

Aula 1

A linguagem Python



- linguagem criada no início dos anos 90 pelo holandês Guido van Rossum
- o nome Python é inspirado no grupo humorístico inglês Monty Python





- interpretada
- alto-nível
- propósito geral
- suporta orientação a objetos
- preza pela legibilidade
- multi-plataforma
- Open Source
- rico ecossistema de b



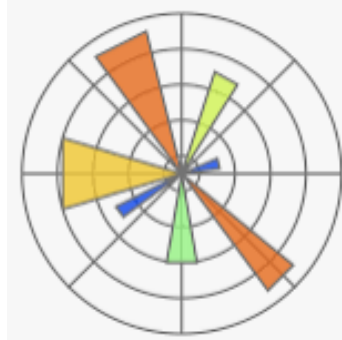
- rico ecosistema de bibliotecas



pandas



SciPy



Matplotlib



NumPy



Flask



pip



Boto3



django



TensorFlow



arcade



- empresas que usam Python:
- Google, Wikipedia, CERN, NASA, Facebook, Amazon, Instagram, Spotify, Netflix, Dropbox, Reddit, Industrial Light & Magic, Uber etc



- Distribuições

ActiveState®



- Editores



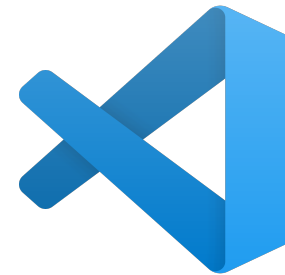
Atom



Notepad++



Sublime



Visual Studio Code

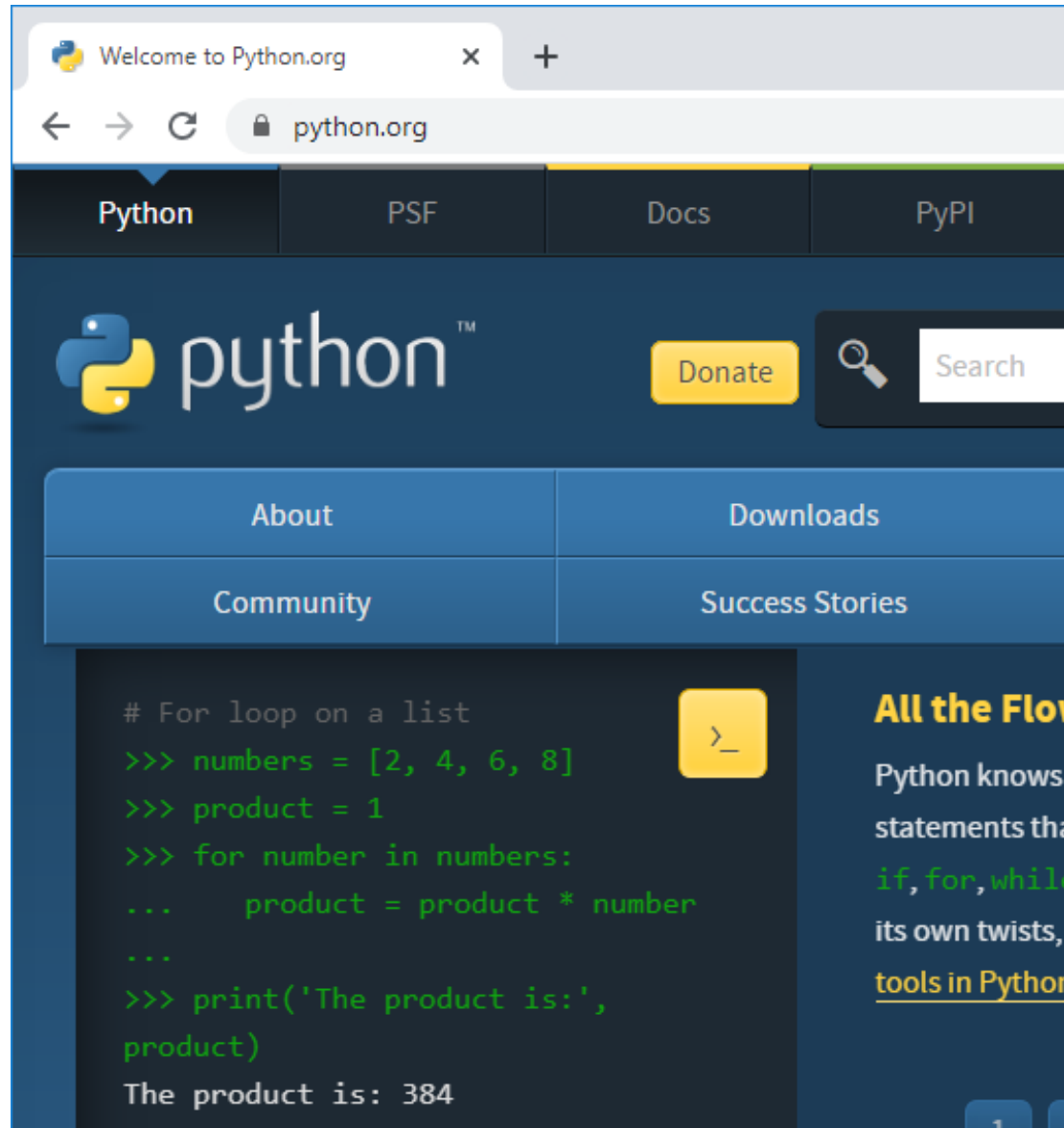
Aula 2

Instalação do Python



- Instalação da distribuição da Python Software Foundation

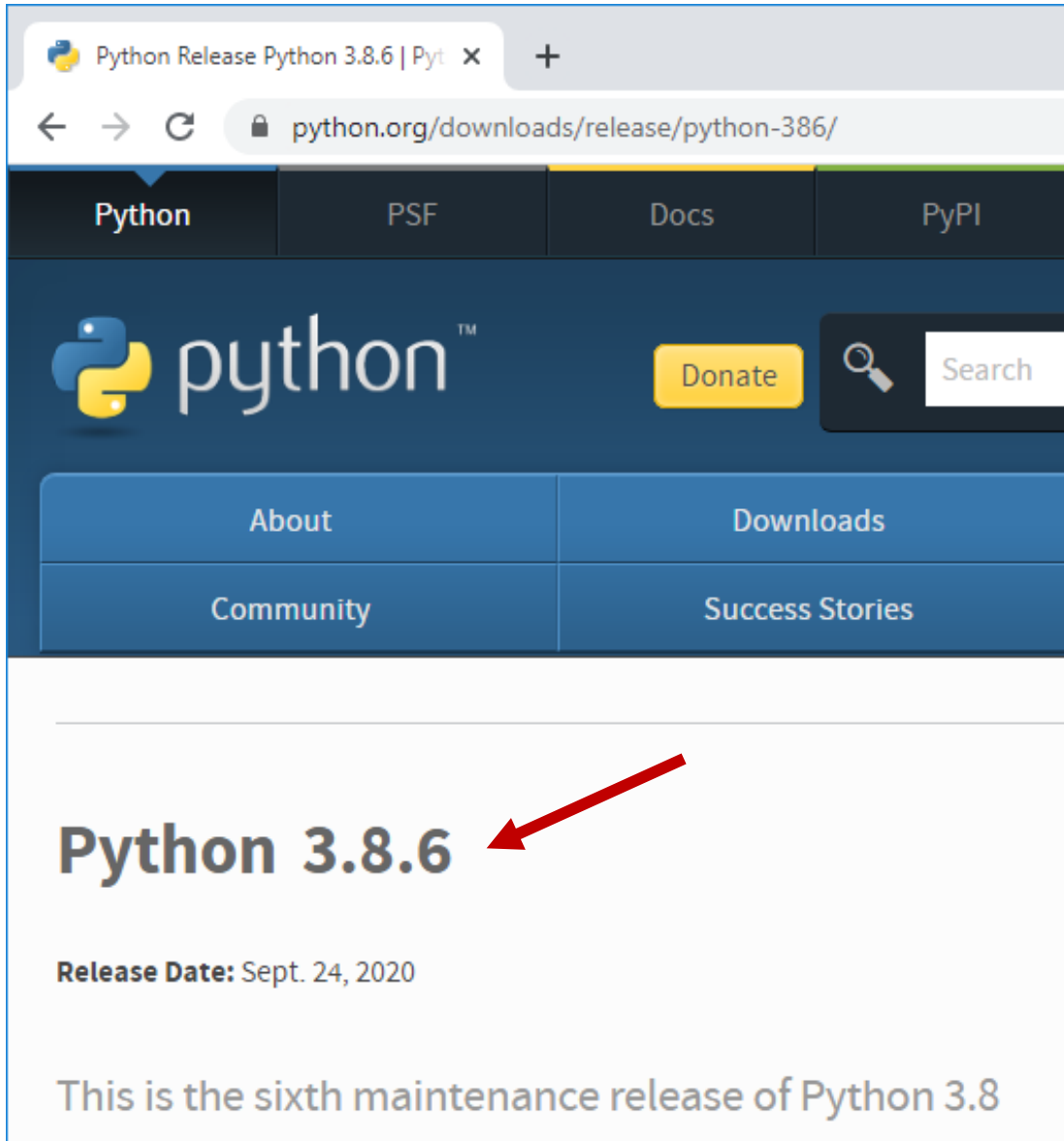
1. www.python.org



2. Download



3. Versão 3.8.6



Python Release Python 3.8.6 | Pyt x +

python.org/downloads/release/python-386/

Python PSF Docs PyPI

python™

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About Downloads

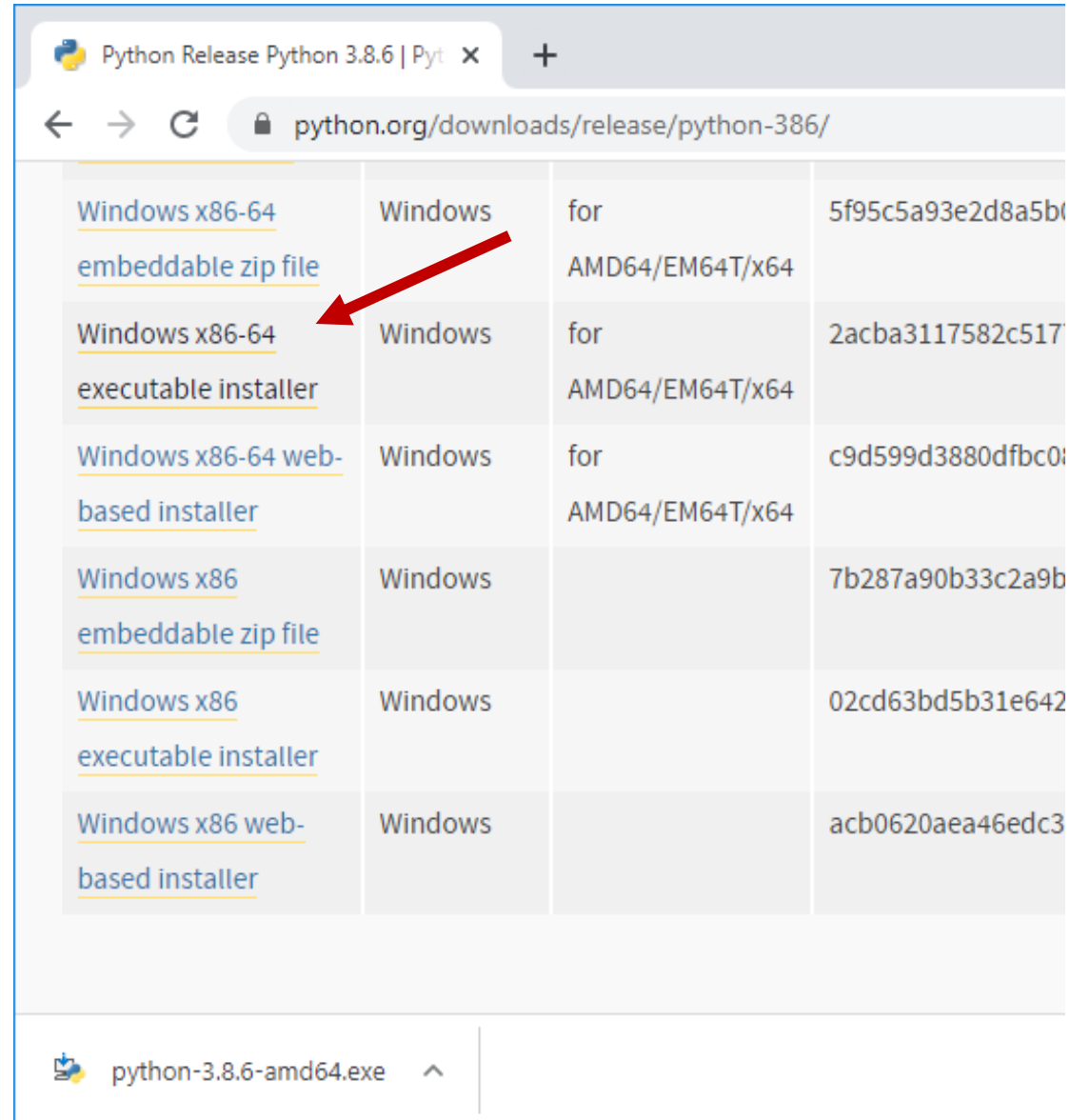
Community Success Stories

Python 3.8.6

Release Date: Sept. 24, 2020

This is the sixth maintenance release of Python 3.8

4. 64 bits installer



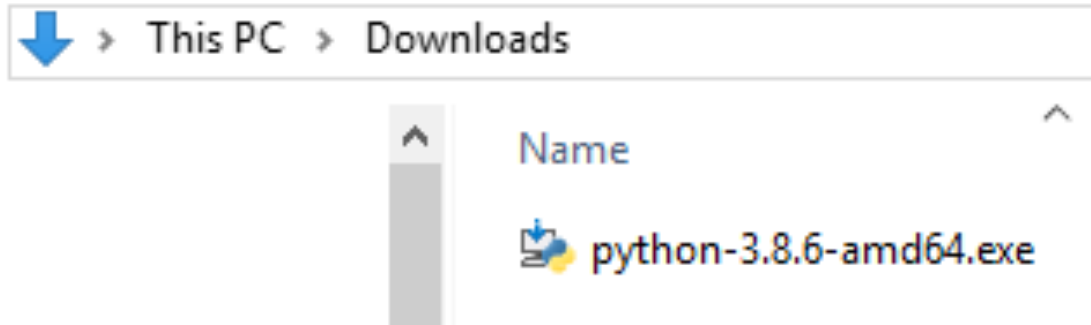
Python Release Python 3.8.6 | Pyt x +

python.org/downloads/release/python-386/

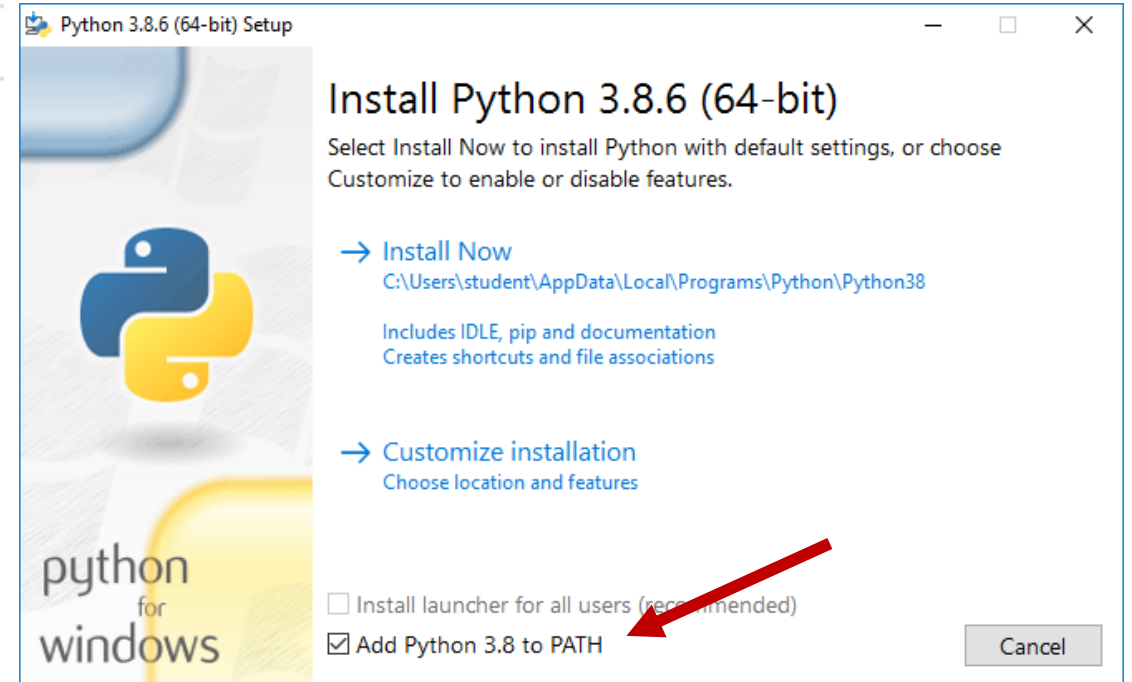
Windows x86-64 embeddable zip file	Windows	for AMD64/EM64T/x64	5f95c5a93e2d8a5b0
Windows x86-64 executable installer	Windows	for AMD64/EM64T/x64	2acba3117582c517
Windows x86-64 web-based installer	Windows	for AMD64/EM64T/x64	c9d599d3880dfbc0
Windows x86 embeddable zip file	Windows		7b287a90b33c2a9b
Windows x86 executable installer	Windows		02cd63bd5b31e642
Windows x86 web-based installer	Windows		acb0620aea46edc3

python-3.8.6-amd64.exe ^

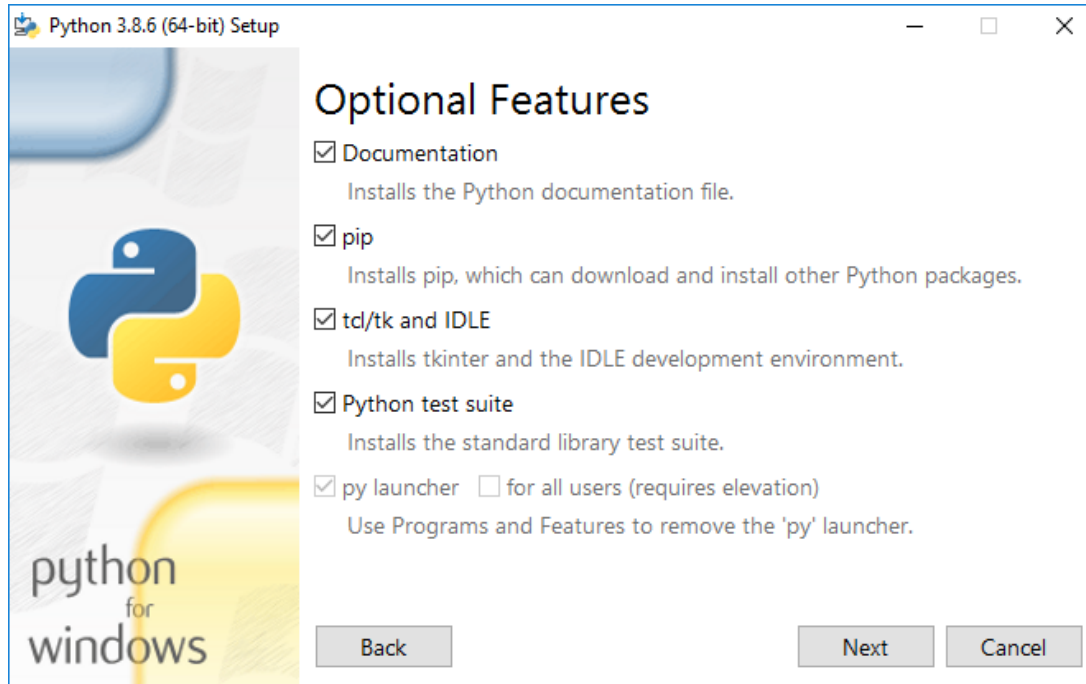
5. Executar



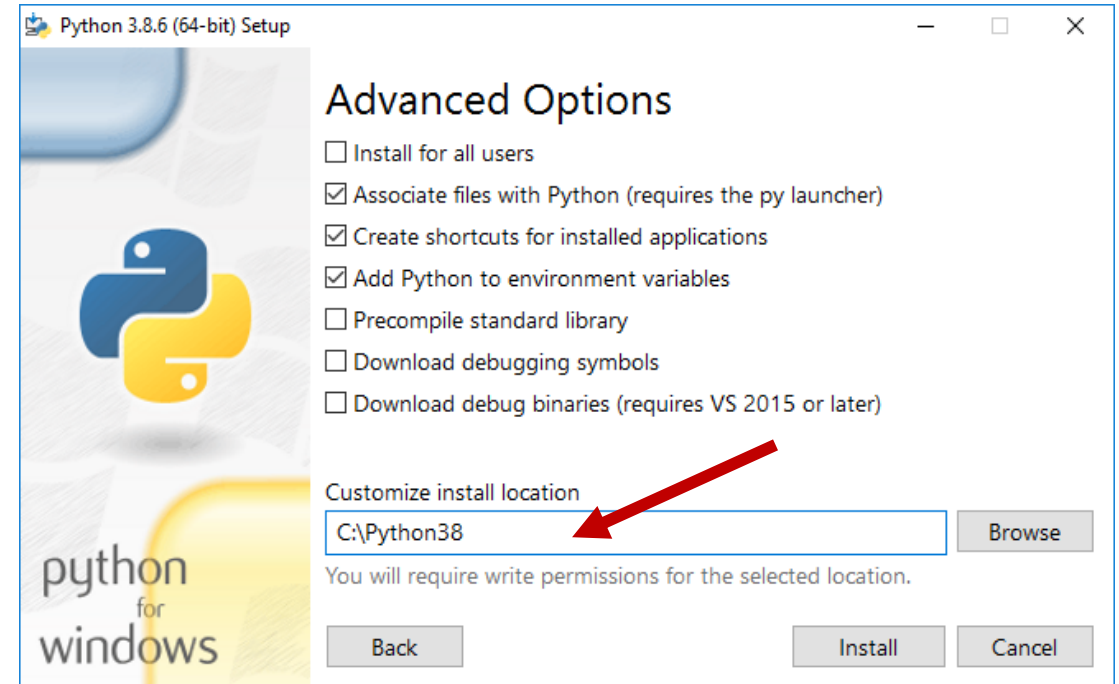
6. Adicionar no PATH



7. Next



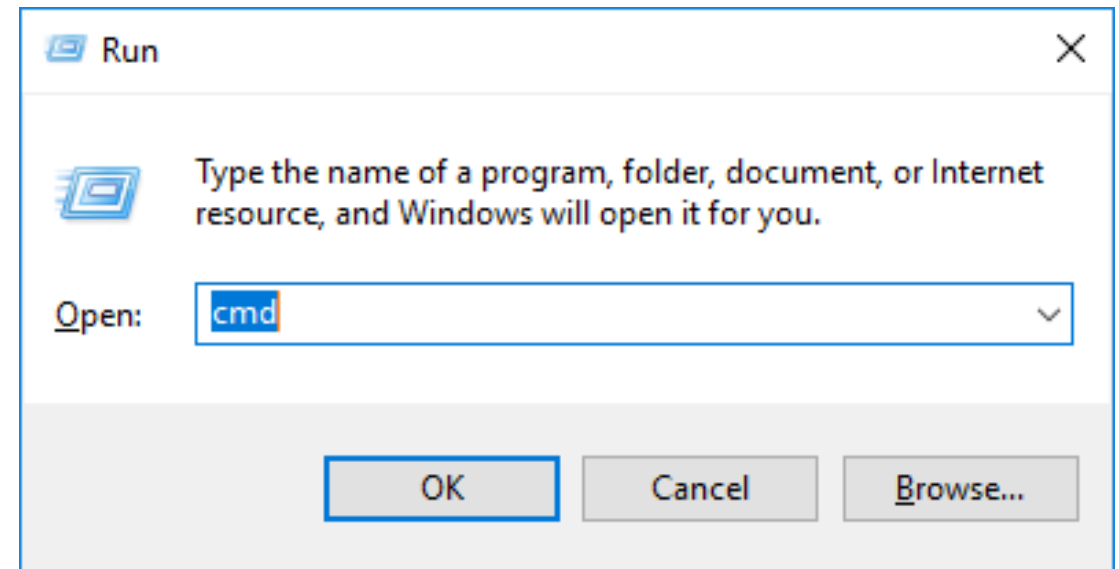
8. Diretório de instalação



9. Ok!



10. Executar CMD



11. Shell, 3.8.6

```
C:\Windows\system32\cmd.exe - python
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\student>python
Python 3.8.6 (tags/v3.8.6:db45529, Sep 23 2020, 15:52:53) [MSC v.1927 64
Type "help", "copyright", "credits" or "license" for more information.
>>> _
```

12. Quit()

```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

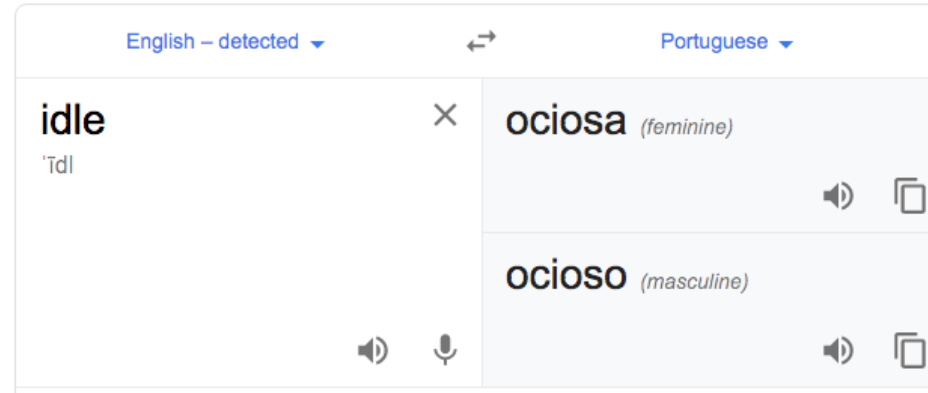
C:\Users\student>python
Python 3.8.6 (tags/v3.8.6:db45529, Sep 23 2020, 15:52:53) [MSC v.1927 64
Type "help", "copyright", "credits" or "license" for more information.
>>> quit()

C:\Users\student>
```

Aula 3

IDLE

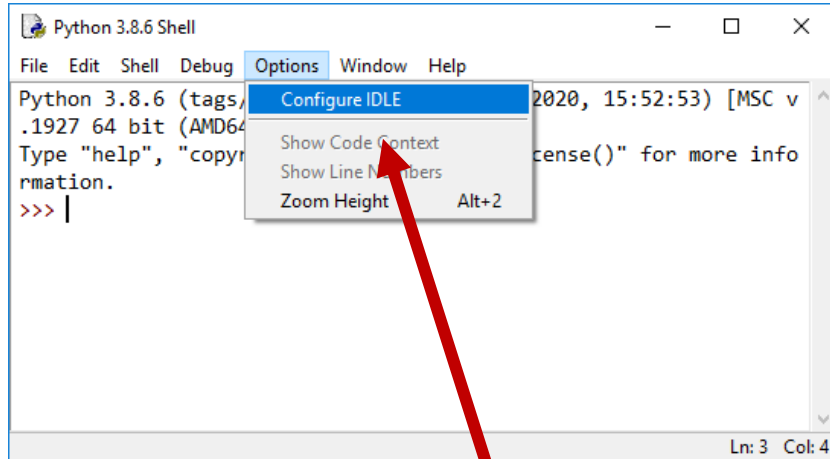
IDE – Integrated Development Environment



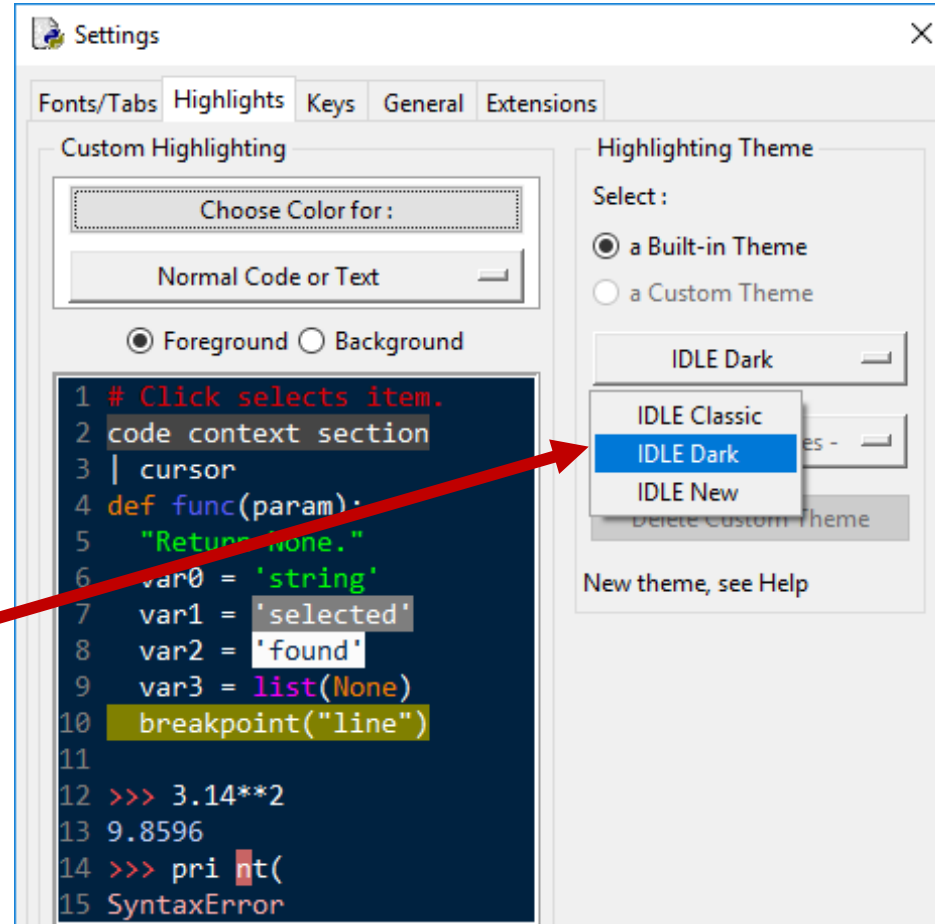
Eric Idle



IDE – Integrated Development Environment



optional



Aula 4

Shell

Python Shell

a) $50 - \{10 - [5 + 3 \times 4] - 1\}$

```
>>> 50 - (10 - (5 + 3 * 4) - 1)
58
```

c) $1 - \frac{1}{1 - \frac{1}{1 + \frac{1}{5}}}$

```
>>> 1 - (1 / (1 - (1 / (1 + 1.0/5))))
-5.0000000000000002
```

b) $\frac{1}{2}$

```
>>> 1 / 2
0
```

d) 5^2

```
>>> 5**2
25
```

Python Shell...

e) $\sqrt{144}$

```
>>> 144**0.5  
12
```

```
>>> import math  
>>> math.sqrt(144)  
12.0  
>>> math.pow(144, 0.5)  
12.0
```

f) $1 + 2 \times 3$

```
>>> 1+2*3  
7
```

g) $(1 + 2) \times 3$

```
>>> (1+2)*3  
9
```

Python Shell...

h) 2 é maior que 3?

```
>>> 2 > 3  
False
```

i) 2 é menor que 3

```
>>> 2 < 3  
True
```

Aula 5

Variáveis

Variáveis

- São locais onde valores que podem mudar (variar) são armazenados e associados a um nome
- O tradicional x da matemática

```
>>> a = 1
```

```
>>> a
```

```
1
```

```
>>> b = 2
```

```
>>> a + b
```

```
>>> 3
```

Variáveis...

- Valores são armazenados e não referências

```
>>> a = 1
```

```
>>> b = 2
```

```
>>> c = a + b
```

```
>>> c
```

```
3
```

```
>>> b = 9
```

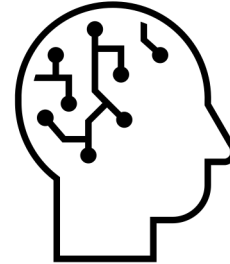
```
>>> c
```

```
>>> 3
```

Mudamos b,
mas c continua com o mesmo valor

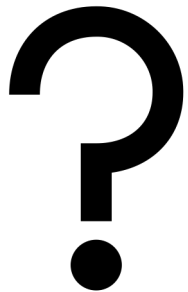
Variáveis...

- Nomes de variáveis são **mnemônicos**



```
>>> a = 5.0  
>>> b = 3.14159  
>>> c = b * a**2
```

```
>>> raio = 5.0  
>>> pi = 3.14159  
>>> area = pi * raio**2
```



$$A = \pi \times r^2$$



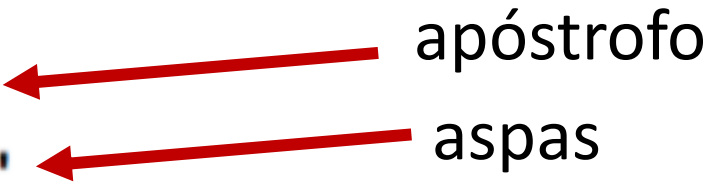
Aula 6

Strings, Listas e Dicionários

Strings

- String é uma sequencia de caracteres

```
>>> nome = 'Jose'
>>> apelido = "Ze"
```



apóstrofo

aspas

```
>>> num = '123'
```

```
>>> num + 1
```

```
Traceback (most recent call last):
```

```
  File "<pyshell#54>", line 1, in <module>
```

```
    num + 1
```

```
TypeError: cannot concatenate 'str' and 'int' objects
```

Listas

- Listas são sequencias de valores de tipos variados

```
>>> lista = ['banana', 45, 'carro', 67.0]
```

colchete



vírgula




Listas...

- Elementos da lista são referenciados por índices que começam em zero


```
>>> lista[0]
'banana'
>>> lista[1]
45
```

índice



Listas...

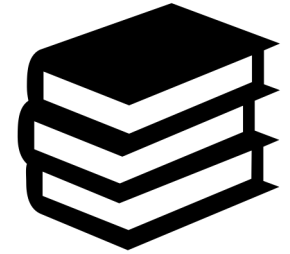
- Podemos alterar o valor dos elementos

 índice

```
>>> lista[0] = 'amarelo'
>>> lista
['amarelo', 45, 'carro', 67.0]
```

Dicionários

- Dicionários são estruturas de dados que armazenam chaves e valores (*key – value*)



```
>>> uf_dict = {'SP': 'Sao Paulo', 'MG': 'Minas Gerais'}
```

chave valor

Dicionários...

- Podemos criar novas entradas no dicionário

```
>>> uf_dict['PR'] = 'Parana'  
>>> uf_dict['RS'] = 'Rio Grande do Sul'
```



