Python Clean Code

**Clean code** is a set of rules and principles that helps to keep our code readable, maintainable, and extendable.

How to write clean functions:

* A function should be **small** because it is easier to know what the function does.
* A function should not perform multiple tasks. It should be assigned **a single task**. If necessary, we will increase the number of functions, but one function should do one task.
* We should **avoid duplication** because it is redundant and if we make a change to one piece of code, we need to remember to make the same change to another piece of code. If we forget to do so, we will introduce bugs into our code.
* Names should be **descriptive**. It is better to write long names rather than write vague names. A long descriptive name is better than a long descriptive comment.
* A function **should not have more than 3 arguments** since it is a sign that the function is performing multiple tasks. It is also difficult to test a function with more than 3 different combinations of variables.

Suggestion: If a function has more than 3 arguments, you can consider turning it into a class.

* Abstraction?
* Function names should be a verb

Naming conventions in python:

* **class** names should be **CamelCase** (MyClass)
* **variable** names should be **snake\_case** and **all lowercase** (first\_name)
* **function** names should be **snake\_case** and **all lowercase** (quick\_sort())
* **constants** should be **snake\_case** and **all uppercase** (PI = 3.14159)
* **modules** should have short, **snake\_case** names and **all lowercase** (numpy)
* single quotes and double quotes are treated the same (just pick one and be consistent)

Line formatting:

* indent using **4 spaces** (spaces are preferred over tabs)
* **lines** should not be longer than **79 characters**
* **avoid multiple statements** on the **same line**
* **top-level function** and **class definitions** are surrounded with **two blank lines**
* **method definitions** inside a class are surrounded by a **single blank line**
* **imports** should be on **separate lines**

Comments:

* comments should not contradict the code
* comments should be complete sentences

Variables:

* We should use **nouns** for variable names
* Names should be **descriptive/intention-revealing.** Other developers should be able to figure out what a variable stores just by reading its name.
* We should always use pronounceable names.