

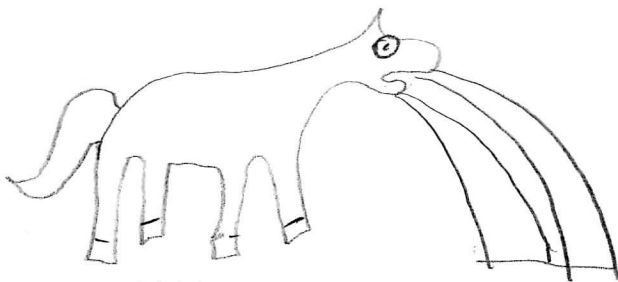
! ALIASING + MUTATION = DANGER ZONE → 'ACTION AT A DISTANCE'

QUESTIONS TO ASK BEFORE ALIASING?

1. IS ALIASING NECESSARY? IS A VARIABLE REDUNDANT?
2. INTRODUCE ALIASES AS CLOSE AS POSSIBLE TO THE VARIABLE DEFINITION.

THE DEFAULT IS NON-MUTATION.

MUTATION IN FUNCTIONS MUST BE EXPLICITLY DEFINED.



FUNCTION
DESIGN
RECIPE
TO AVOID CODE VOMIT

0. NAIL DOWN WHAT THE FUNCTION DOES,
 1. PROVIDE AN EXAMPLE OF USAGE
 2. WRITE A TYPE CONTRACT THAT IDENTIFIES NAME AND TYPE OF EACH PARAMETER.
 3. WRITE AN EXPRESSIVE HEADER ABOVE THE DOCSTRING
 4. PROVIDE A CONCISE DESCRIPTION OF THE FUNCTIONALITY

IF NECESSARY, SPECIFY THE REQUIREMENTS BEYOND THE TYPE CONTRACT AND LABEL THEM 'AS' PRECONDITIONS.

5. TEST

? IS THE TYPE CONTRACT FUNCTIONAL?

TESTING

• DOCTEST

```
IF __name__ == '__main__':  
    import doctest  
    doctest.testmod()
```

INCLUDE IN
EVERY MODULE

• UNITTEST

```
class Test (unittest.TestCase):  
    ...  
    ...  
    self.assertEqual(return_value, expected)  
  
if __name__ == '__main__':  
    unittest.main(...)
```

DOCUMENTATION

• DOCUMENTATION AS PLANNING

→ FORMALIZATION OF THE PLAN

• DOCUMENTATION AS CONTRACTS

→ FORMALIZATION OF THE INTENTION