

# Mutation

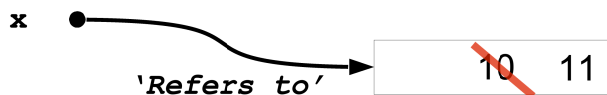


9/12/21

- Mathematics says:  $X = X + 1$  is **contradictory**
  - But Python is not mathematics
- Python says:  $X = X + 1$  is **mutation**
  - The left-hand side (LHS) refers to a value
  - The right-hand side (RHS) changes the LHS
  - X now refers to a new value

```
>>> x = 10
>>> x = x + 1
>>> y = y + 1
```

## Memory Diagram



# Execution Timeline



9/12/21

```
def factorial_loop(number):
    accumulator = 1    # begins at 1
    while number != 0: # repeatedly execute ...
        accumulator = accumulator * number
        number = number - 1
    return accumulator
```

Result = factorial\_loop(4)

Time



Result	number	accumulator
?	4	?
?	4	1
?	3	4
?	2	12
?	1	24
24	0	24

2