Thankfulness for PEPs

PEP 8 - Style Guide for Python Code
PEP 255 - Simple Generators
and more

PEP 8 - Style Guide for Python

Readability Counts

“One of Guido's key insights is that code is read much more often than it is written.”

Consistency is important

A style guide is about consistency. Consistency with this style guide is important. Consistency within a project is more important. Consistency within one module or function is the most important.

However, know when to be inconsistent -- sometimes style guide recommendations just aren't applicable. When in doubt, use your best judgment.

And don't hesitate to ask!

As a example, single-quoted strings and double-quoted strings are the same. Pick one and stick to it.

Code Layout

Hanging indent

Line break before binary operator

Imports on separate lines

Use white space in a way to assist readability

Module level dunder names (__x__) placed after the module docstring, but before any imports (except from __future__ imports)

Naming Conventions

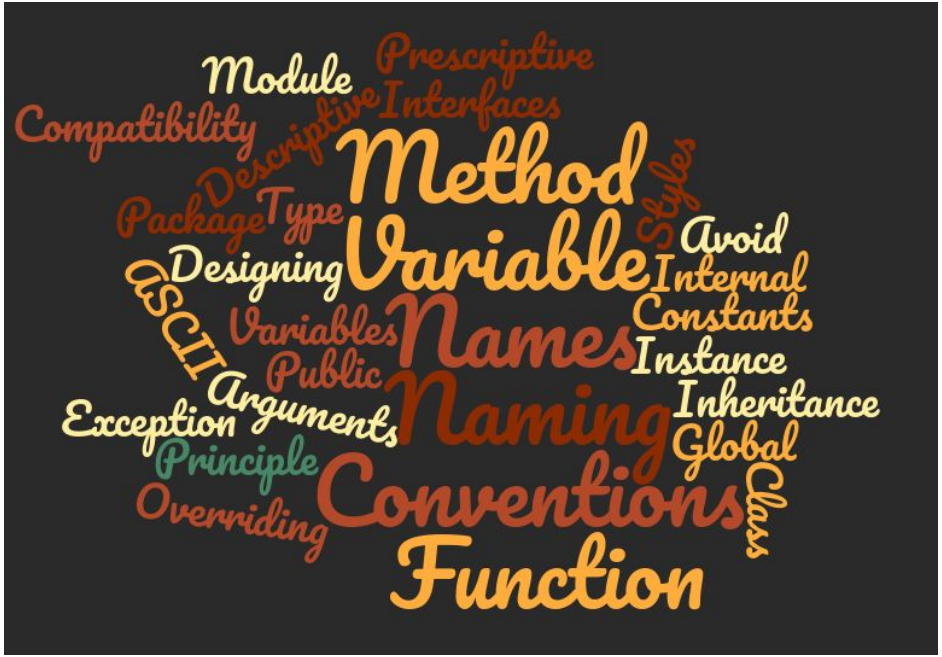
lowercase or lower_case_with_underscores commonly seen

Class names normally use CapWords convention

Use **self** for first argument to instance methods; use **cls** for first argument to class methods.

One leading underscore for non-public methods or instance variables.

Use two leading underscores for name mangling.



PEP 8 Tools

IDE integrated formatting tool, e.g. PyCharm

autopep8

pep8

Warning: be aware to manage possible version control merge-conflicts, unclear code modification history, code review difficulties

PEP 255 - Simple Generators and more ...
PEP 289 Generator Expressions

But first, Iterators ... what are they?

An iterator is an object that can be iterated (looped) upon, such as lists, strings, or dictionaries.

A class must implement __iter__ and __next__ methods for iterator functionality.

iter() creates the iterator, while next() steps through the items of an iterator.

Iterators may only be iterated over once.

Next, Simple Generators … what are those??

A simple generator allows an easier path to iterator behavior by producing a sequence of results.

Generators added **yield** keyword to Python.

Some have compared yield to return as a value is returned., But yield saves the state of the function. The next time the function is called, execution continues from the next step.

```
def generate_ints(n):
    for i in range(n):
        yield i
gen = generate_ints(3)    |    next(gen)  # 0    |    next(gen)  # 1    |    next(gen)    # 2
```

Simple Generators …

Calling the generator function allows iteration over the data once.

If there's a need to iterate more than once, the generator function must be called again.

Remember, this is not like iterating over a list, string, or dictionary, which may be done as many times as one wishes.

Wait, there's more ... Generator Expressions

Or sneaking in PEP 289 just for fun and memory savings.

```
a = [1, 2, 3, 4]
b = (2*x for x in a)
# b is a generator object -- notice the parenthesis use
for i in b:
    print(i, end=" ")
# 2 4 6 8

for x in a:                    # alternatively as a simple generator
    yield(2*x)
```

Generator Expressions Example

From PyCon 2008 “Generator Tricks for System Programmers” by David Beazley
Total bytes transferred from log values (http://www.dabeaz.com/generators/Generators.pdf)

```
with open(“access-log”) as wwwlog:
    byte_column = (line.rsplit(None,1)[1] for line in wwwlog)
    bytes_sent = (int(x) for x in byte_column if x != ‘-’)
    print(“Total “, sum(bytes_sent)
```

Follow code as a processing pipeline.
access-log -> wwwlog -> byte_column -> bytes_sent -> sum() -> total
Each step is using a generator.

Thanks!

https://pep8.org

How - and why - you should use Python Generators
https://medium.freecodecamp.org

http://www.dabeaz.com