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 ecosistema de b

- rico ecossistema 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

- Editores

Atom

Notepad++

Sublime

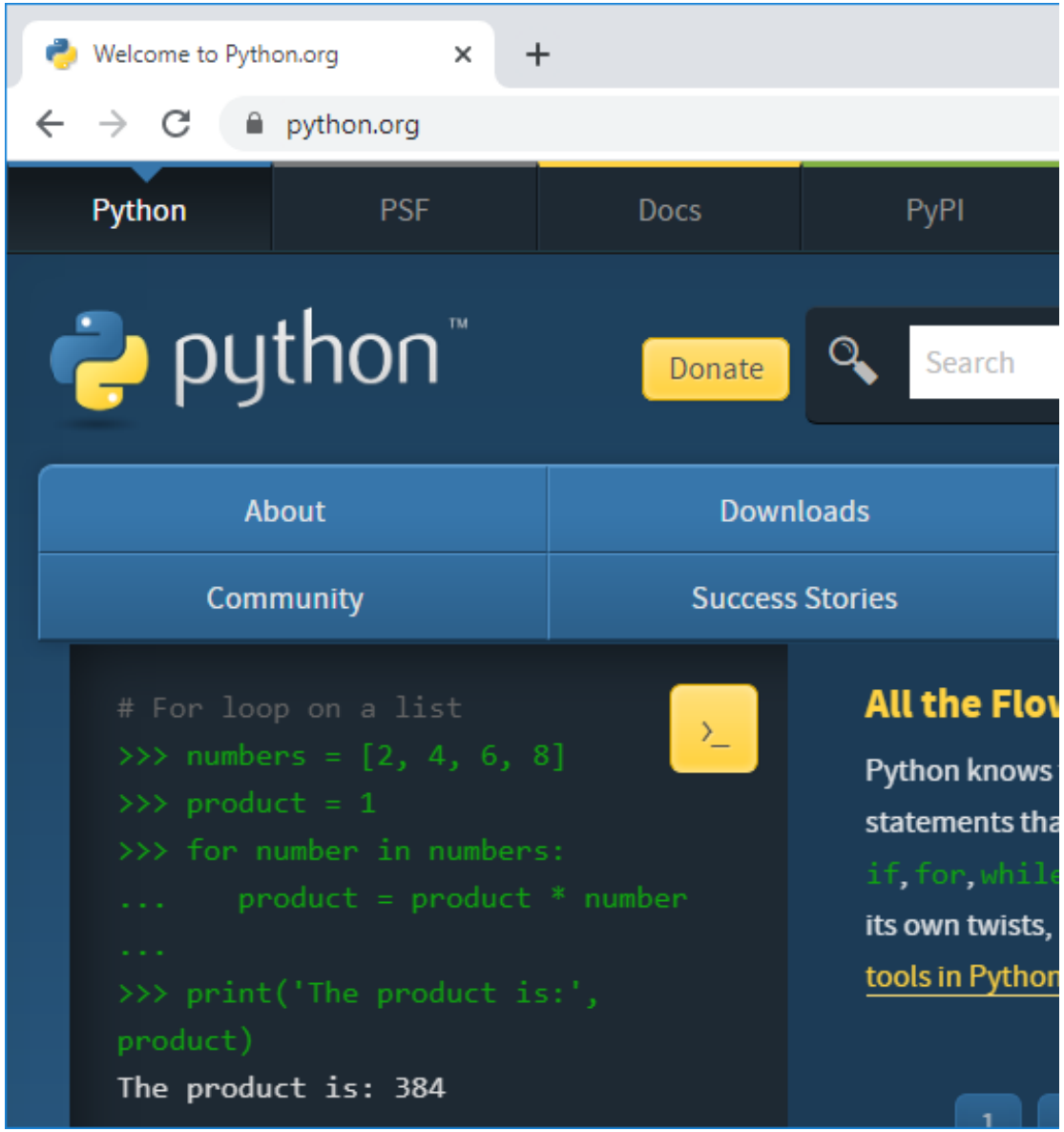
Visual Studio Code

Aula 2

Instalação do Python

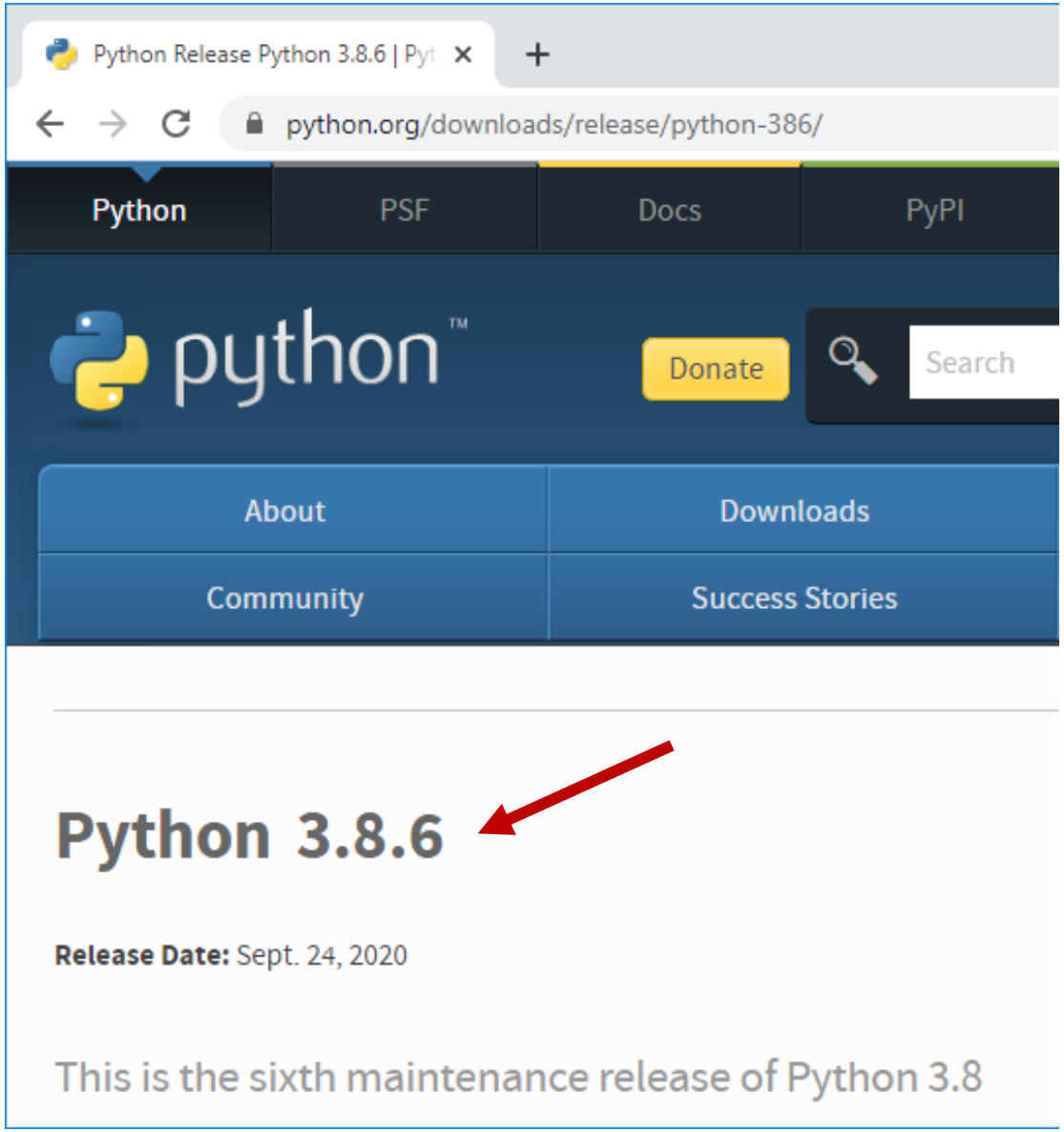
- Instalação da distribuição da Python Software Foundation

1. www.python.org

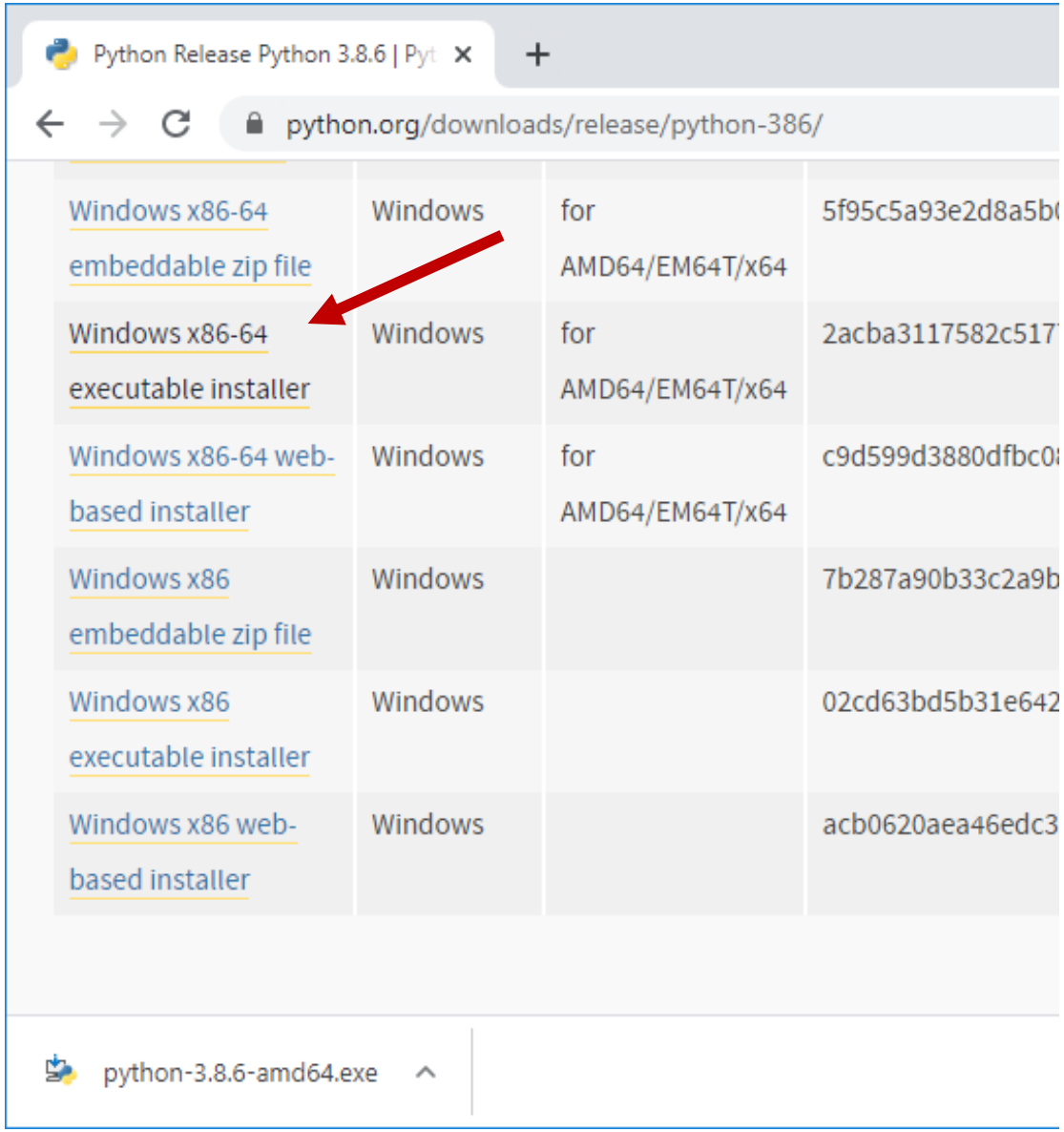


2. Download

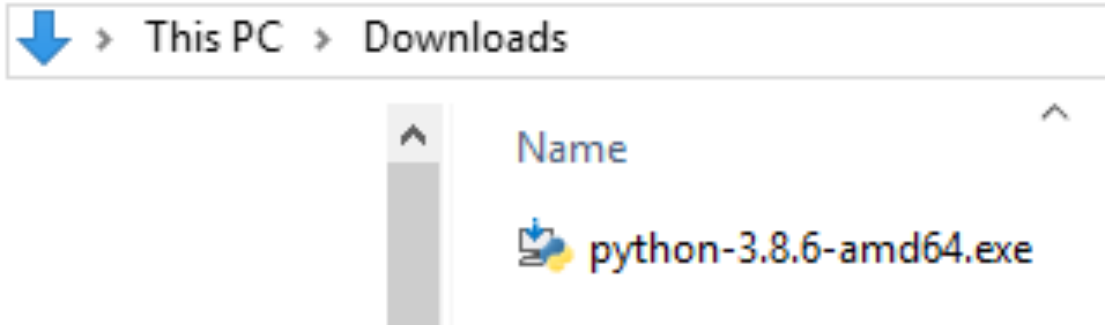
3. Versão 3.8.6



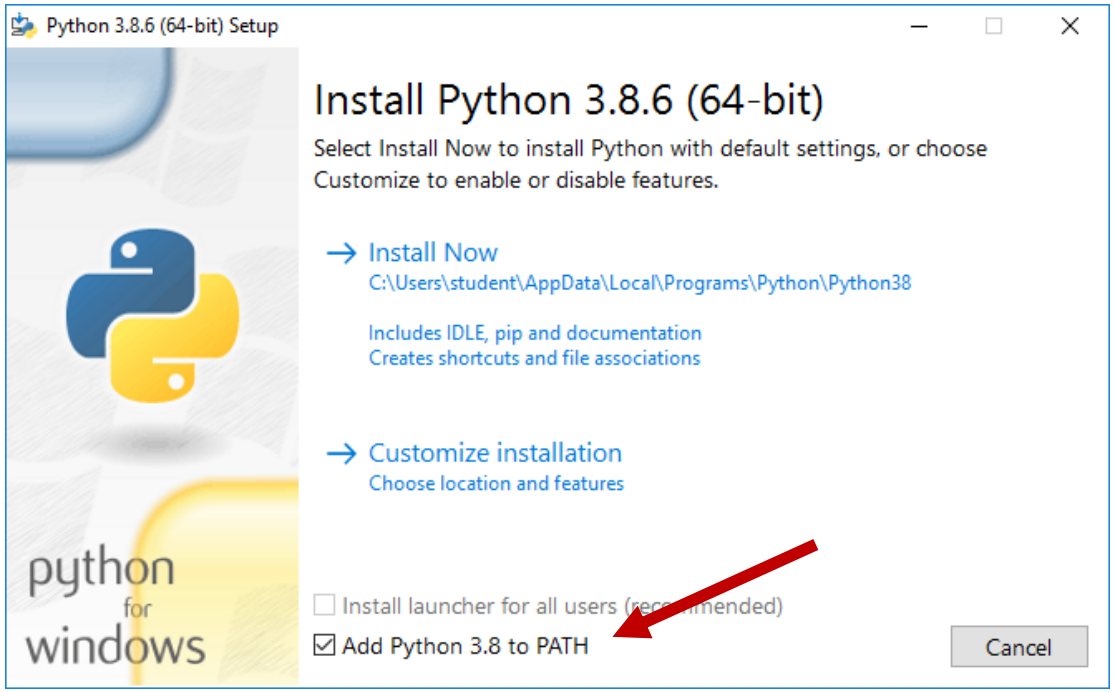
4. 64 bits installer



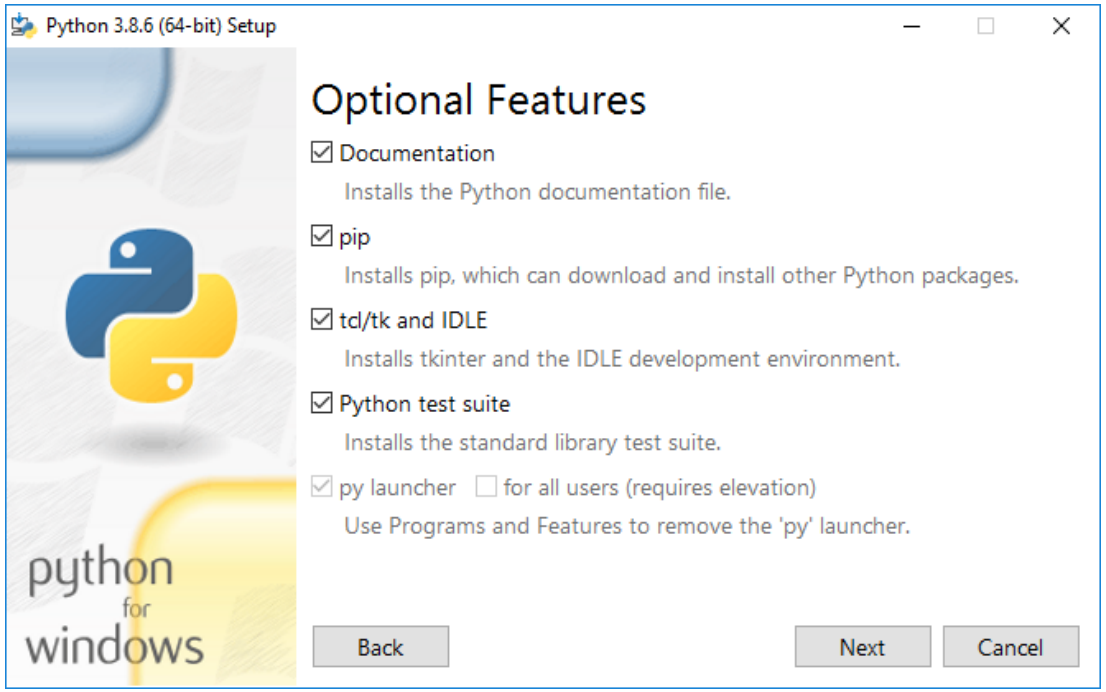
5. Executar



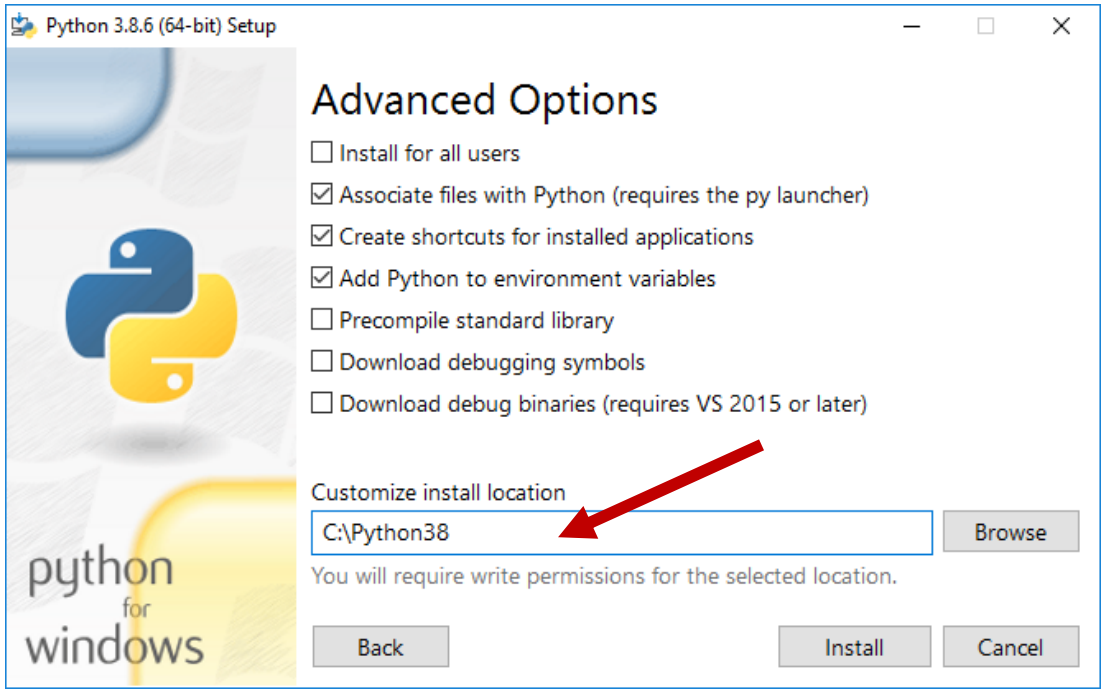
6. Adicionar no PATH



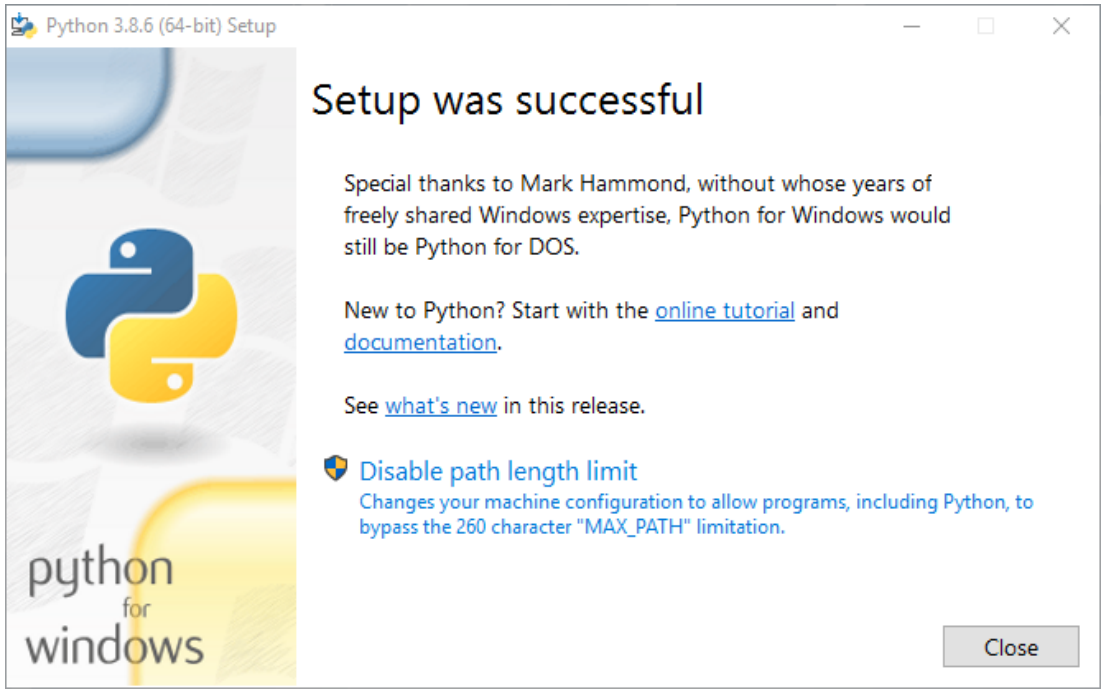
7. Next



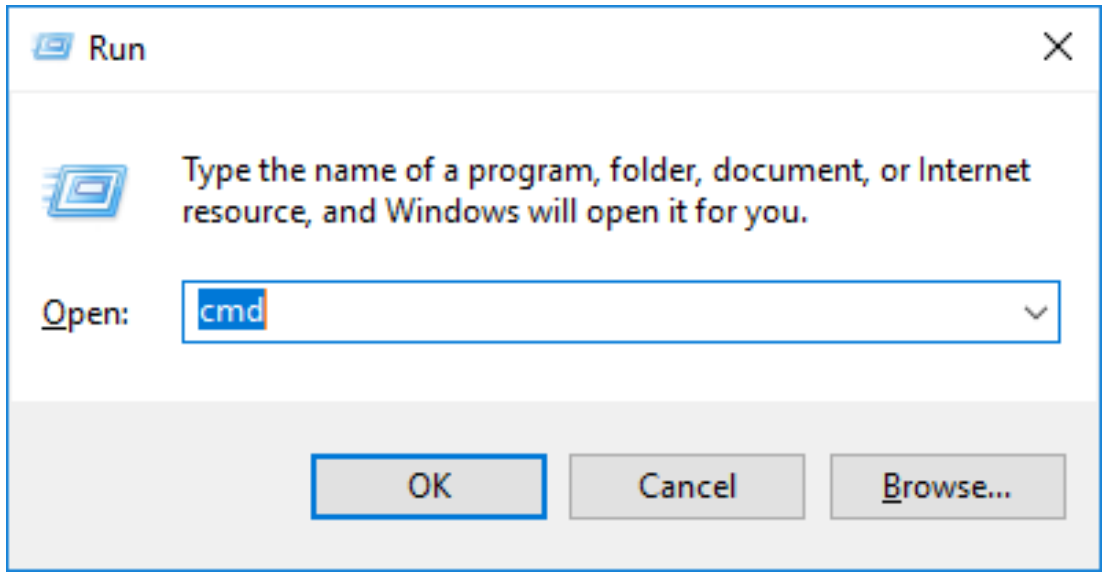
8. Diretório de instalação



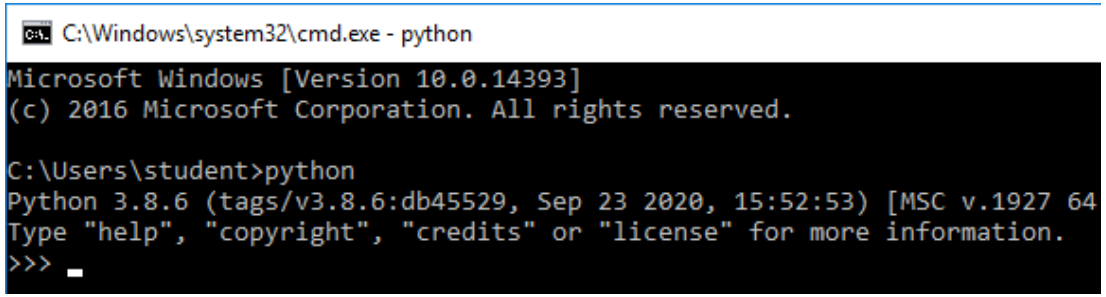
9. Ok!



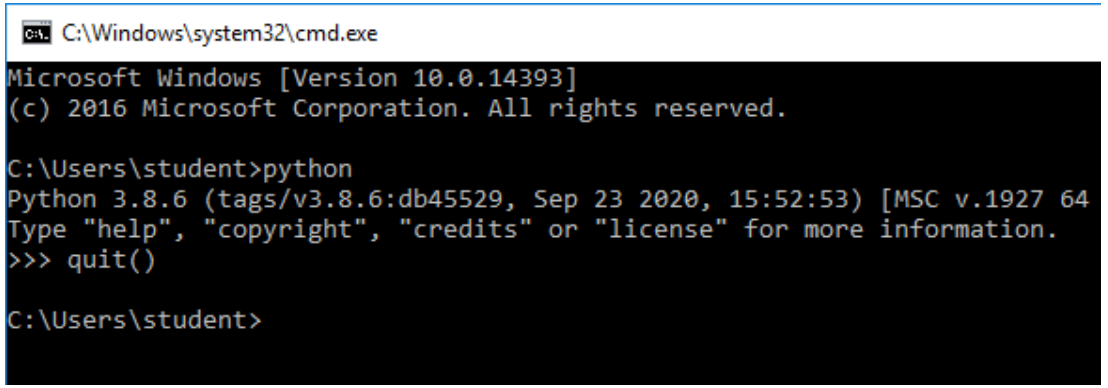
10. Executar CMD



11. Shell, 3.8.6



12. Quit()

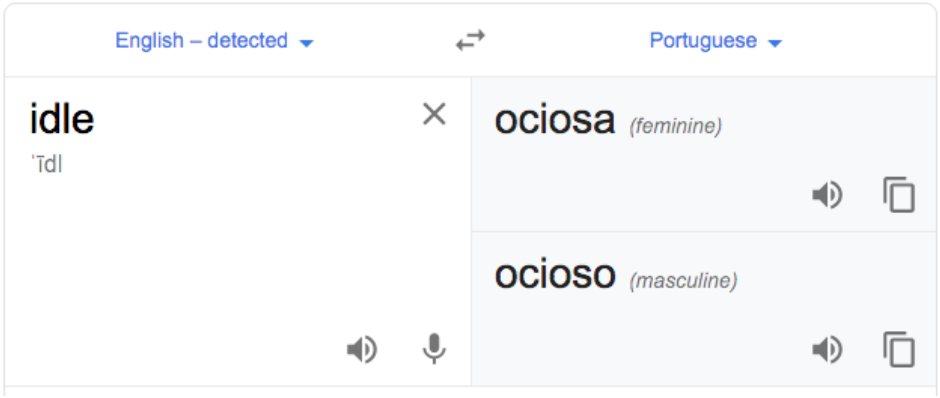


Aula 3

IDLE

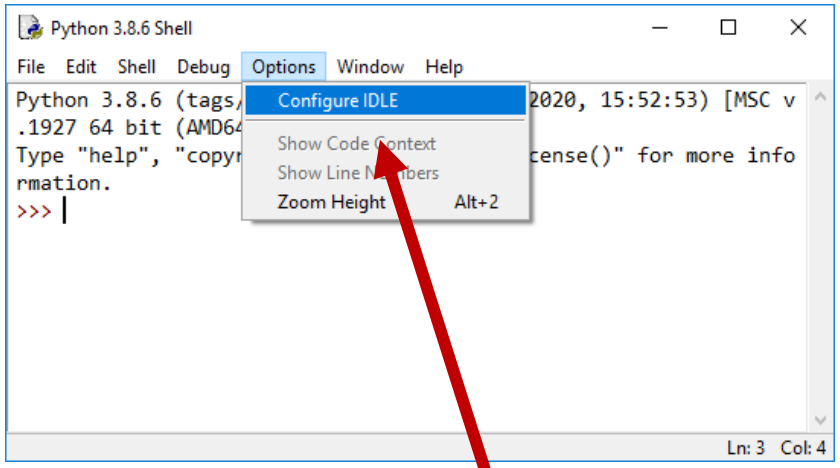
IDE – Integrated Development Environment

IDLE
(Python 3.8
64-bit)

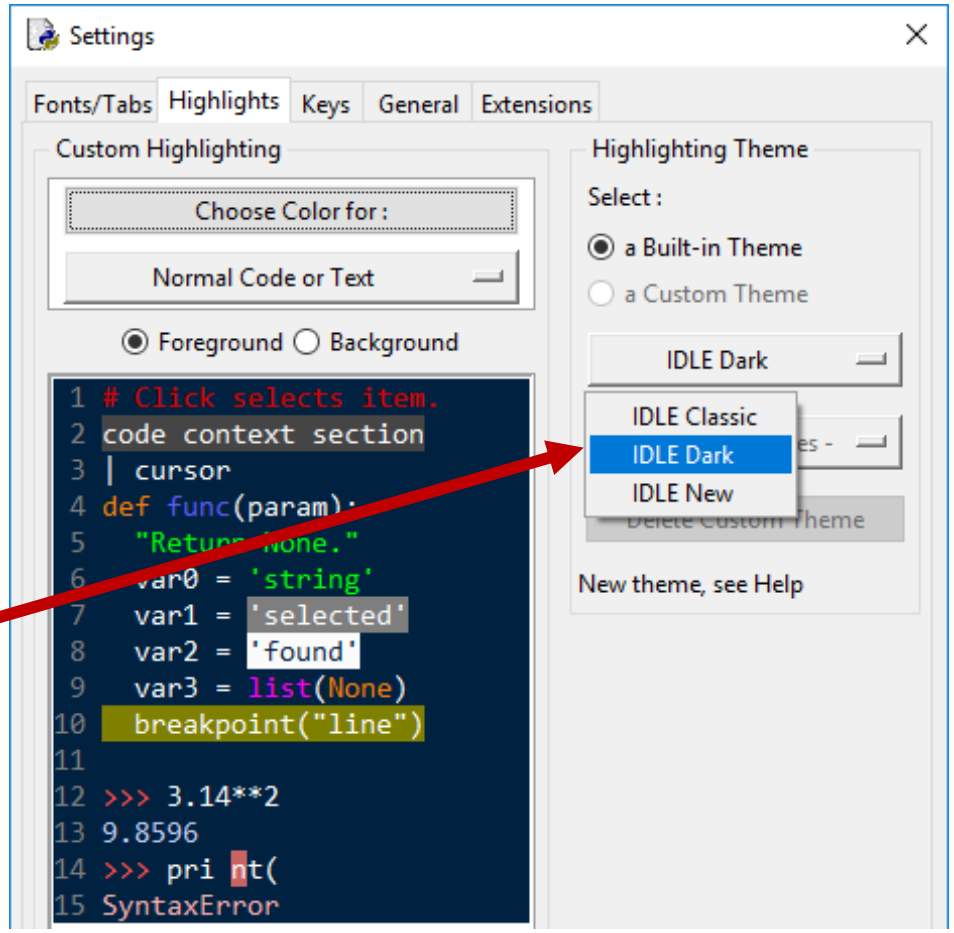


Eric Idle

IDE – Integrated Development Environment



opcional



Aula 4

Shell

Python Shell

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

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

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

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

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

```
>>> 1 - (1 / (1 - (1 / (1 + 1.0/5))))
-5.000000000000002
```

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

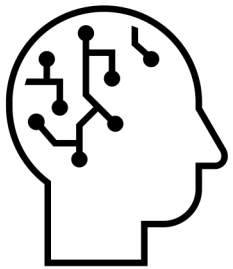
```
>>> a = 1
>>> b = 2


>>> c = a + b
>>> c
3
```

```
>>> b = 9
>>> c
>>> 3
```

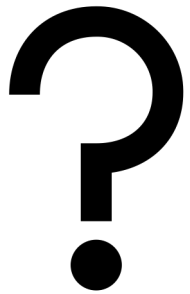
Mudamos b,
mas c continua com o mesmo valor

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"

>>> 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

índice

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

Listas...

- Podemos alterar o valor dos elementos


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

Dicionários

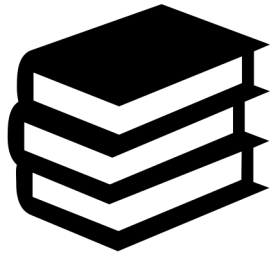
- Dicionários são estruturas de dados que armazenam chaves e valores (*key – value*)

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

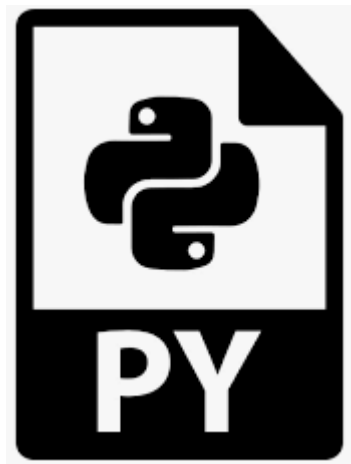
chave valor

Dicionários...

- Podemos criar novas entradas no dicionário



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


PY