Clean Code

Principle of clean code includes:

1- Follow standard conventions.
2- Keep it simple stupid. Simpler is always better. Reduce complexity as much as possible.
3- Boy scout rule. Leave the campground cleaner than you found it.
4- Always find root cause. Always look for the root cause of a problem.

Understandability tips:

1- Be consistent. If you do something a certain way, do all similar things in the same way.

Use explanatory variables.

2- Encapsulate boundary conditions. Boundary conditions are hard to keep track of. Put the processing for them in one place.
3- Avoid logical dependency. Don't write methods which works correctly depending on something else in the same class.
4- Avoid negative conditionals.

Design rules:

1- Keep configurable data at high levels.
2- Prefer polymorphism to if/else or switch/case.
3- Separate multi-threading code.
4- Prevent over-configurability.
5- Follow Law of Demeter. A class should know only its direct dependencies.

Some steps to write clean code:

1- Naming:

The variables, constants, functions and anything with name must be description and unambiguous name.

```
In [1]: #bad naming
        d=7 #number number of days
        #good naming
        num_days=7
```

2- Function:

Must be small, do one thing.

n [5]:
```
#bad function
def operations(x,y):
    sum=x+y
    mul=x*y
    return sum,mul
#good
def sum(x,y):
    return x+y
def mul(x,y):
    return x*y
```

3- **Comment:**
   Explain my code in a few words (small description).
4- **Loops:**
   Should detect my jobs and choose for loop or while or do while.
   Iteration variables are better to use I, j, k because they are known by programmers.

```
#bad
for n in range(10):
    print(n)
#good
for i in range(10):
    print(i)
```

5- **Condition:**
   Choosing if or switch case depended on my function.
6- **Objects and data structures:**
   Hide internal structure, do one thing and avoid hybrids structure.

My resources:

- https://maharatech.gov.eg/mod/hvp/view.php?id=11788
- Summary of 'Clean code' by Robert C. Martin (github.com)