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PYTHON

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Quick Overview

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HISTORY

- Python was conceived in the late 1980s by Guido van Rossum at Centrum Wiskunde Informatica (CWI) in the Netherlands as a successor to the ABC language (itself inspired by SETL), capable of exception handling and interfacing with the Amoeba operating system.
- Its implementation began in December 1989. Van Rossum's long influence on Python is reflected in the title given to him by the Python community: Benevolent Dictator For Life (BDFL) – a post from which he gave himself permanent vacation on July 12, 2018.
- Python 2.0 was released on 16 October 2000 with many major new features, including a cycle-detecting garbage collector and support for Unicode.

FEATURES

- Python is a multi-paradigm programming language. Object-oriented programming and structured programming are fully supported, and many of its features support functional programming and aspect-oriented programming (including by metaprogramming and metaobjects (magic methods)).
- Many other paradigms are supported via extensions, including design by contract and logic programming.
- Python uses dynamic typing, and a combination of reference counting and a cycle-detecting garbage collector for memory management.
- It also features dynamic name resolution (late binding), which binds method and variable names during program execution.

INBUILT OBJECTS

Types	Mutability	Description
bytes	Immutable	Sequence of bytes
str	Immutable	A Sequence of unicode codepoints
int	Immutable	Integer of unlimited magnitude
float	Immutable	Floating Point Number
bool	Immutable	Boolean value
list	Mutable	List, can contain mixed types
set	Mutable	Unordered set, contains no duplicates
dict	Mutable	Associative arrays, with key-value pairs

OPERATORS

Operator	Description
+ Addition	Adds values on either side of operator.
- Substraction	Substracts right operand from left operand.
* Multiplication	Multiply operands on either side.
/ Division	Divide right operand from the left operand.
% Modulus	Gives Remainder.
** Division	Power of left raised by right operand.

DEFINING THE FUNCTIONS

You can define functions to provide the required functionality. Here are simple rules to define a function in Python.

- Function blocks begin with the keyword def followed by the function name and parentheses (( )).
- Any input parameters or arguments should be placed within these parentheses. You can also define parameters inside these parentheses.
- The code block within every function starts with a colon (:) and is indented.
- The statement return [expression] exits a function, optionally passing back an expression to the caller. A return statement with no arguments is the same as return None.

FUNCTIONS SYNTAX

Function Declaration

```
def FunctionName (params):
    # body of the function
    Statements we want to execute
```

Function Calling

```
FunctionName (args)
```

Control Structure

FOR LOOP

```
for i in iterable :
    # body of the loop
    Statements we want to execute
```

WHILE LOOP

```
while condition :
    # body of the loop
    Statements we want to execute
```

IF STATEMENT

```
if condition :
    # body
    Statements we want to execute
```

CONTROL STRUCTURES

IF-ELSE STATEMENT

```
if condition :
    # body
    Statements we want to execute
else :
    # body
    Statements we want to execute
```

CONTROL STRUCTURES

ELSE-IF STATEMENT

```
if condition1 :
    # body
    Statements we want to execute
elif condition2 :
    # body
    Statements we want to execute
```

REFERENCES

[1] Python Official Docs
`https://www.python.org/doc/`

[2] Tutorials Point
`https://www.tutorialspoint.com/python/`

[3] GeeksForGeeks
`https://www.geeksforgeeks.org/python-programming-language/`