# Intro to Python — SMM692

## Getting Started with Python

Simone Santoni

Bayes Business School

MSc Pre-Course Series

# Outline

1. Installing Python
   - Options
   - Installation Procedure for Anaconda
2. How Python Runs Programs
3. How We Run Python Programs
   - Non-Interactive Approach
   - Interactive Approach

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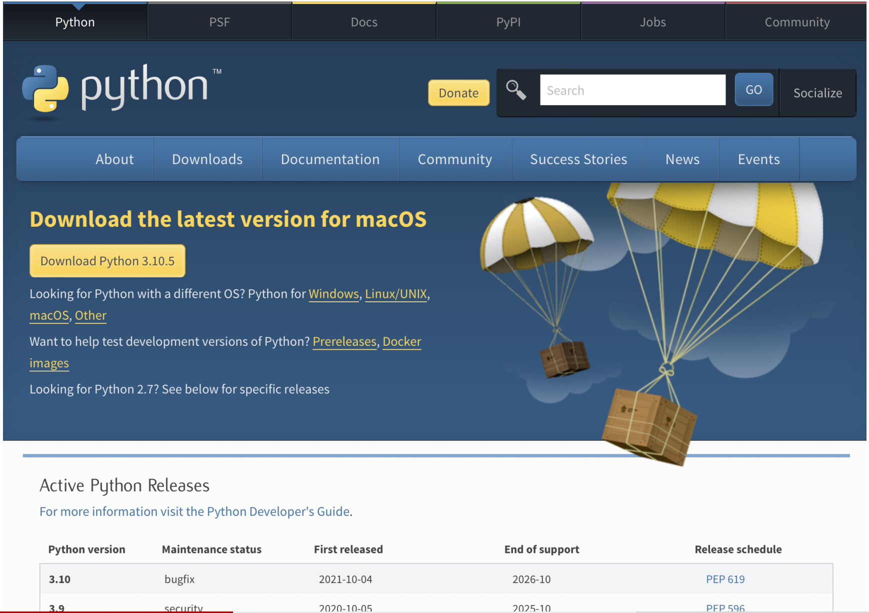
# Option 1: Official Installer



## Download the latest version for macOS

Looking for Python with a different OS? Python for Windows, Linux/UNIX, macOS, Other

Want to help test development versions of Python? Prereleases, Docker images

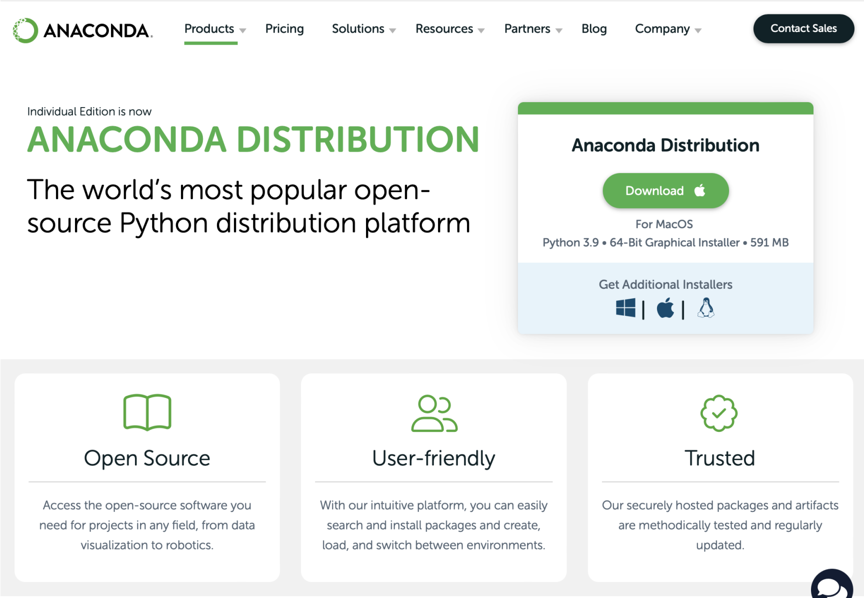
Looking for Python 2.7? See below for specific releases

## Active Python Releases

For more information visit the Python Developer's Guide.

| Python version | Maintenance status | First released | End of support | Release schedule |
|---|---|---|---|---|
| 3.10 | bugfix | 2021-10-04 | 2026-10 | PEP 619 |
| 3.9 | security | 2020-10-05 | 2025-10 | PEP 596 |

# Option 2: Anaconda Distro (Preffered Way)



Individual Edition is now

ANACONDA DISTRIBUTION

The world's most popular open-source Python distribution platform

Anaconda Distribution

For MacOS

Python 3.9 • 64-Bit Graphical Installer • 591 MB

Get Additional Installers

Open Source

Access the open-source software you need for projects in any field, from data visualization to robotics.

User-friendly

With our intuitive platform, you can easily search and install packages and create, load, and switch between environments.

Trusted

Our securely hosted packages and artifacts are methodically tested and regularly updated.

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# Steps

1. Downaload the installer for your operating system (unless you have a very old machine running Win, go for the 64-Bit version)
2. Run the installer
   - For Linux: navigate to the folder where you have downloaded the installer as per step 1, open a shell session, then run `$ bash ./Anaconda3-XXXX.XX-Linux-x86-64.sh`
   - For Win and Mac OS: just run the graphical installer downloaded in step 1
3. Accept the terms proposed by the Anaconda people to use their software, comprising Python, the `conda` package manager, and a bundle of modules for data science
4. That's it!
   - For Linux users: if you accepted the default installation options, an environmental variable has been created either in your `.bashrc` or `.zshrc`. That means you can access the various pieces of software included in the Anaconda installation (e.g., Anaconda Navigator) from a shell session
   - For Win and Mac OS users: the various pieces of software included in the Anaconda installation are available from the menu of your system

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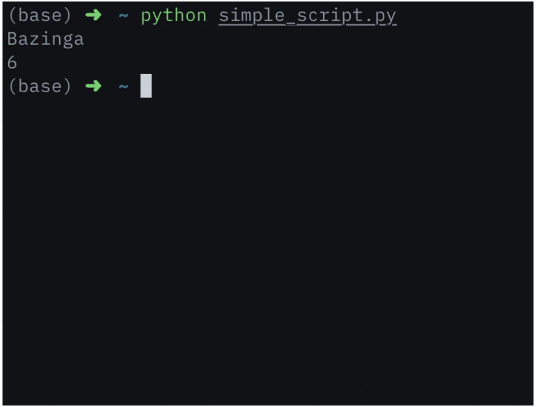
# Script Preparation → Script Run

## Step 1: script preparation

The below displayed Python code achieves two things:i) it prints the string object “Bazinga!”, and ii) it prints the resul of the algebraic operation $4 + 2$. Note that all lines starting with # are not considered Python code — instead, they are comments that illustrate/explain the logic of the script.

```python
# This prints a string object
print("Bazinga")
# This prints the result of an algebraic operation
print(2 + 4)
```

## Step 2: script run



```
(base) ➜  ~ python simple_script.py
Bazinga
6
(base) ➜  ~ 
```

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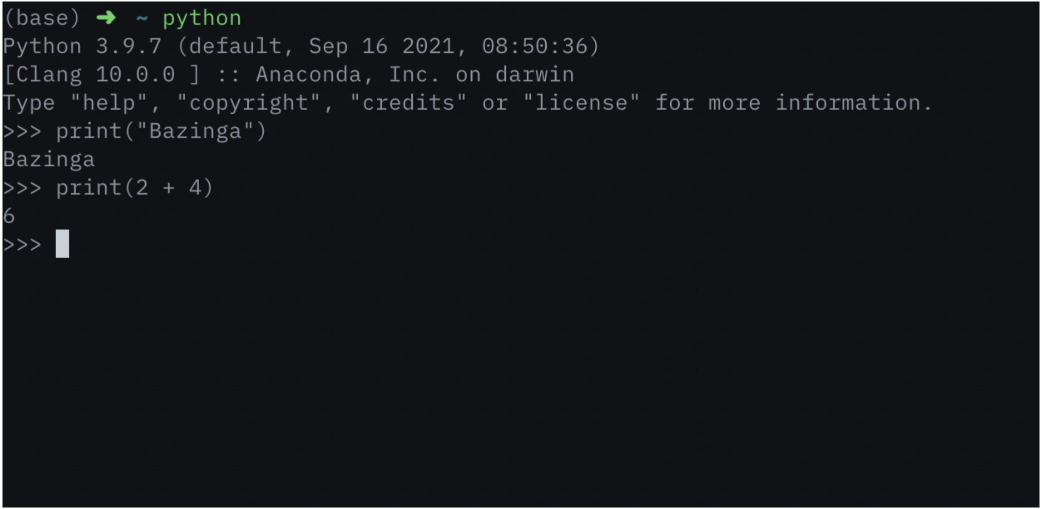
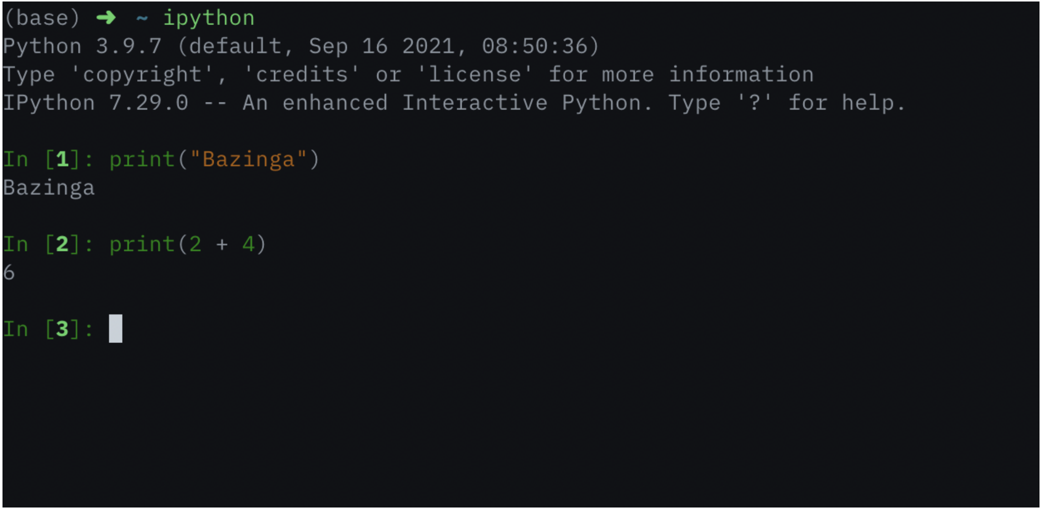
# Running a Python Shell in the Terminal



```
(base) ➜ ~ python
Python 3.9.7 (default, Sep 16 2021, 08:50:36)
[Clang 10.0.0 ] :: Anaconda, Inc. on darwin
Type "help", "copyright", "credits" or "license" for more information.
>>> print("Bazinga")
Bazinga
>>> print(2 + 4)
6
>>> █
```

# Running an IPython Shell in the Terminal



```
(base) ➜ ~ ipython
Python 3.9.7 (default, Sep 16 2021, 08:50:36)
Type 'copyright', 'credits' or 'license' for more information
IPython 7.29.0 -- An enhanced Interactive Python. Type '?' for help.

In [1]: print("Bazinga")
Bazinga

In [2]: print(2 + 4)
6

In [3]: 
```

# Running a Python IDE

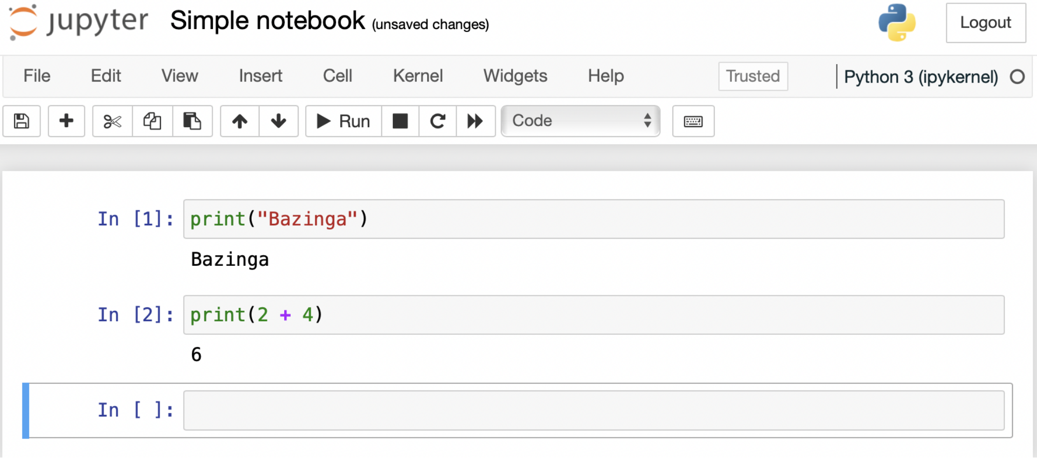
There are plenty of Python IDEs in the market, including:

- Colab (online)
- IDLE
- Datalore (online)
- Jupyter/Jupyterlab
- PyCharm
- Spyder
- Thonny
- Wing

By installing a couple of plugins, the following (advanced) text editors can turn into Python IDEs:

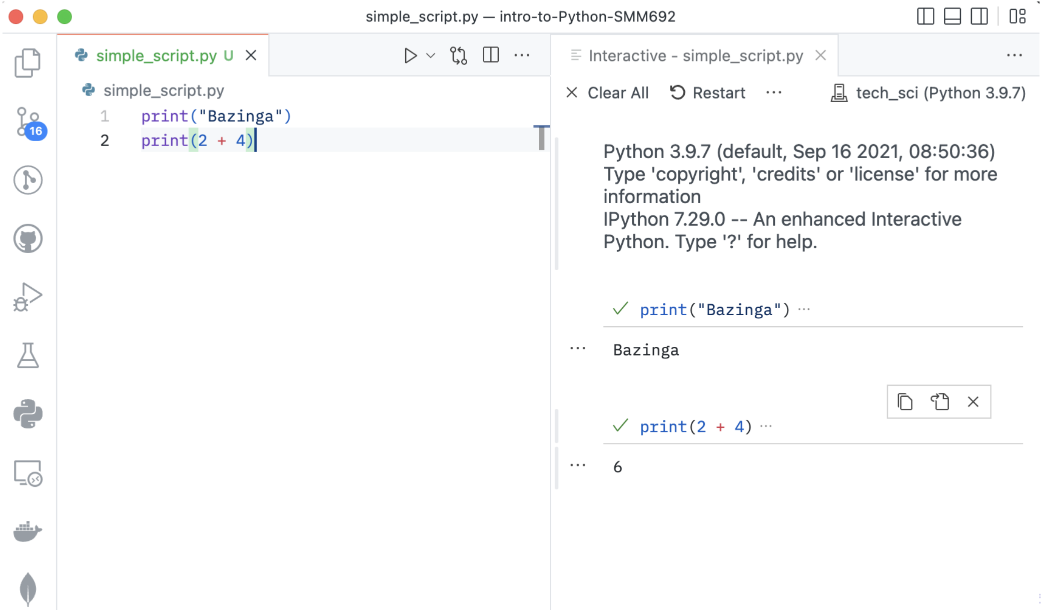
- Emacs
- Vim/Neovim
- VSCode

# Interactive Python Coding with Jupyter



```
In [1]: print("Bazinga")

        Bazinga

In [2]: print(2 + 4)

        6

In [ ]:
```

# Interactive Python Coding with VSCode

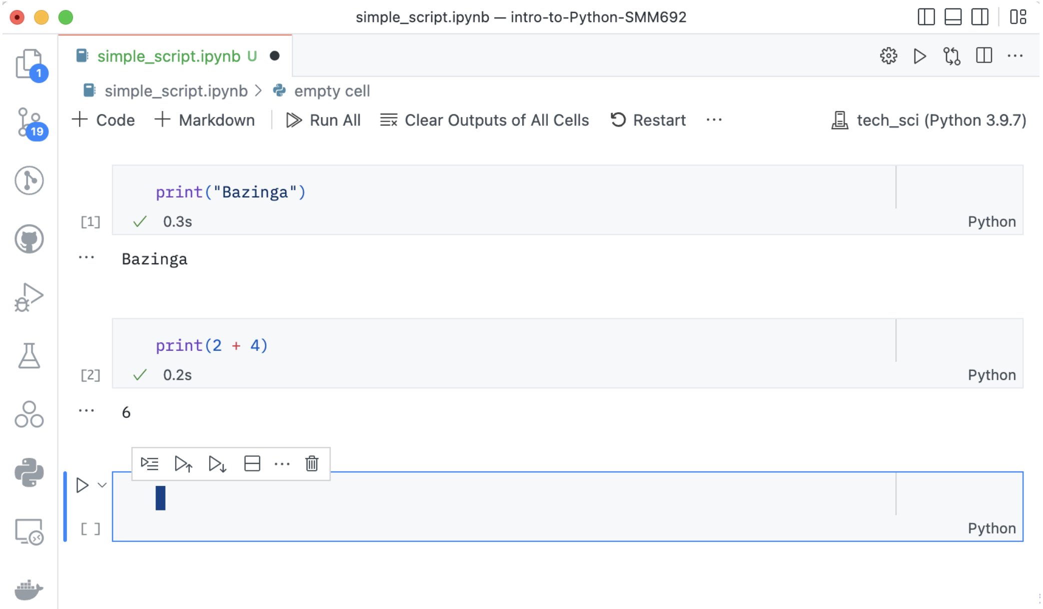


simple_script.py — intro-to-Python-SMM692
simple_script.py U
Interactive - simple_script.py
Clear All
Restart
tech_sci (Python 3.9.7)
16

```python
print("Bazinga")
print(2 + 4)
```

```
Python 3.9.7 (default, Sep 16 2021, 08:50:36)
Type 'copyright', 'credits' or 'license' for more
information
IPython 7.29.0 -- An enhanced Interactive
Python. Type '?' for help.

✓ print("Bazinga") ···
··· Bazinga

✓ print(2 + 4) ···
··· 6
```

# Interactive Python Coding in Jupyter with VSCode


simple_script.ipynb — intro-to-Python-SMM692
simple_script.ipynb U ●
simple_script.ipynb > empty cell
+ Code
+ Markdown
Run All
Clear Outputs of All Cells
Restart
···
tech_sci (Python 3.9.7)
1
19
Python
Python
Python

```
[1]
print("Bazinga")
✓ 0.3s
```

```
Bazinga
```

```
[2]
print(2 + 4)
✓ 0.2s
```

```
6
```

```
[ ]
```