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Key properties of Python

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1. Indentation based
2. Very-high-level
3. Interpreted: interactive, dynamic but slow
4. Object-oriented: "Everything is an object"
5. Partial functional programming support
6. Flexible and versatile: plenty of syntactic sugar
7. Glue language: easy to communicate with programs in other language
8. Easy to hook built-in utilities
9. Powerful libraries and strong community

Data structures

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1. Numbers
2. Strings and bytes
3. Tuples
4. List
5. Dictionary
6. Set

Basic operations

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1. Methods as attributes and objects
2. Pack and unpack
3. Keyword `del`: remove reference
4. Iterable as sequence

Flow control statements

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1. Clause `if-elif-else`
2. Clause (`for`, `in`)-`else`: range-based loop
3. Clause `break`, `continue`, `pass`
4. Clause `with-as`: automatic clean up

Exception handling

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1. Clause `try-except-else-finally`
2. Keyword `raise`
3. Class `Exception`: inheritance-based exception handling

Functions

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1. Keyword `def`
2. Positional arguments and keyword arguments
3. Arbitrary argument lists: dynamic argument processing
4. Documentation strings: in-line helps and `help()`

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1. Keyword `class`
2. Method `__init__()`
3. Class objects
4. Instance objects
5. Method objects
6. Class variables and instance variables

Modules

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1. Keyword `import`, `from` and `as`
2. Attribute `__name__`
3. Function `dir()` and `help()`

Functional programming utilities

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1. Lambda expressions
2. Iterables and iterators: lazy evaluation by `iter()` and `next()`, implemented by `__iter__()` and `__next__()`
3. Generator, `yield`
4. Comprehensions: list, dict, set and generator

Iterables manipulating functions

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1. Function `items()`
2. Function `enumerate()`
3. Function `zip()`
4. Function `reversed()`
5. Function `sorted()`

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Input and Output

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1. Method `format` of class `str`, or `printf`-style `%`
2. Function `open()` and `close()`
3. Method `read()` and `write()`

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Dunder names

Dunder methods, or special methods, are a series of methods meant to be called by Python.

1. Module related: `__name__`, `__version__`
2. Type cast: `__str__`, `__int__`, `__float__`
3. Formatting: `__repr__`, `__format__`, `__bytes__`
4. Emulating callables: `__call__`
5. Emulating iterables: `__iter__`, `__next__`
6. Operators: `__le__`, `__lt__`, `__add__`

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1. Python Enhancement Proposals
2. PEP 8: Style Guide for Python Code
3. PEP 7: Style Guide for C Code
4. PEP 20: The Zen of Python
5. Try `import this` in interactive mode

Two key ideas of PEP 8

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1. Readability counts
2. Consistency

Guidelines in PEP 8

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1. Use 4 space per indentation level
2. Maximum line length of 79 characters
3. Blank lines
4. UTF-8 encoding
5. White spaces
6. Naming conventions

Related tool chains

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1. Anaconda: a package and environment manager of Python
2. Package `venv`: a virtual environment manager
3. Program `pip` and PyPI: python package manager
4. Jupyter notebook: Web interactive Python application, especially live code demonstration and visualization