

```

my_str = 'Python'
ind = 0
while ind < len(my_str):
    print(my_str[ind] * (ind+1))
    ind += 1

```

my_str = Python
 0 1 2 3 4 5
 ① 2 3 4 5 6

ind = 0

0 < 6 ✓

P x 1 = P

ind = 1

1 < 6

y x 2 = yy

ind = 2

2 < 6

t x 3 = ttt

ind = 3

3 < 6

h x 4 = hhhh

ind = 4

4 < 6 ✓

o x 5 = ooooo
 ②

ind = 5

6 < 6 - false

5 < 6

n x 6 = nnnnnn

ind = 6

lst = [10, 20, 30, 40] → ~~x~~

↳ mutable

lst.append(100)

lst = [10, 20, 30, 40, 100] → x

lst[0] = 111

lst = [111, 20, 30, 40, 100] → x.

str = "python" → ~~x~~

str[0] = 1 → Error X

str.replace("p", "j")

"jython" → y

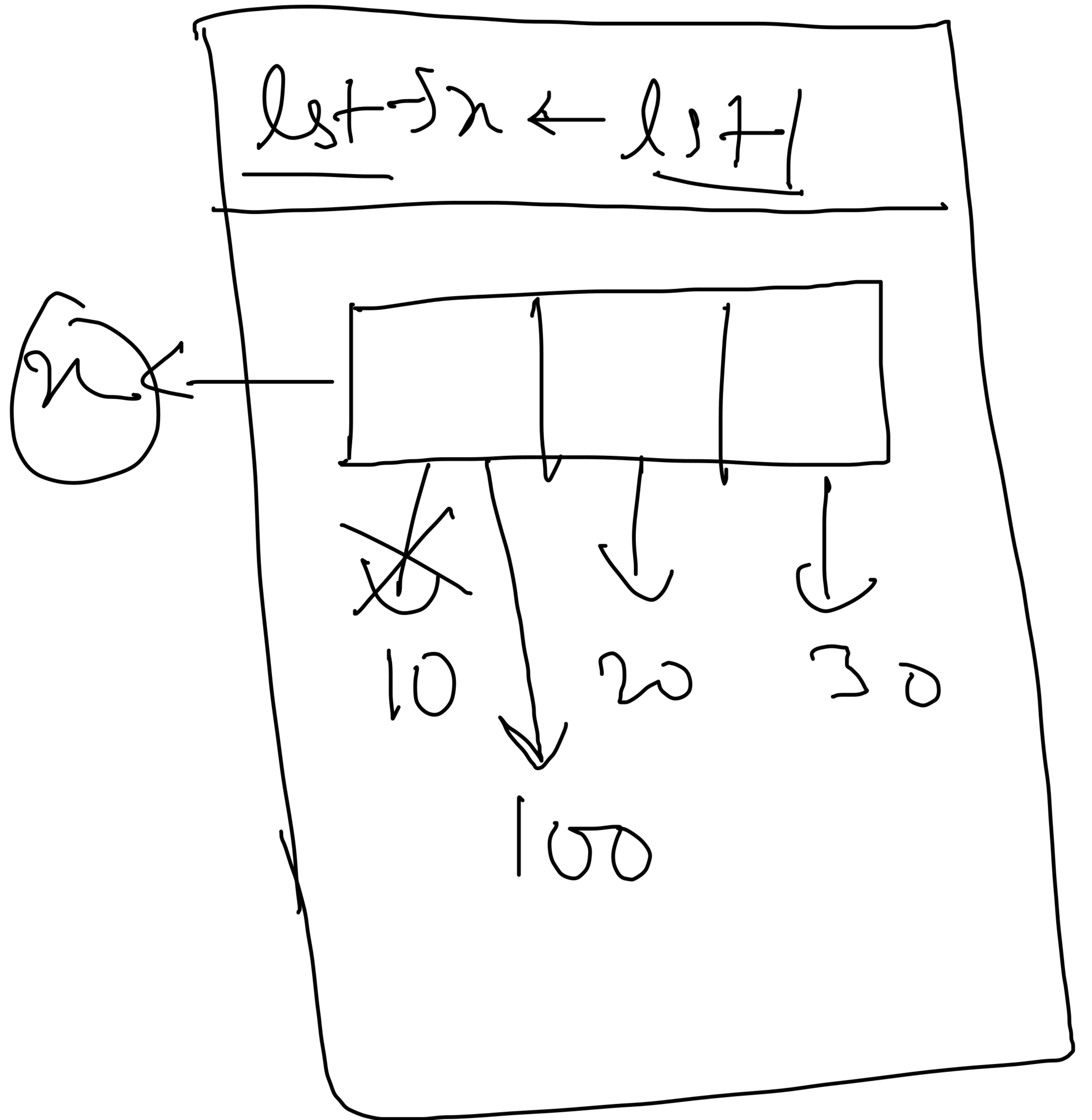
$lst = [10, 20, 30]$

~~$lst = [10, 20, 30]$~~

$lst = lst$

$lst[0] = 100$

aliasing



Shallow copy

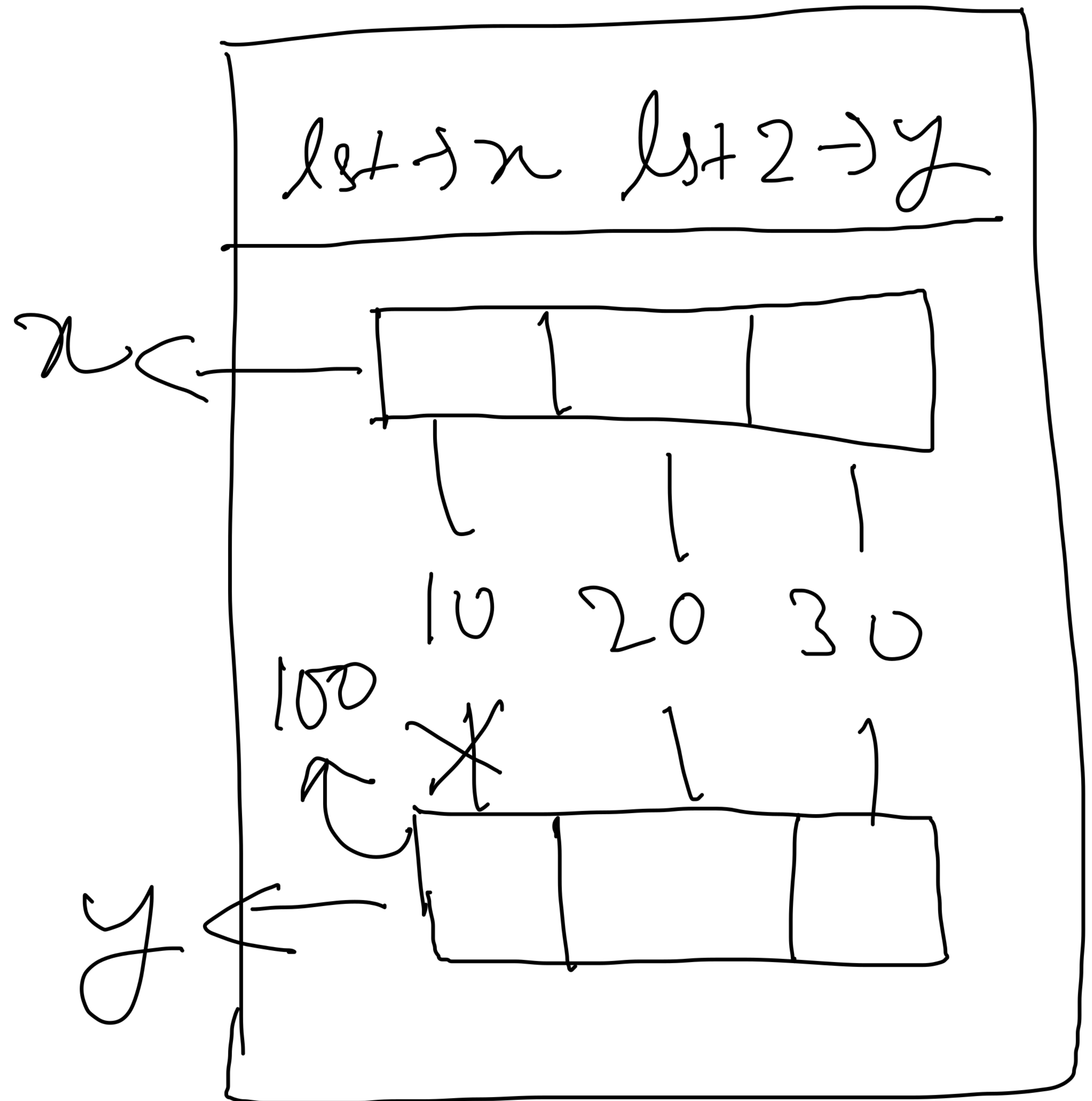
lst = [10, 20, 30]

lst2 = lst[:]

lst2[0] = 111

lst = [10, 20, 30]

lst2 = [111, 20, 30]



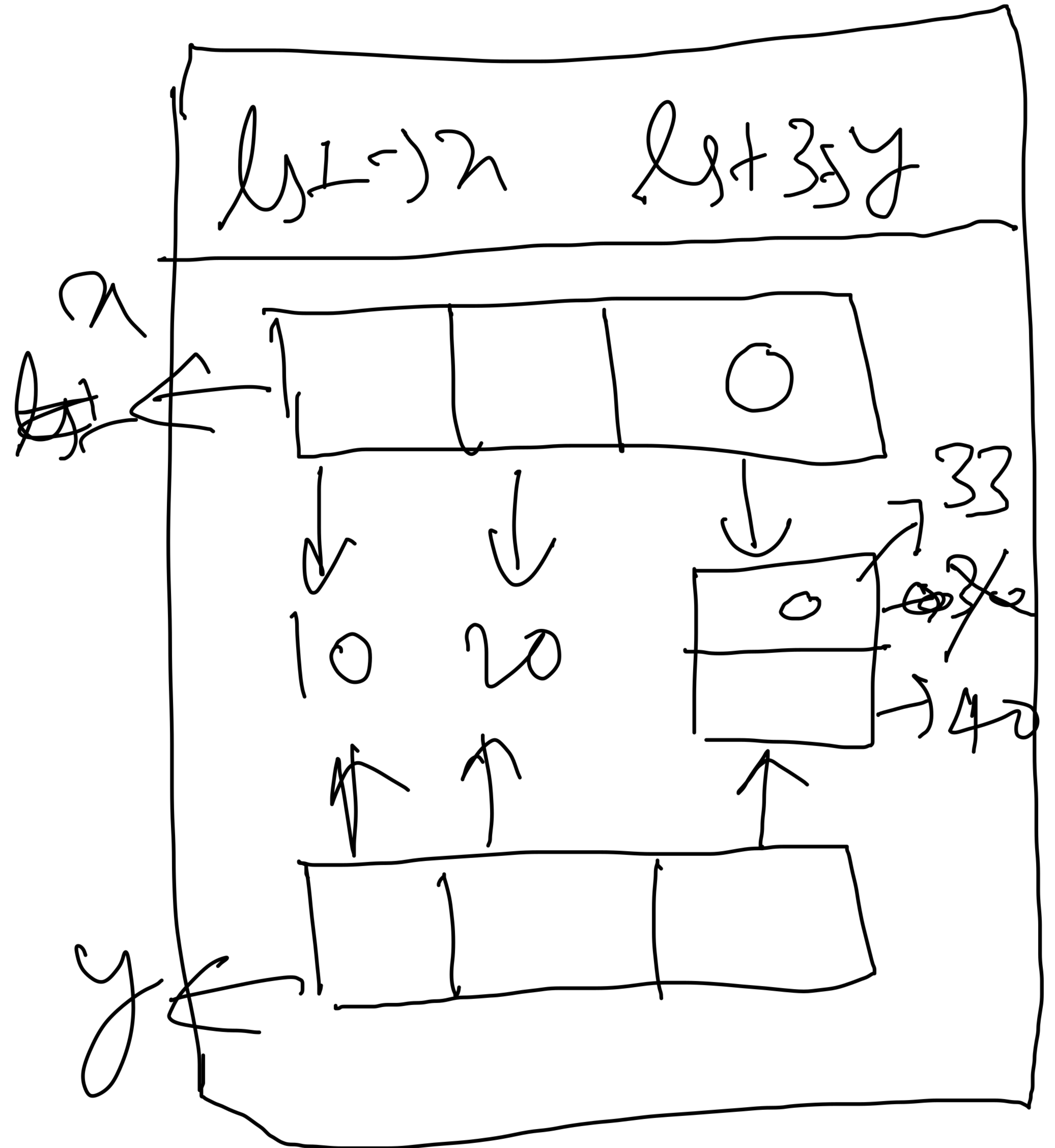
lst = [10, 20, [30, 40]]

lst3 = lst.copy()

lst3[-1][0] = 33

lst = [10, 20, [33, 40]]

lst3 = [10, 20, [33, 40]]



list = [10, 20, [30, 40]]
list_y = deepcopy(list)

list_y[-1][0] = 33

list_y = [10, 20, [33, 40]]

list = [10, 20, [30, 40]]

Deepcopy

