

> [Launch Interactive Shell](#)

```
# Python 3: Fibonacci
series up to n
>>> def fib(n):
>>>     a, b = 0, 1
>>>     while a < n:
>>>         print(a,
end=' ')
>>>         a, b = b,
a+b
>>>     print()
>>> fib(1000)
0 1 1 2 3 5 8 13 21
34 55 89 144 233 377
610 987
```

Functions Defined

The core of extensible programming is defining functions. Python allows mandatory and optional arguments, keyword arguments, and even arbitrary argument lists. [More about defining functions in Python 3](#)

```
# Python 3: List
comprehensions
>>> fruits = ['Banana',
'Apple', 'Lime']
>>> loud_fruits =
[fruit.upper() for
fruit in fruits]
>>> print(loud_fruits)
['BANANA', 'APPLE',
'LIME']

# List and the
enumerate function
>>>
list(enumerate(fruits))
[(0, 'Banana'), (1,
'Apple'), (2, 'Lime')]
```

Compound Data Types

Lists (known as arrays in other languages) are one of the compound data types that Python understands. Lists can be indexed, sliced and manipulated with other built-in functions. [More about lists in Python 3](#)

```
# Python 3: Simple
arithmetic
>>> 1 / 2
0.5
>>> 2 ** 3
8
>>> 17 / 3 # classic
division returns a
float
5.666666666666667
>>> 17 // 3 # floor
division
5
```

Intuitive Interpretation

Calculations are simple with Python, and expression syntax is straightforward: the operators +, -, * and / work as expected; parentheses () can be used for grouping. [More about simple math functions in Python 3](#).

```
# For loop on a list
>>> numbers = [2, 4,
6, 8]
>>> product = 1
>>> for number in
numbers:
...     product =
product * number
...
>>> print('The
product is:',
product)
The product is: 384
```

All the Flow You'd Expect

Python knows the usual control flow statements that other languages speak — if, for, while and range — with some of its own twists, of course. [More control flow tools in Python 3](#)

Python is a programming language that lets you work quickly and integrate systems more effectively. >>> [Learn More](#)

🔌 Get Started

Whether you're new to programming or an experienced developer, it's easy to learn and use Python.

[Start with our Beginner's Guide](#) ([/about/gettingstarted/](#))

📦 Download

Python source code and installers are available for download for all versions!

Latest: [Python 3.13.2](#) ([/downloads/release/python-3132/](#))

📖 Docs

Documentation for Python's standard library, along with tutorials and guides, are available online.

[docs.python.org](#) ([https://docs.python.org/](#))

💼 Jobs

Looking for work or have a Python related position that you're trying to hire for? Our **relaunched community-run job board** is the place to go.

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📰 Latest News

2025-02-11 [Python 3.14.0 alpha 5 is out](#) ([https://pythoninsider.blogspot.com/2025/02/python-3140-alpha-5-is-out.html](#))

2025-02-04 [Python 3.13.2 and 3.12.9 now available!](#) ([https://pythoninsider.blogspot.com/2025/02/python-3132-and-3129-now-available.html](#))

2025-01-15	PSF Newsletter: Awards, Grants, & PyCon US 2025! (https://mailchi.mp/python/python-software-foundation-july-2024-newsletter-19875956)
2025-01-14	Python 3.14.0 alpha 4 is out (https://pythoninsider.blogspot.com/2025/01/python-3140-alpha-4-is-out.html)
2025-01-14	Powering Python together in 2025, thanks to our community! (https://pyfound.blogspot.com/2025/01/powering-python-together-in-2025-thanks.html)

Upcoming Events

2025-02-15	Python Barcamp Karlsruhe 2025 (/events/python-user-group/1841/)
2025-02-15	Python User Group Dhaka Monthly Meetup (/events/python-user-group/1964/)
2025-02-20	Workshop: Creating Python Communities (/events/python-user-group/1965/)
2025-02-21	Django Girls Koforidua (/events/python-user-group/1868/)
2025-02-22	PyConf Hyderabad 2025 (/events/python-events/1895/)

Success Stories

[Python and its broad variety of libraries are very well suited to develop customized machine learning tools which tackle the complex challenges posed by financial time series.](/success-stories/python-for-financial-machine-learning-at-union-investment/) (</success-stories/python-for-financial-machine-learning-at-union-investment/>)

[Python for Financial Machine Learning at Union Investment](/success-stories/python-for-financial-machine-learning-at-union-investment/) (</success-stories/python-for-financial-machine-learning-at-union-investment/>) by *Dr. Christian Mandery and Nikolas Gerlich*

Use Python for...

Web Development:

[Django](http://www.djangoproject.com/) (<http://www.djangoproject.com/>) , [Pyramid](http://www.pylonsproject.org/) (<http://www.pylonsproject.org/>) , [Bottle](http://bottlepy.org/) (<http://bottlepy.org/>) , [Tornado](http://tornadoweb.org/) (<http://tornadoweb.org/>) , [Flask](http://flask.pocoo.org/) (<http://flask.pocoo.org/>) , [web2py](http://www.web2py.com/) (<http://www.web2py.com/>)

GUI Development:

[tkInter](http://wiki.python.org/moin/TkInter) (<http://wiki.python.org/moin/TkInter>) , [PyGObject](https://wiki.gnome.org/Projects/PyGObject) (<https://wiki.gnome.org/Projects/PyGObject>) , [PyQt](http://www.riverbankcomputing.co.uk/software/pyqt/intro) (<http://www.riverbankcomputing.co.uk/software/pyqt/intro>) , [PySide](https://wiki.qt.io/PySide) (<https://wiki.qt.io/PySide>) , [Kivy](https://kivy.org/) (<https://kivy.org/>) , [wxPython](http://www.wxpython.org/) (<http://www.wxpython.org/>) , [DearPyGui](https://dearpygui.readthedocs.io/en/latest/) (<https://dearpygui.readthedocs.io/en/latest/>)

Scientific and Numeric:

[SciPy](http://www.scipy.org/) (<http://www.scipy.org/>) , [Pandas](http://pandas.pydata.org/) (<http://pandas.pydata.org/>) , [IPython](http://ipython.org/) (<http://ipython.org/>)

Software Development:

[Buildbot](http://buildbot.net/) (<http://buildbot.net/>) , [Trac](http://trac.edgewall.org/) (<http://trac.edgewall.org/>) , [Roundup](http://roundup.sourceforge.net/) (<http://roundup.sourceforge.net/>)

System Administration:


[Ansible](http://www.ansible.com/) (<http://www.ansible.com/>) , [Salt](https://saltproject.io) (<https://saltproject.io>) , [OpenStack](https://www.openstack.org) (<https://www.openstack.org>) , [xonsh](https://xon.sh) (<https://xon.sh>)

[Python Software Foundation](/psf/) (</psf/>)

The mission of the Python Software Foundation is to promote, protect, and advance the Python programming language, and to support and facilitate the growth of a diverse and international community of Python programmers. >>> [Learn more](/psf/) (</psf/>)

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