CPE/CSC 101
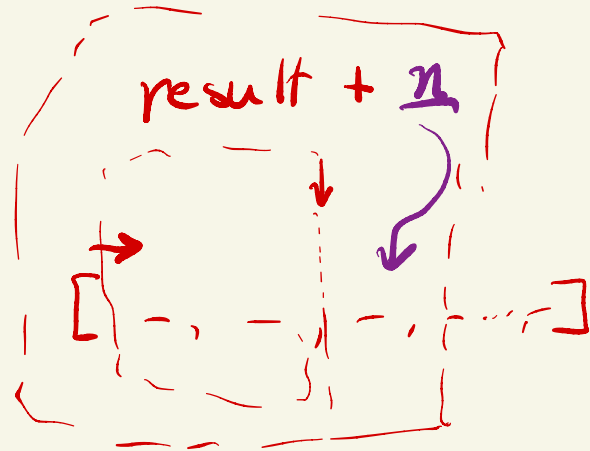
- Functions on Lists

Considerations

- Does every element need to be considered?
  (every element?)

- Do we want the element, its index, or both?
  (element/index?)

- What value is being built while looping?
  (accumulator?)

```python
def sum(nums: List[float]) -> float:
    result = 0
    for n in nums:
        result = result + n
    return result
```

every element? yes
element/index? element
accumulator?

result + n

[-, -, -, -]

```python
def ave ( nums : List [float] ) → float :
    if nums == []:
        return 0          ← early check
                            to prevent
                            error
    total = sum (nums)

    return total / len (nums)
```

<u>Testing</u>

- [2, 4, 1, 9]   ave ⟶ 4

  (0 above the 2, len-1 above the 9)

- []

```python
def test_it( self ):
    self.assertAlmostEqual(
        ave([2,4,1,9]), 4)
```

Search

7 in → [4, 2, 9, 1]

② in →

```python
def search (n: int, nums: List[int]) -> bool:
    for element in nums:
        if element == n:
            return True
        else:
            pass
    return False
[                    ]
```

every element? yes*
element/index? element
accumulator?

```python
def count (n: int, nums: List[int]) -> int:
    result = 0
    for element in nums:
        if element == n:
            result = result + 1

    return result
```