

Python Programming Examples

Python (programming language)

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Python is dynamically type-checked and garbage-collected. It supports multiple programming paradigms, including structured (particularly procedural), object-oriented and functional programming.

Guido van Rossum began working on Python in the late 1980s as a successor to the ABC programming language. Python 3.0, released in 2008, was a major revision not completely backward-compatible with earlier versions. Recent versions, such as Python 3.12, have added capabilities and keywords for typing (and more; e.g. increasing speed); helping with (optional) static typing. Currently only versions in the 3.x series are supported.

Python consistently ranks...

Python syntax and semantics

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The syntax of the Python programming language is the set of rules that defines how a Python program will be written and interpreted (by both the runtime system and by human readers). The Python language has many similarities to Perl, C, and Java. However, there are some definite differences between the languages. It supports multiple programming paradigms, including structured, object-oriented programming, and functional programming, and boasts a dynamic type system and automatic memory management.

Python's syntax is simple and consistent, adhering to the principle that "There should be one—and preferably only one—obvious way to do it." The

language incorporates built-in data types and structures, control flow mechanisms, first-class functions, and modules for better code reusability and organization...

History of Python

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The programming language Python was conceived in the late 1980s, and its implementation was started in December 1989 by Guido van Rossum at CWI in the Netherlands as a successor to ABC capable of exception handling and interfacing with the Amoeba operating system. Van Rossum was Python's principal author and had a central role in deciding the direction of Python (as reflected in the title given to him by the Python community, Benevolent Dictator for Life (BDFL)) until stepping down as leader on July 12, 2018. Python was named after the BBC TV show Monty Python's Flying Circus.

Python 2.0 was released on October 16, 2000, with many major new features, such as list comprehensions, cycle-detecting garbage collector, reference counting, memory management and support for Unicode, along with a change...

Monty Python

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Monty Python, also known as the Pythons, were a British comedy troupe formed in 1969 consisting of Graham Chapman, John Cleese, Terry Gilliam, Eric Idle, Terry Jones and Michael Palin. The group came to prominence for the sketch comedy television series Monty Python's Flying Circus, which aired on the BBC from 1969 to 1974. Their work then developed into a larger collection that included live shows, films, albums, books, and musicals; their influence on comedy has been compared to the Beatles' influence on music. Their sketch show has been called "an important moment in the evolution of television comedy".

Monty Python's Flying Circus was loosely structured as a sketch show, but its innovative stream-of-consciousness approach and Gilliam's animation skills pushed the boundaries of what was...

Tacit programming

pipes. Tacit programming can be illustrated with the following Python code. A sequence of operations such as the following: `def example(x): return baz(bar(foo(x)))`

Tacit programming, also called point-free style, is a programming paradigm in which function definitions do not identify the arguments (or "points") on which they operate. Instead the definitions merely compose other functions, among which are combinators that manipulate the arguments. Tacit programming is of theoretical interest, because the strict use of composition results in programs that are well adapted for equational reasoning. It is also the natural style of some programming languages, including APL and its derivatives, and concatenative languages such as Forth. The lack of argument naming gives point-free style a reputation of being needlessly obscure, hence the epithet "pointless style".

Unix scripting uses the paradigm with pipes.

Anonymous function

Dynamic programming language, more readable, and less error-prone than calling a named function. The following examples are written in Python 3. When

In computer programming, an anonymous function (function literal, expression or block) is a function definition that is not bound to an identifier. Anonymous functions are often arguments being passed to higher-order functions or used for constructing the result of a higher-order function that needs to return a function.

If the function is only used once, or a limited number of times, an anonymous function may be syntactically lighter than using a named function. Anonymous functions are ubiquitous in functional programming languages and other languages with first-class functions, where they fulfil the same role for the function type as literals do for other data types.

Anonymous functions originate in the work of Alonzo Church in his invention of the lambda calculus, in which all functions...

Python Imaging Library

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Python Imaging Library is a free and open-source additional library for the Python programming language that adds support for opening, manipulating, and saving many different image file formats. It is available for Windows, Mac OS X and Linux. The latest version of PIL is 1.1.7, was released in

September 2009 and supports Python 1.5.2-2.7.

Development of the original project, known as PIL, was discontinued in 2011. Subsequently, a successor project named Pillow forked the PIL repository and added Python 3.x support. This fork has been adopted as a replacement for the original PIL in Linux distributions including Debian and Ubuntu (since 13.04).

Example-centric programming

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Example-centric programming is an approach to software development that helps the user to create software by locating and modifying small examples into a larger whole. That approach can be helped by tools that allow an integrated development environment (IDE) to show code examples or API documentation related to coding behaviors occurring in the IDE. “Borrow” tactics are often employed from online sources, by programmers leaving the IDE to troubleshoot.

The purpose of example-centric programming is to reduce the time spent by developers searching online. Ideally, in example-centric programming, the user interface integrates with help module examples for assistance without programmers leaving the IDE. The idea for this type of “instant documentation” is to reduce programming interruptions. The...

IronPython

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IronPython is an implementation of the Python programming language targeting the .NET and Mono frameworks. The project is currently maintained by a group of volunteers at GitHub. It is free and open-source software, and can be implemented with Python Tools for Visual Studio, which is a free and open-source extension for Microsoft's Visual Studio IDE.

IronPython is written entirely in C#, although some of its code is automatically generated by a code generator written in Python.

IronPython is implemented on top of the Dynamic Language Runtime (DLR), a library running on top of the Common Language Infrastructure that provides dynamic typing and dynamic method dispatch, among other things, for dynamic languages. The DLR is part of the .NET Framework 4.0 and is

also a part of Mono since version...

General-purpose programming language

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In computer software, a general-purpose programming language (GPL) is a programming language for building software in a wide variety of application domains. Conversely, a domain-specific programming language (DSL) is used within a specific area. For example, Python is a GPL, while SQL is a DSL for querying relational databases.

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