Good Coding Practices for Python

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Introduction

- Code is read much more often than it is written
- PEP 8 -- Style Guide for Python Code
- >>> import this

Why is this important?

- A lot of research is collaborative
- Often asked to read/edit other people's code, or share your code with other people
- Becomes a lot easier to understand someone's code if it's easy to read
- Makes compatibility with other code easier

Consistency

- Consistent code is easier to read and understand
- Priorities for consistency:
  1. Within module or function
  2. Within a project
  3. With the Python style guide
- However there are times when you can't keep consistency
  - Never break backwards compatibility just to follow a style guide

Module imports

- Always at top (after comments and docstrings)
- Priority for imports
  1. Standard library
  2. Third party modules
  3. Local modules

```
import os
import sys

import numpy as np
from astropy.io import fits

import mypkg.module
from . import module
```

- Separated by one line
- Try and use absolute imports, explicit relative imports are also okay
- Avoid using from <module> import *
- Check to see if module has a standard import style

General Layout

- 4 spaces per indentation level
- Spaces are better than tabs
- Limit lines to 79 characters
- Avoid trailing whitespace anywhere
- Use whitespace appropriately around binary operators with your own judgement

Yes:

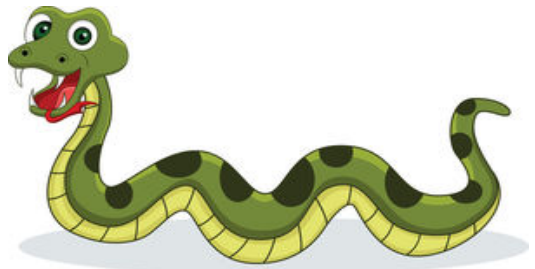
```
i = i + 1
submitted += 1
x = x*2 - 1
hypot2 = x*x + y*y
c = (a+b) * (a-b)
```

No:

```
i=i+1
submitted +=1
x = x * 2 - 1
hypot2 = x * x + y * y
c = (a + b) * (a - b)
```

Commenting

- Comments that contradict code are worse than no comments!
- Should be full sentences
- Should be in English unless 100% sure will NEVER be read by someone who doesn't speak your native language
- Use inline comments sparingly and not to state the obvious
- Comments should start with a # and a single space
- Docstrings have their own set of conventions (PEP 257)



Links

- PEP 8: https://www.python.org/dev/peps/pep-0008/
- PEP 20: https://www.python.org/dev/peps/pep-0020/
- PEP 257: https://www.python.org/dev/peps/pep-0257/