



CL18 – Reference Types and Practice with Lists

Announcements

- EX02 – Wordle due Sunday, March 2
 - while loops!
- Today is the *last day* to submit regrade requests for Quiz 01!
- Quiz 02 on March 7!

```
1  """An example of primitive vs. reference types."""
2
3  a: int = 0
4  b: int = a
5  b += 1
6  print(f"a is: {a}")
7  print(f"b is: {b}")
8
9  c: list[int] = [b, 4]
10 d: list[int] = c
11
12 d.append(13)
13
14 print(c)
```

```
1 def gen(stop: int) -> list[int]:
2     """Generate a list from 0 to stop, not inclusive."""
3     i: int = 0
4     acc: list[int] = []
5     while i < stop:
6         acc.append(i)
7         i = i + 1
8     return acc
9
10
11 print(gen(3))
```

```
17 def mutator(x: int, exes: list[int]) -> int:
18     """An impure function..."""
19     x += 1
20     exes[0] += 1
21     y: int = x + 1
22     print(f"mutator x: {x}, exes: {exes}, y: {y}")
23     return x
24
25
26 x: int = 0
27 exes: list[int] = [0]
28 y: int = 0
29 print(f"global before x: {x}, exes: {exes}, y: {y}")
30 y = mutator(x, exes) + 2
31 print(f"global after x: {x}, exes: {exes}, y: {y}")
```