Best Practices for Writing Functions: Takeaways

Syntax

DOCSTRINGS

- Get a function's raw docstring (includes leading spaces):

```
print(function_name.__doc__)
```

- Retrieve a better formatted version of the docstring (without leading spaces):

```
import inspect

print(inspect.getdoc(function_name))
```

- Write a Google Style docstring:

```
def function(arg_1, arg_2=42):
    """Description of what the function does.
    Args:
        arg_1 (str): Description of arg_1 that can break onto the next line
          if needed.
        arg_2 (int, optional): Write optional when an argument has a default
          value.
    Returns:
        bool: Optional description of the return value
        Extra lines are not indented.
    Raises:
        ValueError: Include any error types that the function intentionally
          raises.
    Notes:
        See https://www.dataquest.io for more info.
    """
```

Concepts

- A **docstring** is a string written as the first line of a function that describes what the functions does. Docstrings contain some (although usually not all) of these five key pieces of information:
    - What the function does
    - What the arguments are
    - What the return value or values should be
    - Info about any errors raised
    - Anything else you'd like to say about the function
- To access a built-in function's docstring in Jupyter notebook, press "Shift" + "Tab" while the cursor is within the parentheses of the function.
- The "Don't repeat yourself" principle, also known as DRY, states that it's better to wrap repeated logic in a function. The "Do One Thing" principle states that each function should only have a single responsibility. Following these best practices will makes your code more flexible, simpler to test, simpler to debug, and easier to change.
- **Mutable** variables can be changed, whereas **immutable** varibles cannot be changed. There are only a few immutable data types in Python because almost everything is represented as an object.

- Instead of using a mutable variable as a default value in a function, default to None and set the argument in the function, so that your function doesn't behave unexpectedly.

Resources

- Google style docstring guide
- Numpydoc docstring guide