Técnicas de Programação e Algoritmos

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Ferramentas para o desenvolvimento

- Integrated Development Environment (IDE)
  - Ambiente integrado de desenvolvimento (IDE)
- Editor de código:
  - navegação;
  - completar comandos;
  - coloração de sintaxe;
  - marcas de erro.

Ferramentas para o desenvolvimento

github.com/douglasbgodoy

https://github.com/douglasbgodoy/Java

https://github.com/douglasbgodoy/Python

https://github.com/douglasbgodoy/Programming_C_CPP

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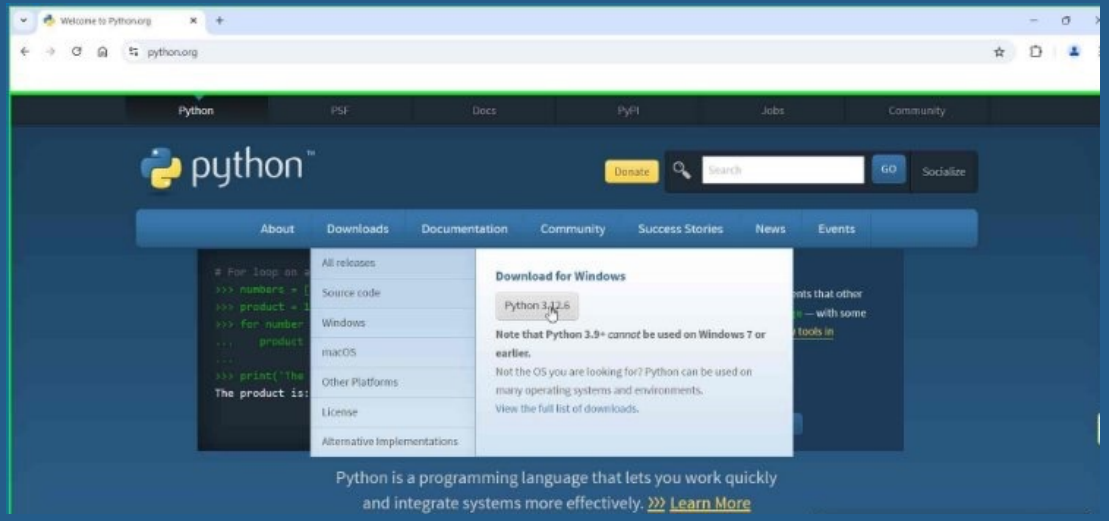
Python é software livre, ou seja, pode ser utilizada gratuitamente, graças ao trabalho da Python Software Foundation (https://python.org) e de inúmeros colaboradores. Você pode utilizar Python em praticamente qualquer arquitetura de computadores ou sistema operacional, como Linux (https://kernel.org ou https://ubuntu.com), FreeBSD (https://freebsd.org), Microsoft Windows ou Mac OS X (https://apple.com/macosx).

How to get Python and how to use it.

There are several ways to get your own copy of Python 3, depending on the operating system you use.

Visit the phyton website: https://www.python.org/downloads/.



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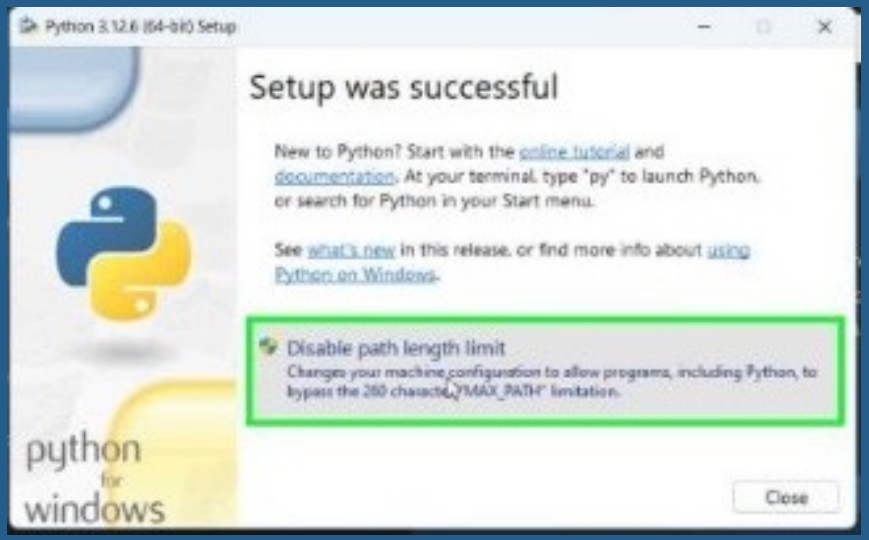
Downloading and installing Python

Because the browser tells the site you've entered the OS you use, the only step you have to take is to click the appropriate Python version you want.

In this case, select Python 3. The site always offers you the latest version of it.

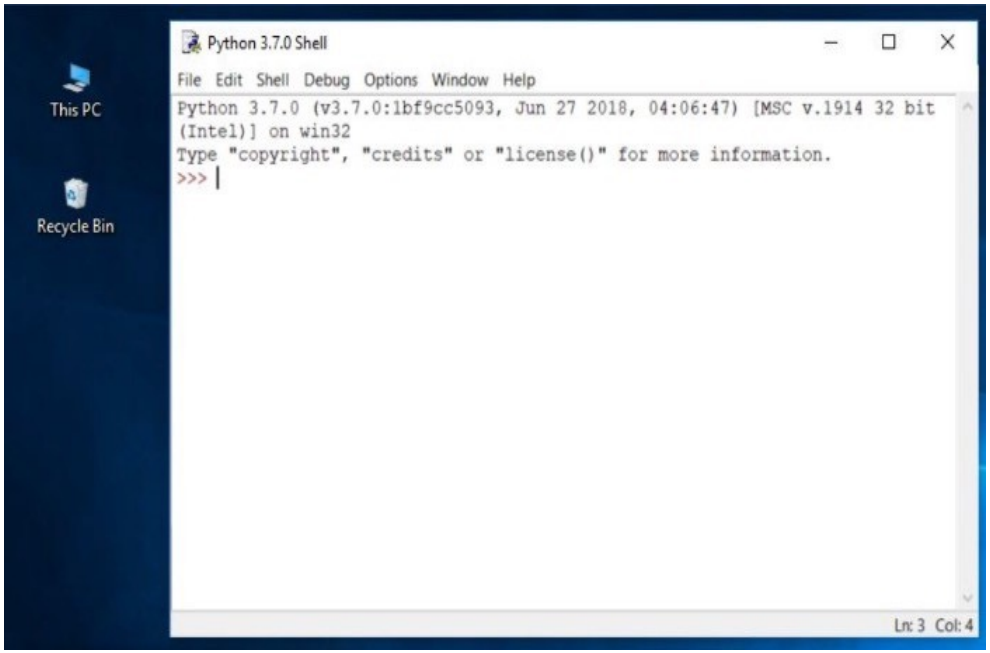


Interpretador Python

O interpretador é um programa que aceita comandos escritos em Python e os executa, linha a linha. É ele quem vai traduzir nossos programas em um formato que pode ser executado pelo computador. Sem o interpretador Python, nossos programas não podem ser executados, sendo considerados apenas texto. O interpretador também é responsável por verificar se escrevemos corretamente nossos programas, mostrando mensagens de erro, caso encontre algum problema.

O interpretador Python não vem instalado com o Microsoft Windows: você deverá instalá-lo fazendo um download da internet. Se você utiliza Mac OS X ou Linux, provavelmente isso já foi feito.

Starting your work with Python



IDLE is an acronym: Integrated Development and Learning Environment.

Now that you have Python 3 installed, it's time to check if it works and make the very first use of it.

To start your work, you need the following tools:

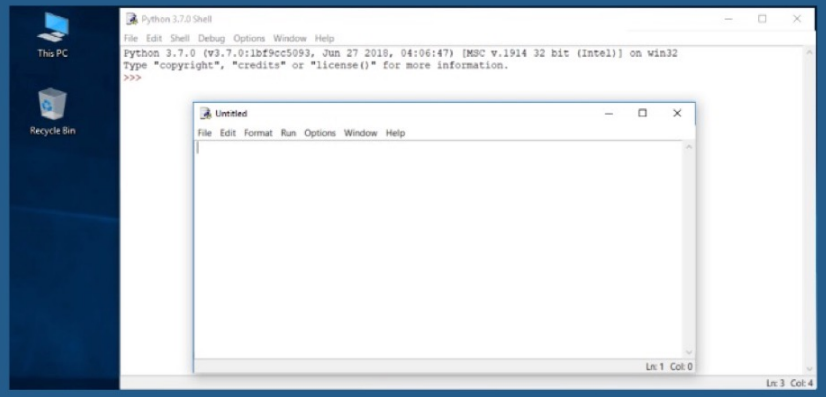
- An **etdior** which will support you in **writing the code**,
- A **console** in which you can launch your newly written code and stop it forcibly when it gets out of control,
- A **tool** named a **debugger**, able to launch your code step-by-step, which will allow you to inspect it at each moment of execution.

Besides its many useful components, the Python 3 standard installation contains a very simple but extremely useful application named IDLE.

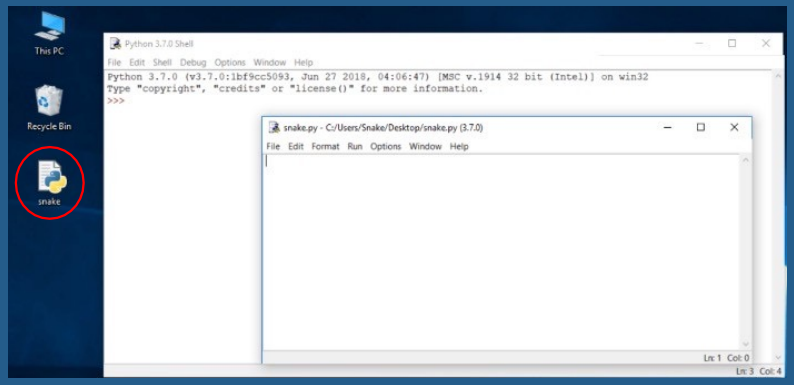
How to write and run your very first program

It is now time to write and run your first Python 3 program. It will be very simple, for now.

The first step is to create a new source file and fill it with code. Click File in the IDLE menu and choose New file.



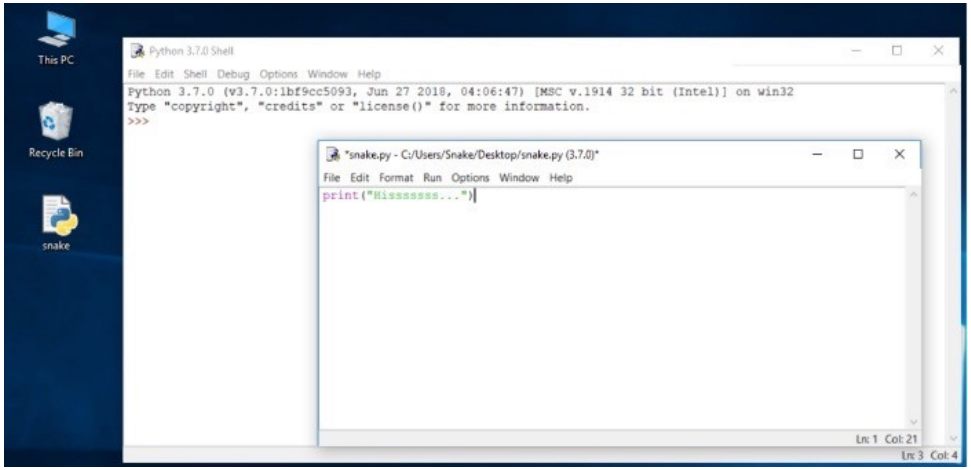
As you can see, IDLE opens a new window for you. You can use it to write and amend your code.



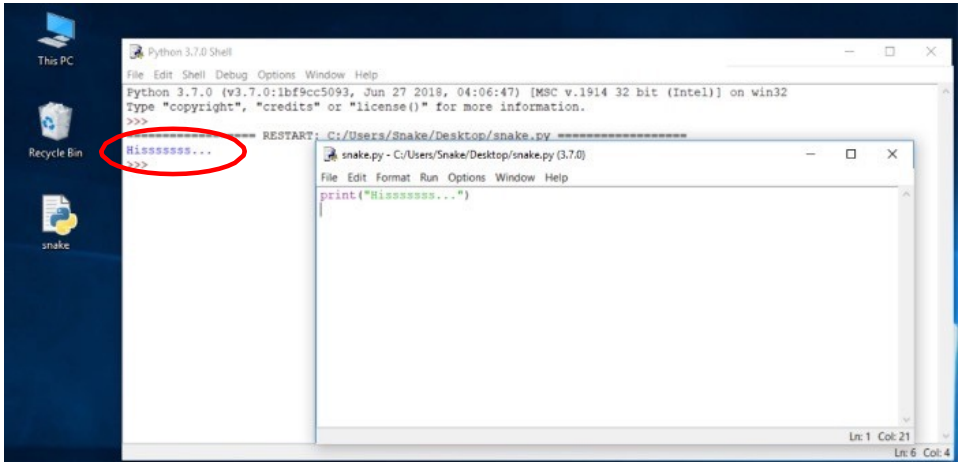
Click File (in the new window), then click Save as..., select a folder for the new file (the desktop is a good place for your first programming attempts) and chose a name for the new file.

How to write and run your very first program

Now put just one line into your newly opened and named editor window. The line looks like this:



If everything goes okay and there are no mistakes in the code, the console window will show you the effects caused by running the program.



Take a closer look at the quotation marks. These are the simplest form of quotation marks (neutral, straight, dumb, etc.) commonly used in source files. Do not try to use typographic quotes (curved, curly, smart, etc.), used by advanced text processors, as Python doesn't accept them.

Save the file (File -> Save) and run the program (Run -> Run Module).

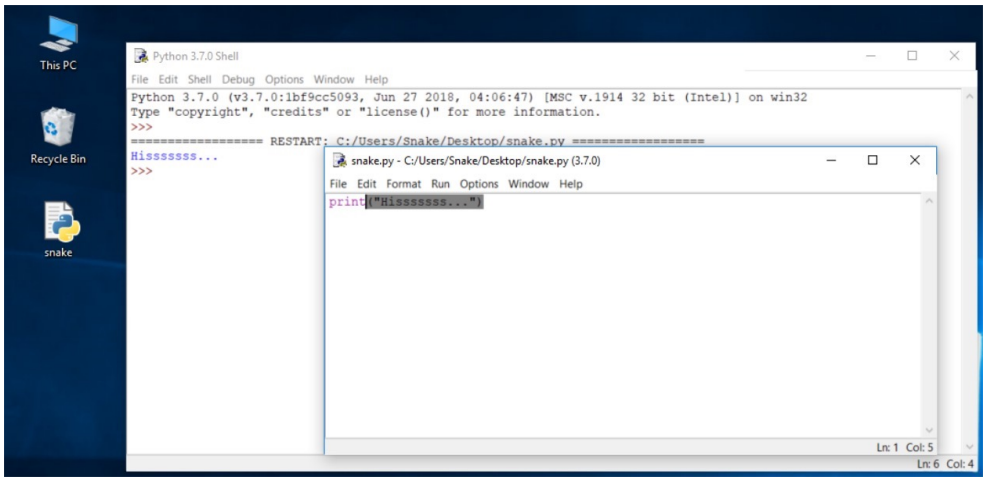
How to spoil and fix your code

Now start IDLE again.
•Click File, Open, point to the file you saved previously and let IDLE read it in.
•Try to run it again by pressing F5 when the editor window is active.

As you can see, IDLE is able to save your code and retrieve it when you need it again.

IDLE contains one additional and helpful feature.

•First, remove the closing parenthesis.
•Then enter the parenthesis again.
Your code should look like the one here:



Every time you put the closing parenthesis in your program, IDLE will show the part of the text limited with a pair of corresponding parentheses. This helps you to remember to place them in pairs.

Remove the closing parenthesis again. The code becomes erroneous. It contains a syntax error now. IDLE should not let you run it.

Try to run the program again. IDLE will remind you to save the modified file. Follow the instructions.

How to spoil and fix your code

The message (in red) shows (in the subsequent lines):

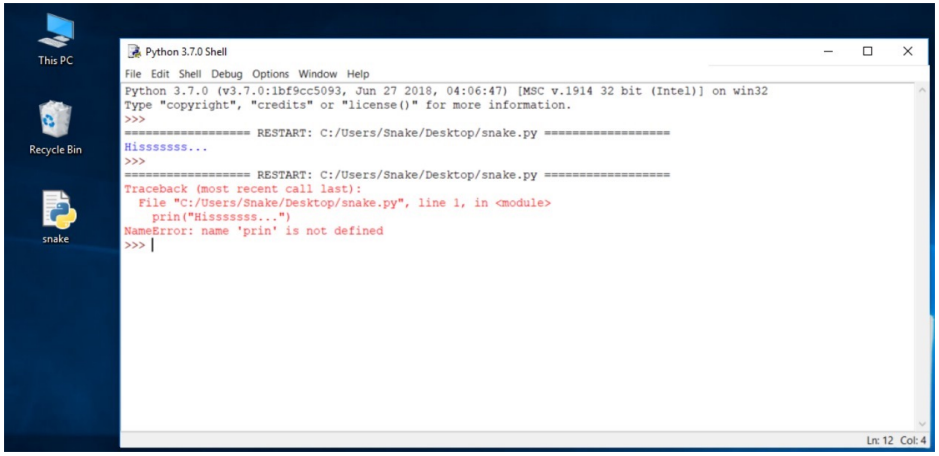
•the traceback (which is the path that the code traverses through different parts of the program - you can ignore it for now, as it is empty in such a simple code);

•the location of the error (the name of the file containing the error, line number and module name); note: the number may be misleading, as Python usually shows the place where it first notices the effects of the error, not necessarily the error itself;

•the content of the erroneous line; note: IDLE's editor window doesn't show line numbers, but it displays the current cursor location at the bottom-right corner; use it to locate the erroneous line in a long source code;

•the name of the error and a short explanation.

Experiment with creating new files and running your code. Try to output a different message to the screen, e.g., roar!, meow, or even maybe an oink!. Try to spoil and fix your code - see what happens.



Referências Bibliográficas

- MENEZES, Nilo Ney Coutinho, **Introdução à Programação com Python**, Novatec Editora, 4ª edição.

- CISCO NETWORKING ACADEMY - Python Essentials 1, Disponível em: https://skillsforall.com/pt/course/python-essentials-1?courseLang=en-US. Acesso em: 21 fevereiro.2024.

- www.pythoninstitute.org

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