

LAB-0

Python installation and usage- First Python program



Work on the cloud

- Google Colab (it uses Jupyter notebook)
 - Open Google Colab and select “new notebook”
<https://colab.research.google.com>
 - Write your first instruction

```
▶ print("HelloWorld!")
```

HelloWorld!

- Write and run your first short program

```
▶ name=input("What is your name? ")  
print("Hello",name)
```

What is your name? John Galt
Hello John Galt

- Learn how to save/load your notebook (.ipynb file) directly into your drive

Work locally on your computer

- Install Python3 : Package on python.org for Windows/Mac

<https://www.python.org/downloads/>

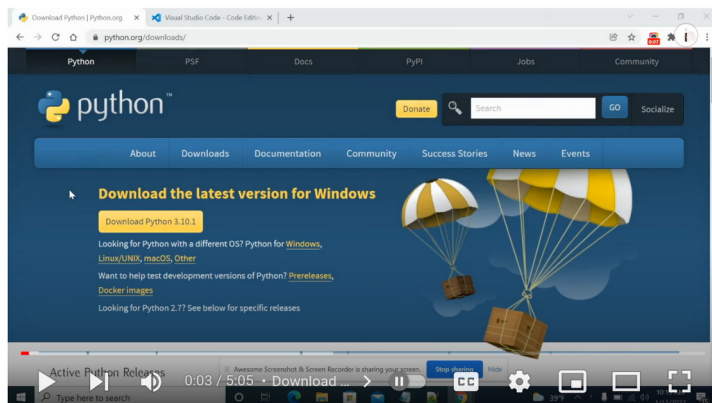
MAC-OS



<https://www.youtube.com/watch?v=3-sPfR4JEQ8>

How to install python 3 on macos

Windows



https://www.youtube.com/watch?v=cUAK4x_7thA

How to setup Python for VSCode in 2023 in 5mins! | Install Python and Setup VSCode for Windows 10

Work locally on your computer

- Test installation using the command shell (interactive mode)
 - Open Terminal using MAC/Linux or Command prompt on Windows
 - Type “python3”

```
$python3
Python 3.6.9 (default, Oct  8 2020, 12:12:24)
[GCC 8.4.0] on linux
Type "help", "copyright", "credits" or
"license" for more information.
>>>
```

Example- Linux

- Enter instruction after the Python prompt >>>

```
>>> print("Hello World")
Hello World
>>>
```

Work locally on your computer

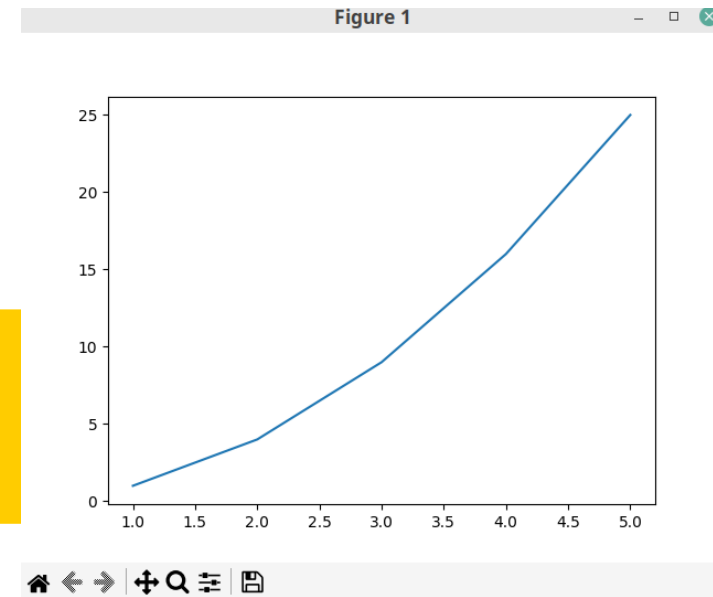
- Install Python Modules Numpy and Matplotlib

```
# Don't use with Anaconda distributions because they include matplotlib already.  
  
# macOS  
python3 -m pip install matplotlib  
  
# Windows (may require elevation)  
python -m pip install matplotlib  
  
# Linux (Debian)  
apt-get install python3-tk  
python3 -m pip install matplotlib
```

- Testing

```
>>>import numpy as np  
>>>print("pi is",np.pi)  
pi is 3.141592653589793
```

```
>>> import matplotlib.pyplot as plt  
>>> plt.plot([1,2,3,4,5],[1,4,9,16,25])  
>>> plt.show()
```



Work locally on your computer

- Best option for Projects is to install and use Visual Studio Code
 - Powerful editor such as visual studio code (use a window to develop your program, and a terminal to run).
 - Cross-platforms
 - Follow the tutorial

<https://code.visualstudio.com/docs/python/python-tutorial>

The screenshot shows the Visual Studio Code documentation website. The header includes the Visual Studio Code logo, navigation links (Docs, Updates, Blog, API, Extensions, FAQ, Learn), a search bar, and a 'Download' button. A banner below the header announces 'Version 1.75 is now available! Read about the new features and fixes from January.' The main content area is titled 'Getting Started with Python in VS Code' with an 'Edit' button. The left sidebar contains a table of contents with links to Overview, SETUP, GET STARTED, USER GUIDE, SOURCE CONTROL, TERMINAL, LANGUAGES, NODE.JS / JAVASCRIPT, TYPESCRIPT, PYTHON (selected), and various Python-specific topics. The main text explains that the tutorial will use Python 3 to create a 'Hello World' application in VS Code, highlighting the Python extension as a lightweight Python IDE. It lists tasks: writing, running, and debugging a Python application; learning to install packages using virtual environments; and writing a simple Python script to plot figures. It also mentions that the tutorial is not intended to teach Python itself but to guide users through the VS Code environment. A 'Prerequisites' section states that users need to have Python 3, VS Code, and the VS Code Python extension installed. The right sidebar, titled 'IN THIS ARTICLE', provides a list of links for prerequisites, installation, verification, workspace setup, interpreter selection, creating a Hello World file, running the application, configuration, package installation, and next steps. Social media links for Twitter, RSS, GitHub, and YouTube are also present.

Visual Studio Code Docs Updates Blog API Extensions FAQ Learn Search Docs Download

Version 1.75 is now available! Read about the new features and fixes from January.

Getting Started with Python in VS Code [Edit](#)

In this tutorial, you will use Python 3 to create the simplest Python "Hello World" application in Visual Studio Code. By using the Python extension, you make VS Code into a great lightweight Python IDE (which you may find a productive alternative to PyCharm).

This tutorial introduces you to VS Code as a Python environment - primarily how to edit, run, and debug code through the following tasks:

- Write, run, and debug a Python "Hello World" Application
- Learn how to install packages by creating Python virtual environments
- Write a simple Python script to plot figures within VS Code

This tutorial is not intended to teach you Python itself. Once you are familiar with the basics of VS Code, you can then follow any of the [programming tutorials on python.org](#) within the context of VS Code for an introduction to the language.

If you have any problems, you can search for answers or ask a question on the [Python extension Discussions Q&A](#).

Prerequisites

To successfully complete this tutorial, you need to first setup your Python development environment. Specifically, this tutorial requires:

- Python 3
- VS Code application
- VS Code Python extension

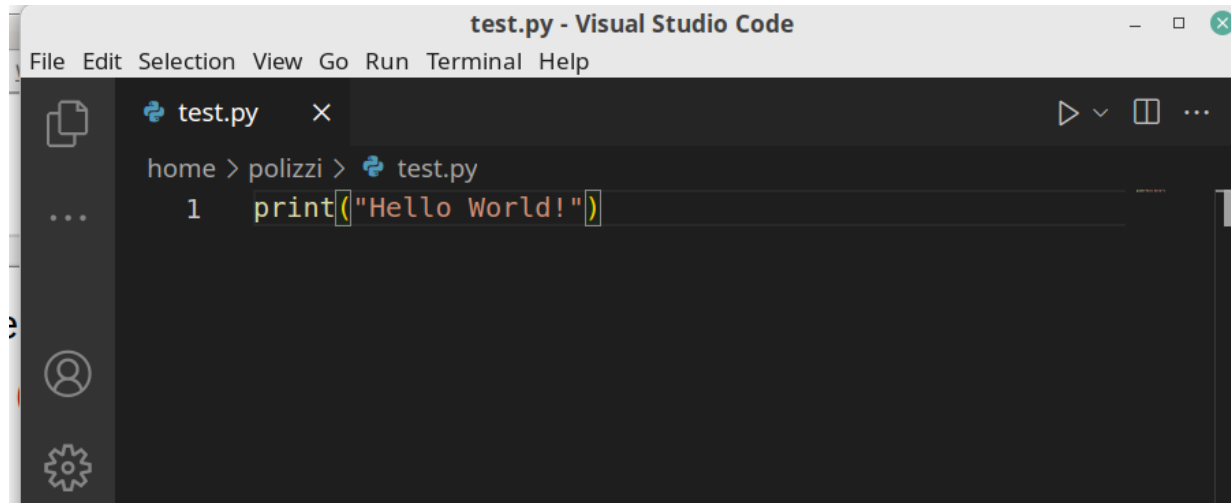
IN THIS ARTICLE

- Prerequisites
- Install Visual Studio Code and the Python Extension
- Install a Python interpreter
- Verify the Python installation
- Start VS Code in a workspace folder
- Select a Python interpreter
- Create a Python Hello World source code file
- Run Hello World
- Configure and run the debugger
- Install and use packages
- Next steps

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Writing Programs- Summary Steps

- 1) Write your code- or use 'new file' option



The screenshot shows the Visual Studio Code interface. The title bar reads 'test.py - Visual Studio Code'. The menu bar includes 'File', 'Edit', 'Selection', 'View', 'Go', 'Run', 'Terminal', and 'Help'. The editor area shows a file named 'test.py' with the following content:

```
home > polizzi > test.py
1 print("Hello World!")
```

- 2) Save your file with .py extension: for example **test.py**
(Remark: a single program could use multiple files)
- 3) Run your code: (i) execute using Run, (ii) use command prompt (terminal)