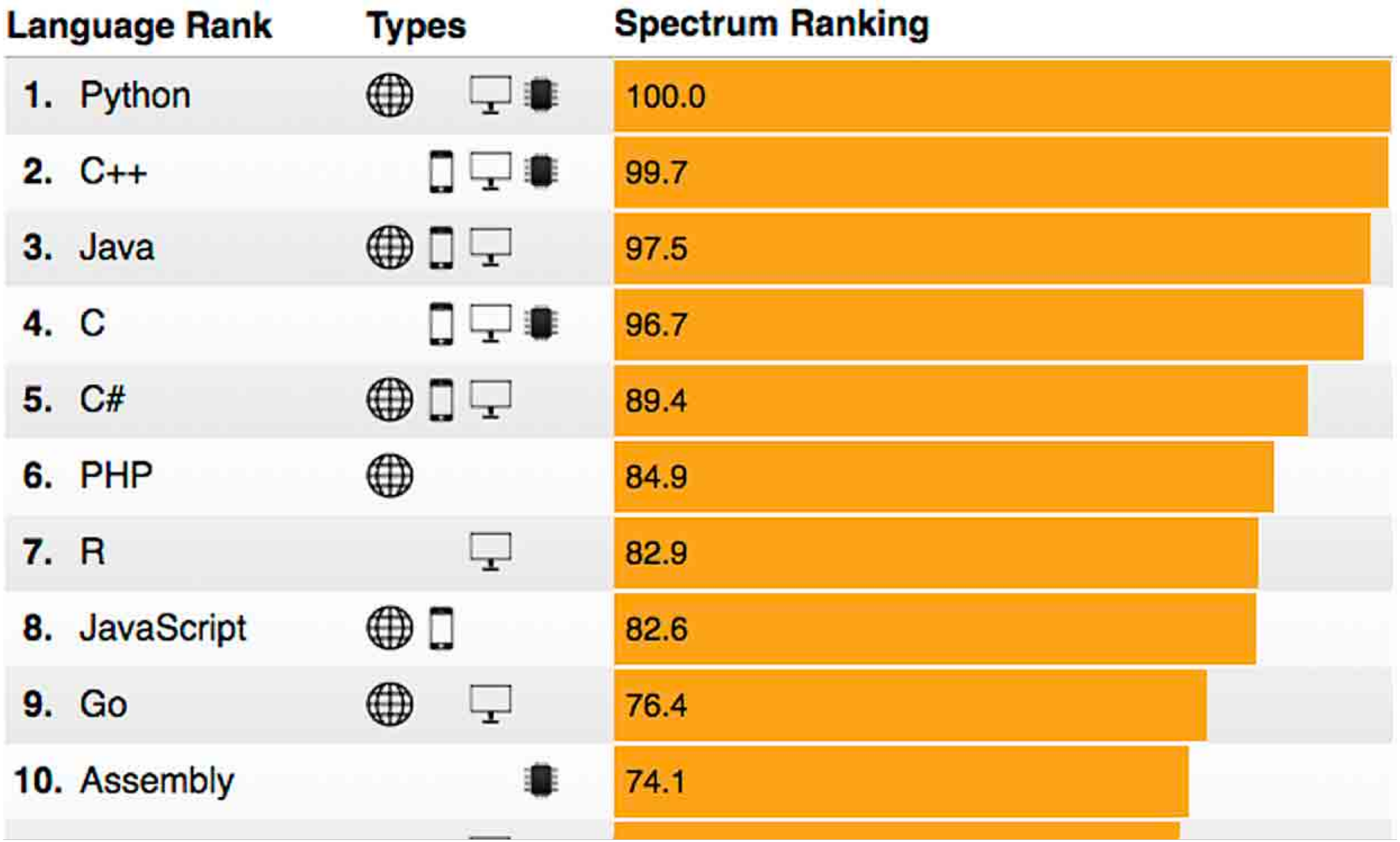
ANACONDA
Powered by Continuum Analytics



# Popularidade (TIOBE Index)

| Aug 2018 | Aug 2017 | Change | Programming Language |
|---|---|---|---|
| 1 | 1 | | Java |
| 2 | 2 | | C |
| 3 | 3 | | C++ |
| 4 | 5 | ↑ | Python |
| 5 | 6 | ↑ | Visual Basic .NET |
| 6 | 4 | ↓ | C# |
| 7 | 7 | | PHP |
| 8 | 8 | | JavaScript |
| 9 | - | ⇈ | SQL |
| 10 | 14 | ⇈ | Assembly language |

# IEEE Ranking

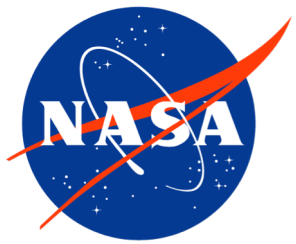


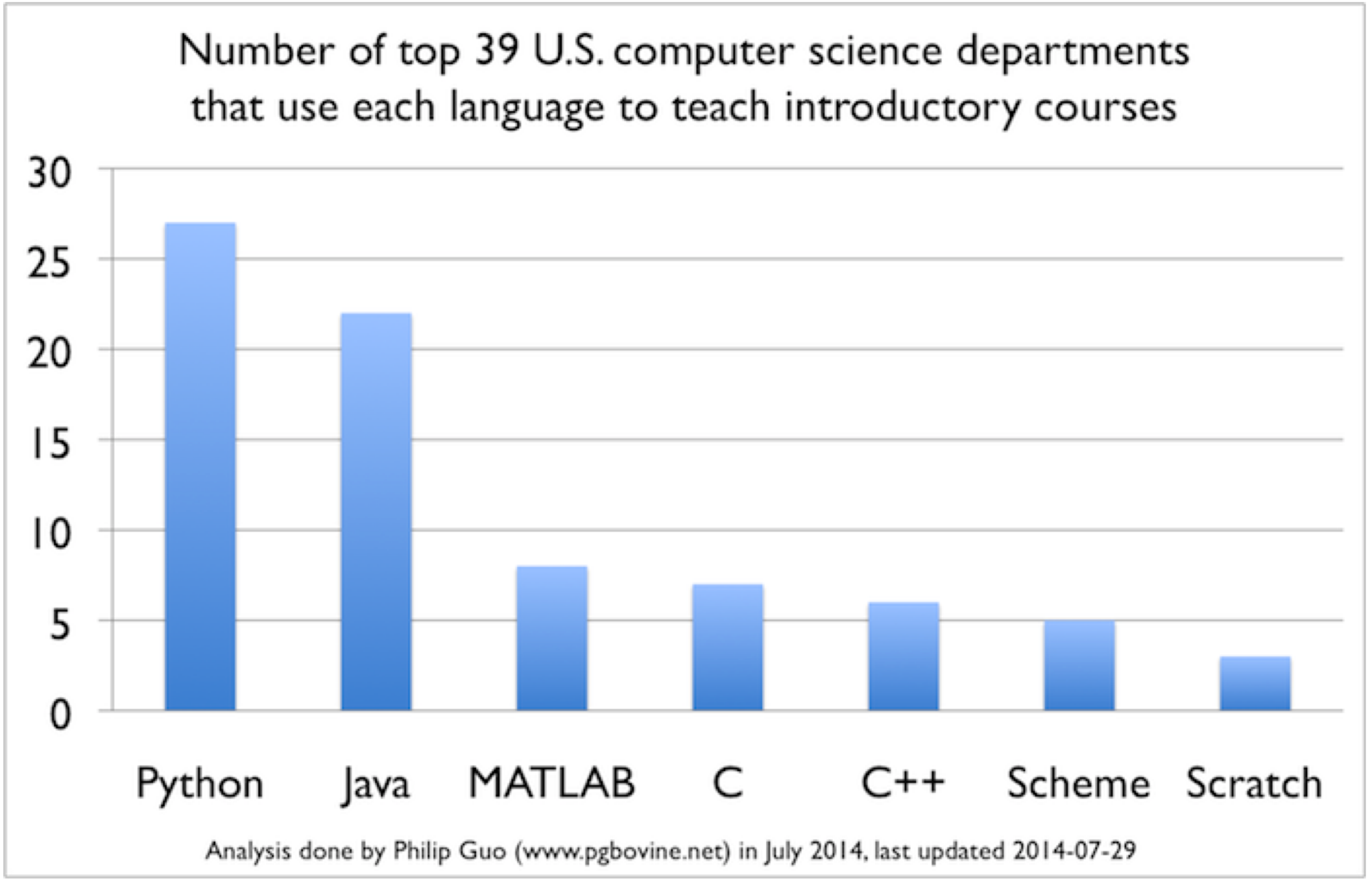
# Python 2 x Python 3

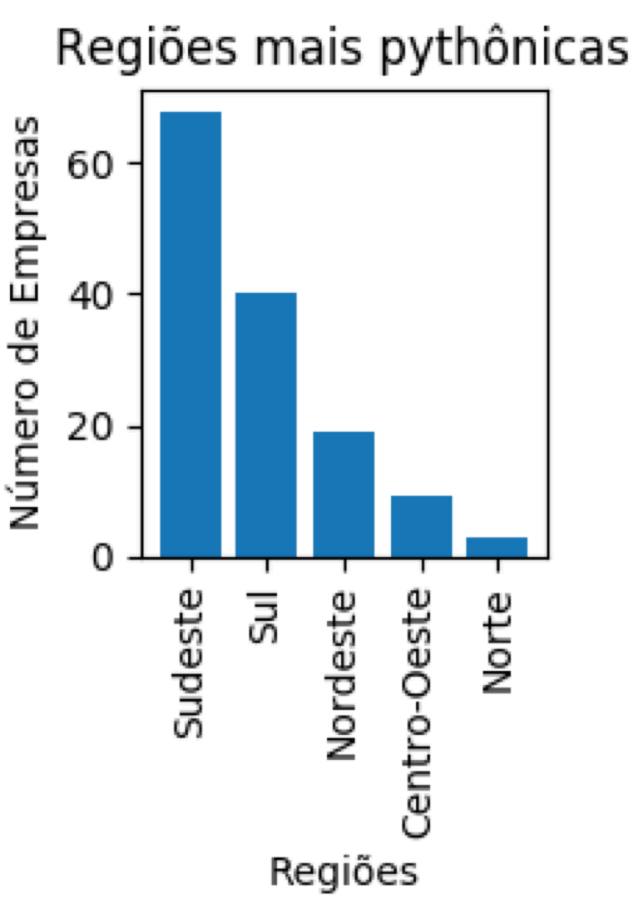
Suporte acaba em 2020.

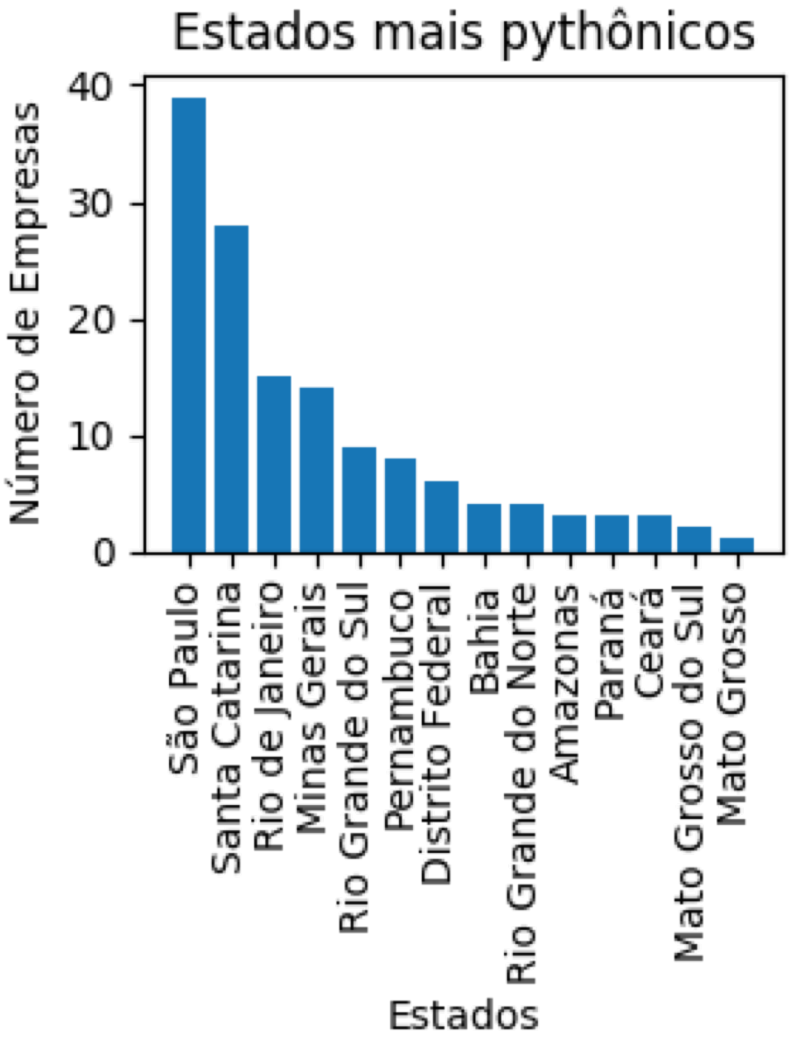
| ASCII | Unicode |
| --- | --- |
| `# declaração print`<br><br>`print "Hello World!"` | `# função print`<br><br>`print("Hello World!")` |
| `raw_input()` | `input()` |
| `# Divisão de inteiro`<br>`>>> 5 / 2`<br>`2` | `# Divisão de inteiro`<br>`>>> 5 / 2`<br>`2.5` |

# Quem usa?

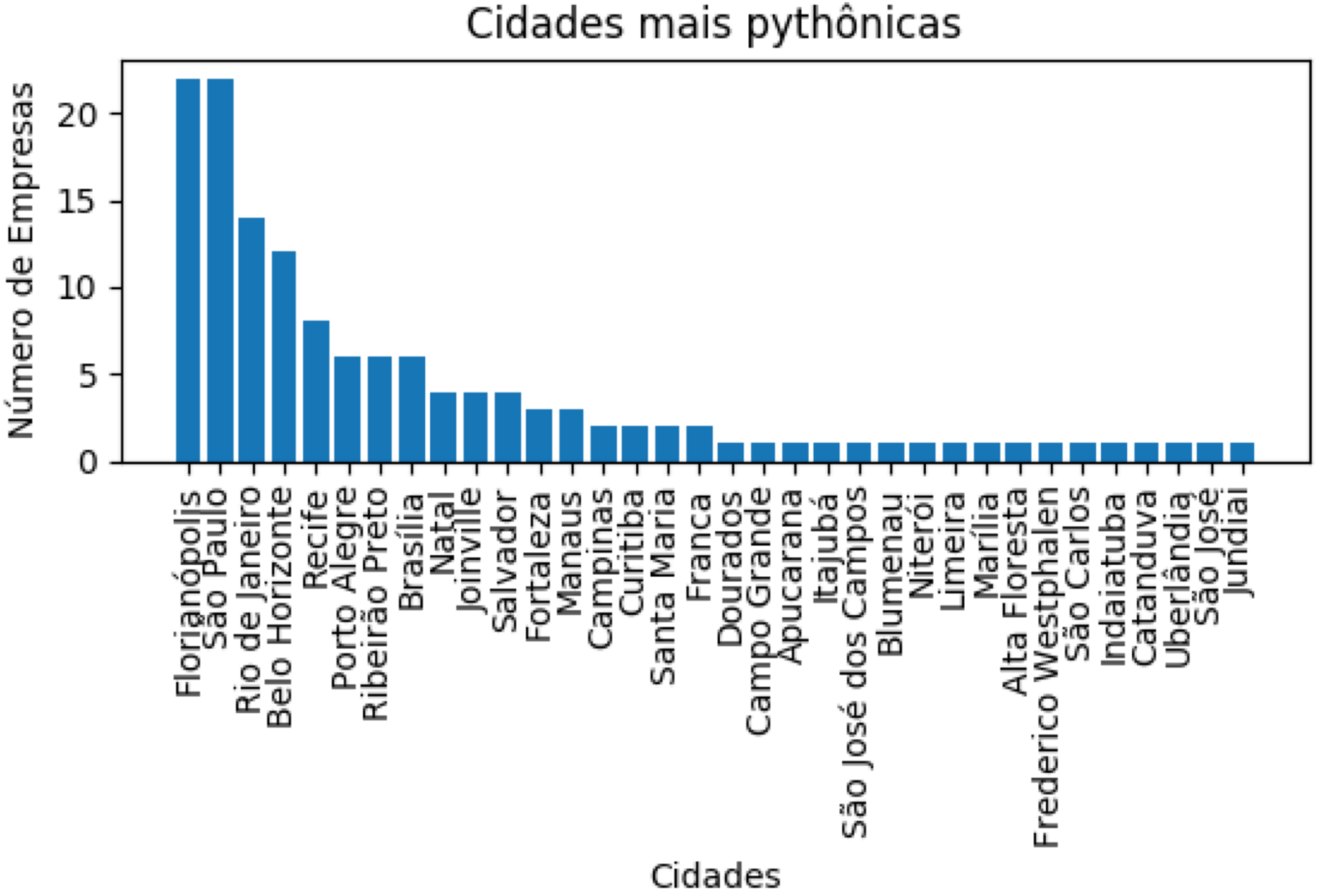




Number of top 39 U.S. computer science departments that use each language to teach introductory courses
30
25
20
15
10
5
0
Python
Java
MATLAB
C
C++
Scheme
Scratch
Analysis done by Philip Guo (www.pgbovine.net) in July 2014, last updated 2014-07-29



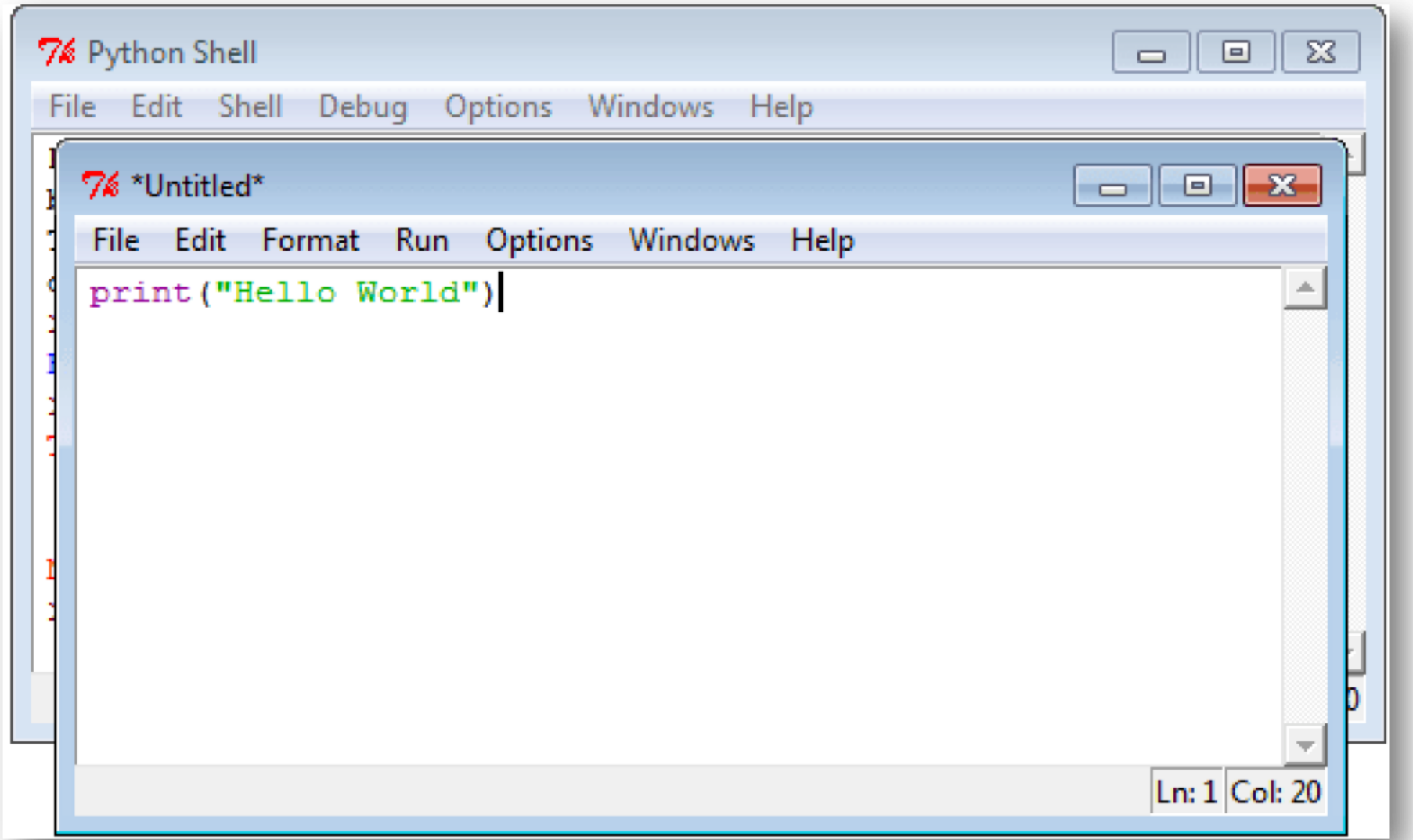




https://github.com/pythonbrasil/pyBusinesses-BR

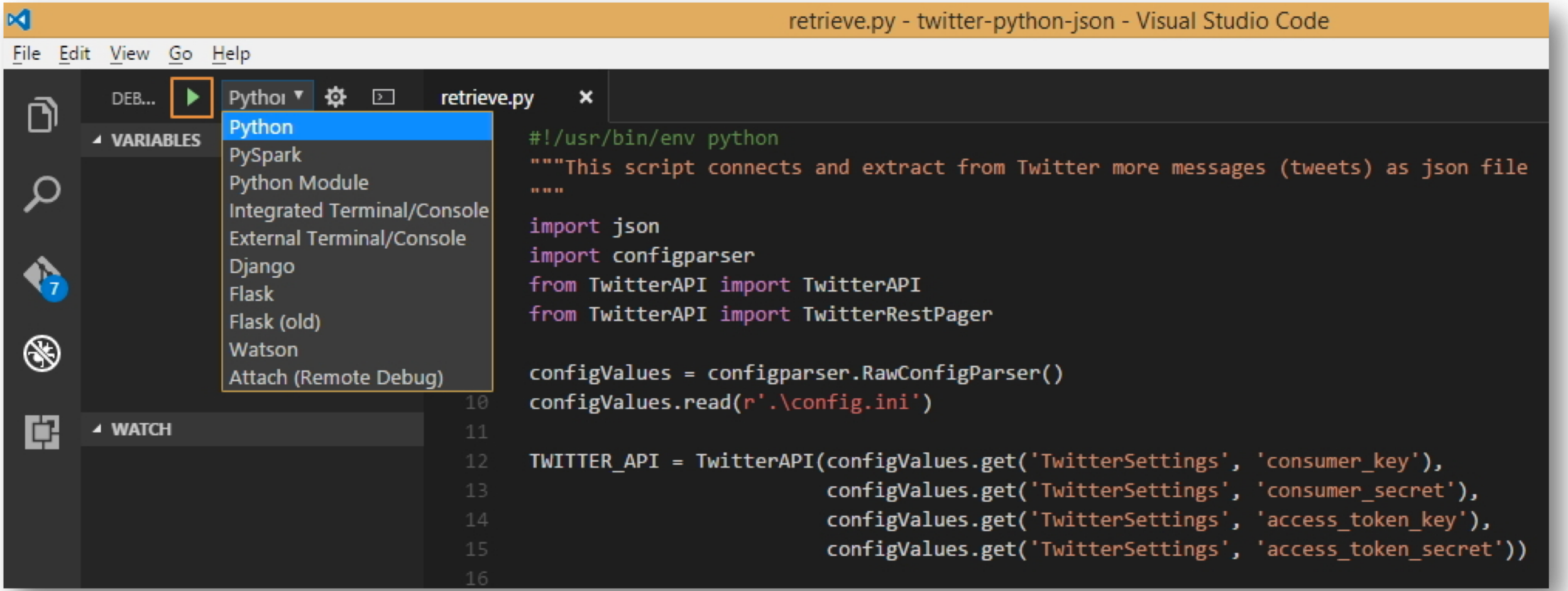



https://github.com/pythonbrasil/pyBusinesses-BR

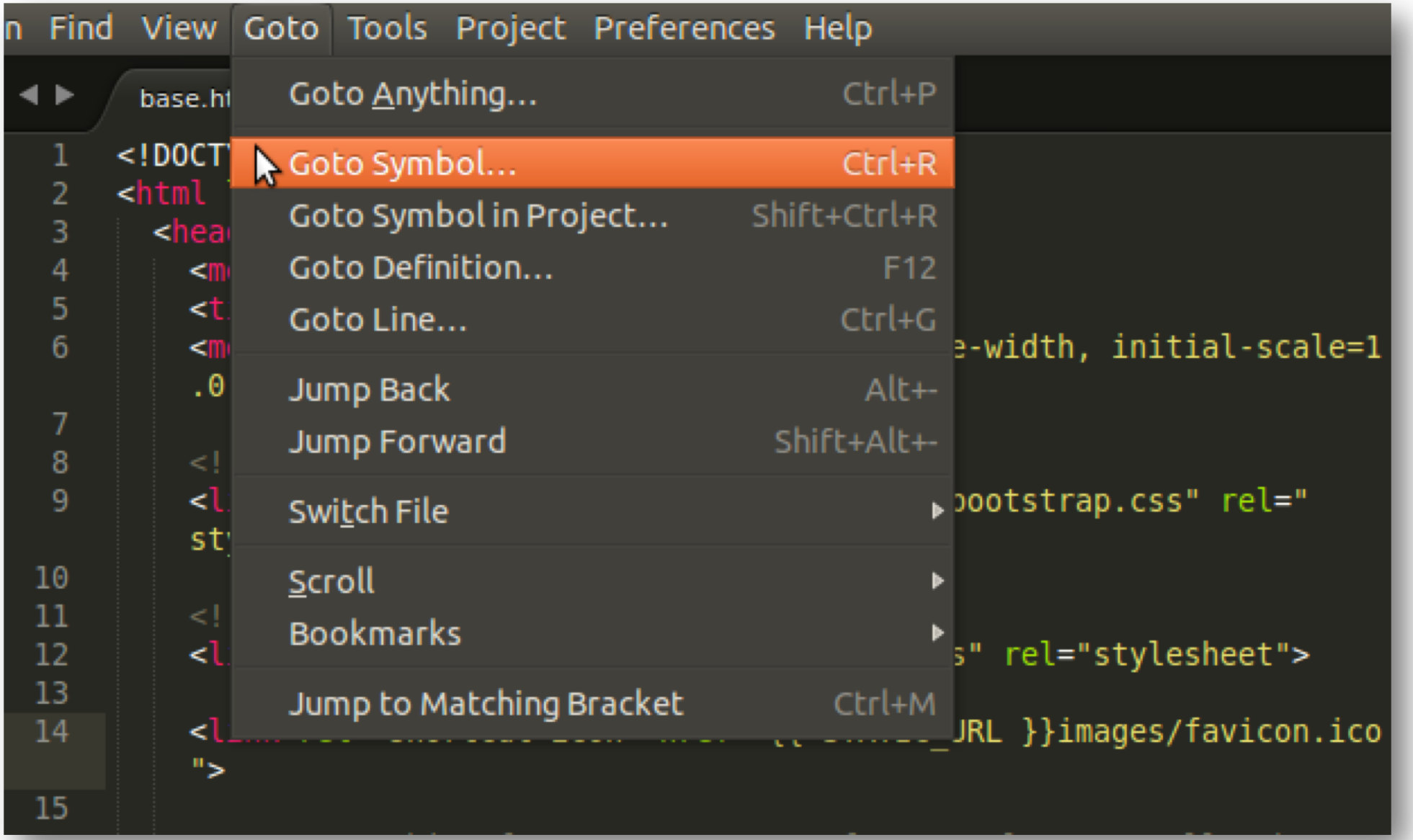
# Ambientes de desenvolvimento (IDLE)



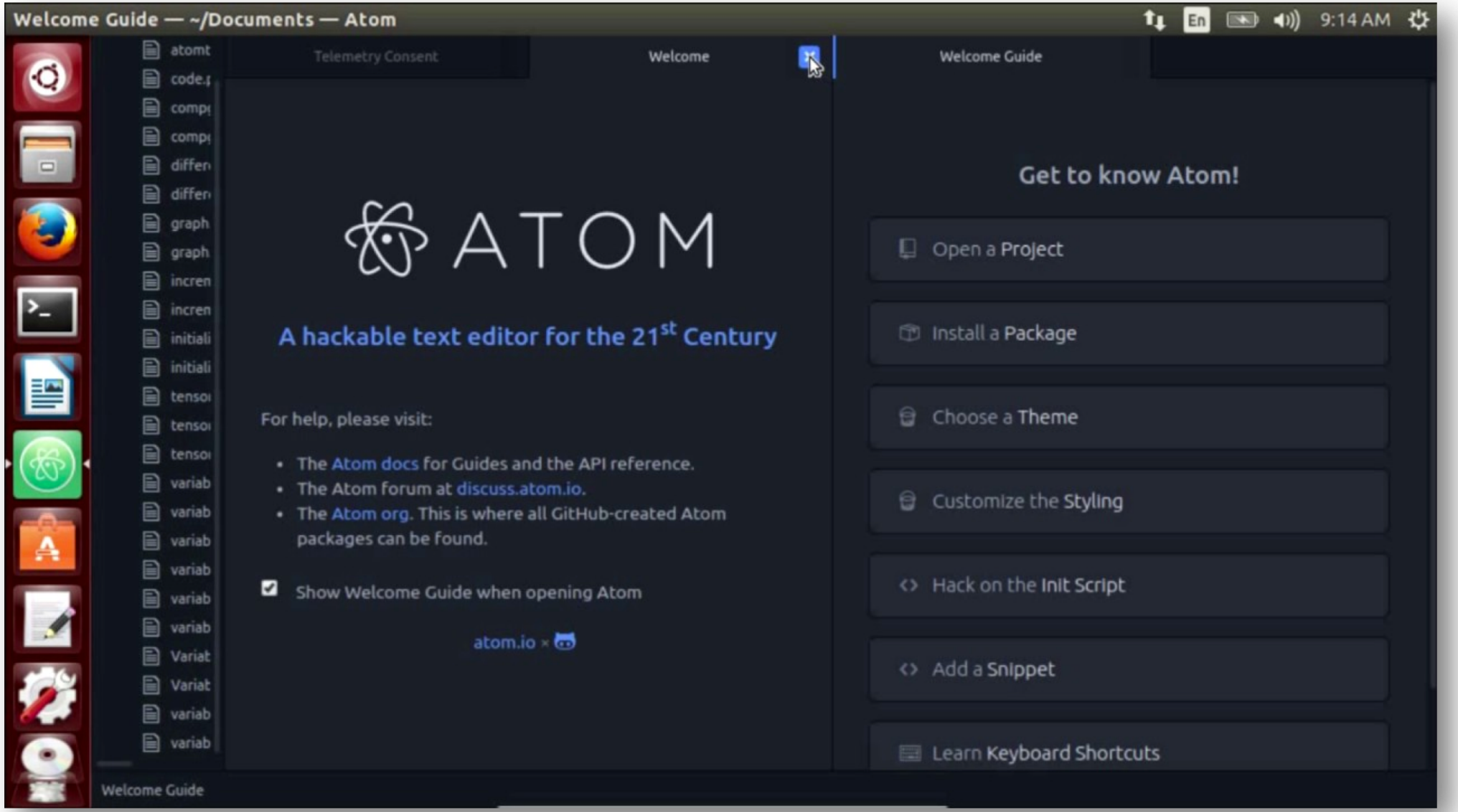
# Ambientes de desenvolvimento (VS Code)



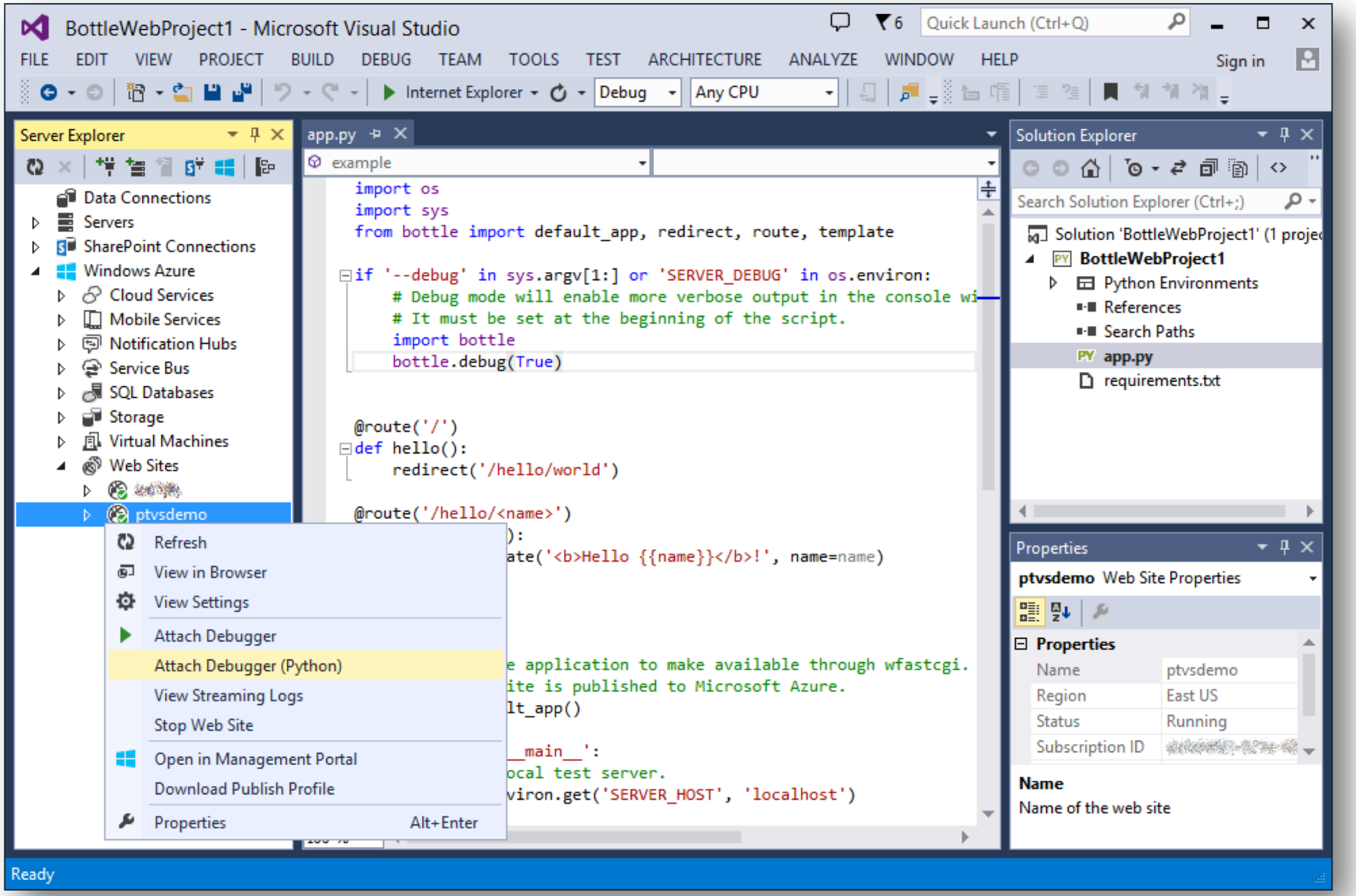
# Ambientes de desenvolvimento (Sublime Text)



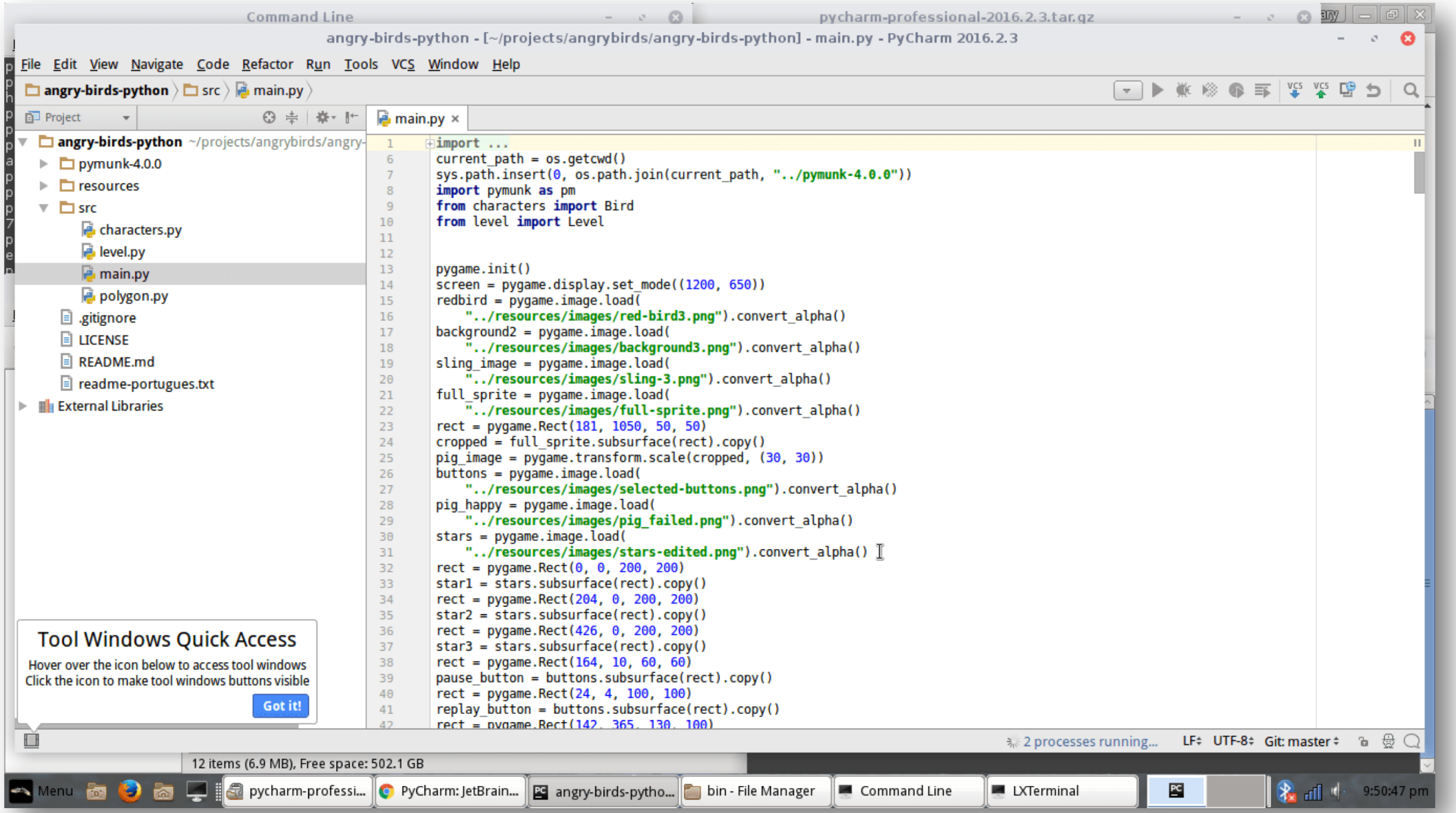
# Ambientes de desenvolvimento (Atom)



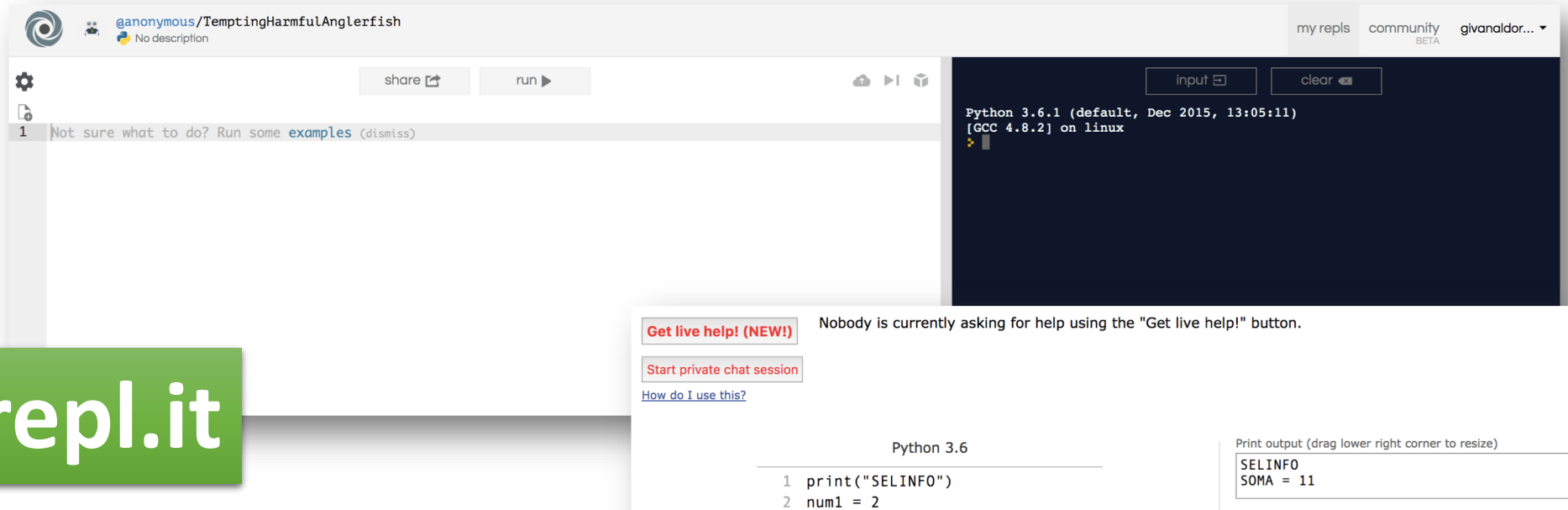
# Ambientes de desenvolvimento (Visual Studio)



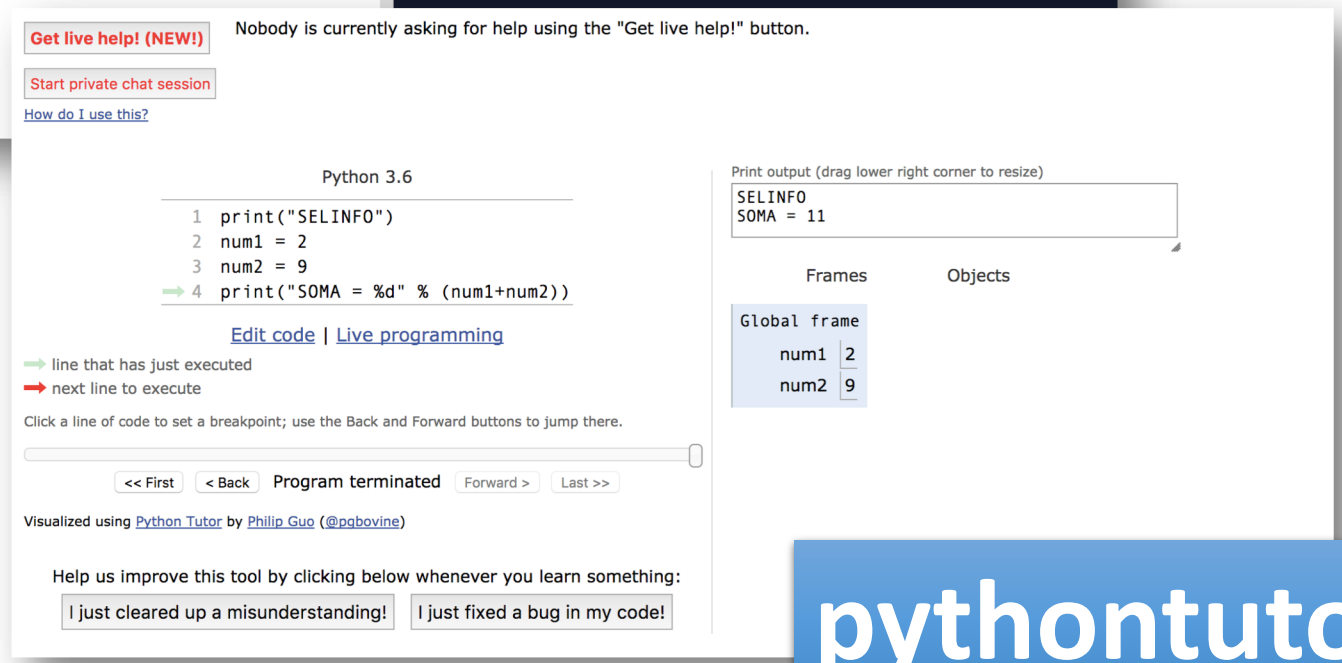
# Ambientes de desenvolvimento (PyCharm)



# Ambientes de desenvolvimento (Online)




repl.it




pythontutor.com

# Ambientes de desenvolvimento (Jupyter)

jupyter spectrogram (autosaved)

File Edit View Insert Cell Kernel Help Python 3

Markdown CellToolbar

## Simple spectral analysis

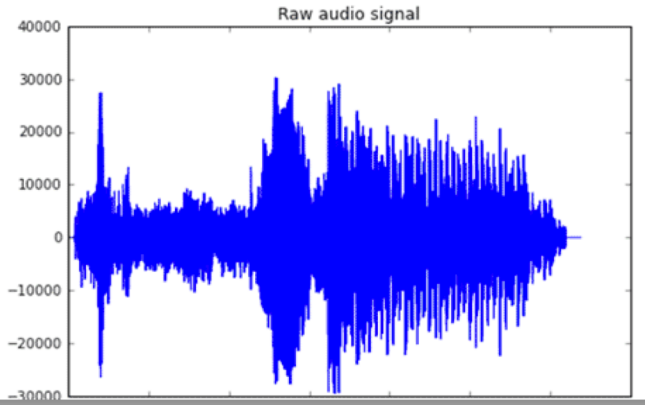
An illustration of the Discrete Fourier Transform

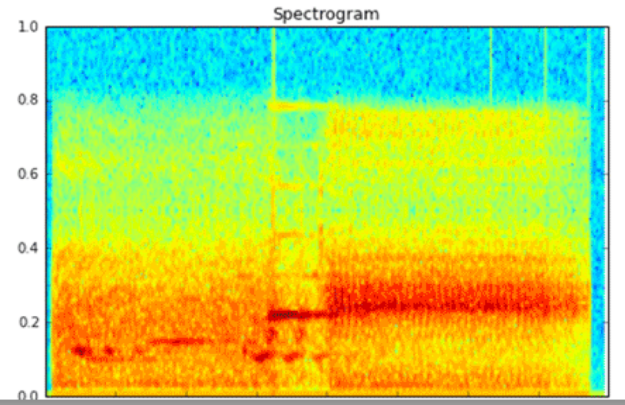
$$X_k = \sum_{n=0}^{N-1} x_n exp^{\frac{-2\pi i}{N} kn} \quad k = 0, \ldots, N-1$$

```
In [2]: from scipy.io import wavfile
        rate, x = wavfile.read('test_mono.wav')
```

And we can easily view it's spectral structure using matplotlib's builtin specgram routine:

```
In [5]: fig, (ax1, ax2) = plt.subplots(1,2,figsize(16,5))
        ax1.plot(x); ax1.set_title('Raw audio signal')
        ax2.specgram(x); ax2.set_title('Spectrogram');
```



# Talk is cheap.

## Show me the code.

Linus Torvalds