

Python Programming Basic

Python Introduction



Foreword

In this course, we are going to learn what Python is and how to use Python.





Objectives

Upon finishing the course, you will be able to :

- ◆ Know how to use Python
- ◆ Know what Python is
- ◆ Create your own Python program

Contents

1. What is Python?

- What is Python
- History of Python

2. Why Python?

3. How to use Python?



What is Python?

Python is a simple, open-source, multi-paradigm and object-oriented, scripting programming language.

Python was created by **Guido van Rossum** in **1989**, which is a successor to the ABC programming language.

The screenshot shows the Python.org homepage. At the top is the Python logo and a navigation bar with links: About, Downloads, Documentation, Community, Success Stories, News, and Events. Below the navigation bar is a large code editor area. On the left, it shows a Python 3 script for calculating the Fibonacci series up to n. On the right, there's a section titled "Functions Defined" with a description of Python's extensibility and a link to "More about defining functions in Python 3". Below the code editor, there's a footer with the text: "Python is a programming language that lets you work quickly and integrate systems more effectively. >>> [Learn More](#)".

```
# 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](#)

1 2 3 4 5

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



History of Python

- ◆ First public in 1991.
- ◆ Python 2 released in 2000.
- ◆ Python 3 released in 2008.

Note: Python 2 and Python 3 are not compatible to each other. Python 2 has reached end of life on January 1st, 2020.



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2. Why Python?

- Python Features
- Python Application Fields

3. How to use Python?



Python Features

- High-level
- Simple syntax
- Third-party libraries
- Multi-paradigm
- functional
- imperative
- object-oriented
- Structured
- reflective

- But low performance compared to C&C++





Python vs C

```
In [6]: nterms = int(input("Number of terms: "))
print("Fibonacci Series: ")

n1, n2 = 0, 1
count = 0
while count < nterms:
    print(n1, end=', ')
    nth = n1 + n2
    n1 = n2
    n2 = nth
    count += 1
```

```
Number of terms: 9
Fibonacci Series:
0, 1, 1, 2, 3, 5, 8, 13, 21,
```

```
1 #include <stdio.h>
2 int main() {
3     int i, n, t1 = 0, t2 = 1, nextTerm;
4     printf("Number of terms: ");
5     scanf("%d", &n);
6     printf("Fibonacci Series: \n");
7
8     for (i = 1; i <= n; ++i) {
9         printf("%d, ", t1);
10        nextTerm = t1 + t2;
11        t1 = t2;
12        t2 = nextTerm;
13    }
14
15    return 0;
16 }
17
```

```
Number of terms: 9
Fibonacci Series:
1, 1, 2, 3, 5, 8, 13, 21,
```



Python Application Fields

◆ Artificial Intelligence

- Machine Learning

◆ Data Science

- NumPy, Pandas, Matplotlib

◆ Software Programming

- Functional and Object Oriented Programming

◆ Web developing

- Django, Tornado, Flask

◆ Automation scripting

- Saltstack

- Ansible

◆ Web crawler

- Scrapy

◆ Cloud computing

- Openstack

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- Python Installing
- Common Developing IDE



Python Installing

Official Website: <https://www.python.org/>

Download the version you need from the Official Website for your local system.







Python Installing

Ananconda Website: <https://www.anaconda.com/>

Install Python and its third-party libraries by Anaconda.

Anaconda Installers

Windows 	MacOS 	Linux 
Python 3.8 64-Bit Graphical Installer (457 MB) 32-Bit Graphical Installer (403 MB)	Python 3.8 64-Bit Graphical Installer (435 MB) 64-Bit Command Line Installer (428 MB)	Python 3.8 64-Bit (x86) Installer (529 MB) 64-Bit (Power8 and Power9) Installer (279 MB)



Common IDEs

IDE stands for Integrated Development Environment, it can increase programmer productivity by integrating common programming activities into a single software. We can edit source code, run the program and debugging using an IDE.

Common Python IDEs:

- PyCharm
- Jupyter Notebook
- VS Code
- Spyder

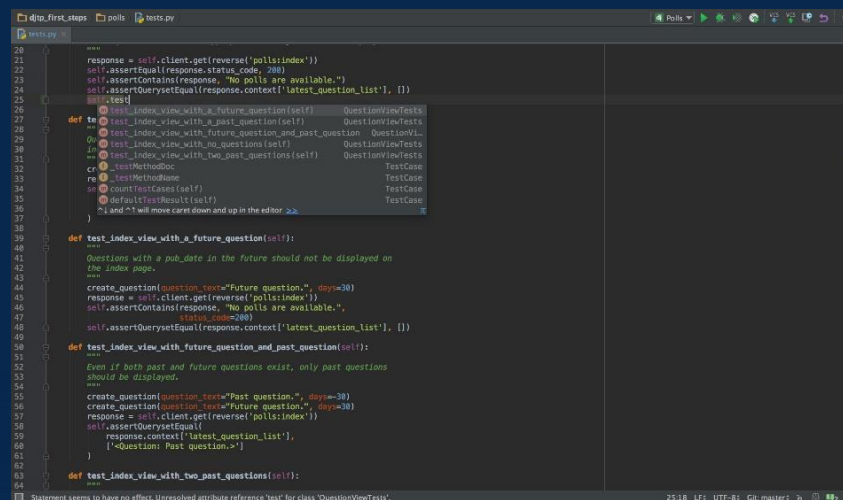




PyCharm

<https://www.jetbrains.com/pycharm/>

PyCharm is a dedicated Python IDE providing a wide range of essential tools for Python developers, tightly integrated to create a convenient environment for productive Python, web, and data science development.

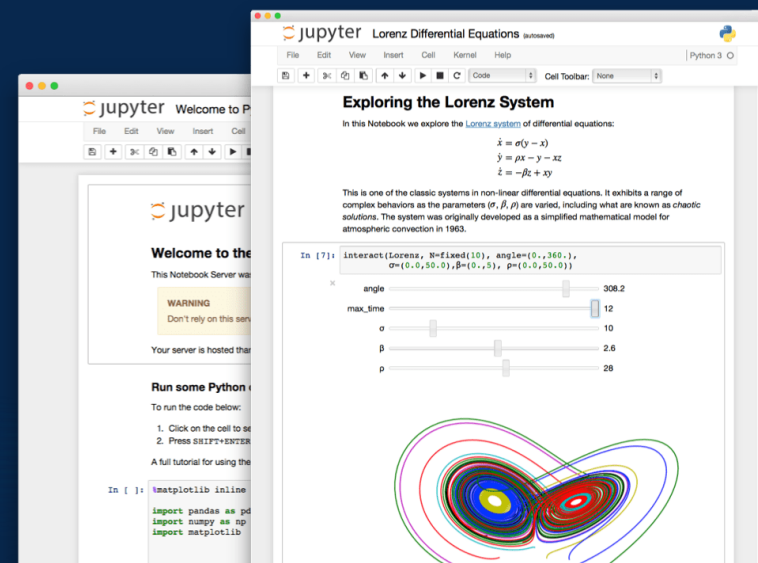




Jupyter Notebook

<https://jupyter.org/>

The Jupyter Notebook is an open-source web application that allows you to create and share documents that contain live code, equations, visualizations and narrative text. Uses include: data cleaning and transformation, numerical simulation, statistical modeling, data visualization, machine learning, and much more.





Summary

This chapter introduces what Python is, why people like Python, how to use Python and common Python IDEs.





More Information

Online learning website

➤ <https://e.huawei.com/en/talent/#/home>

Huawei Knowledge Base

➤ <https://support.huawei.com/enterprise/en/knowledge?lang=en>

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每个组织，构建万物互联的智能世界。

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organization for a fully connected,
intelligent world.

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