

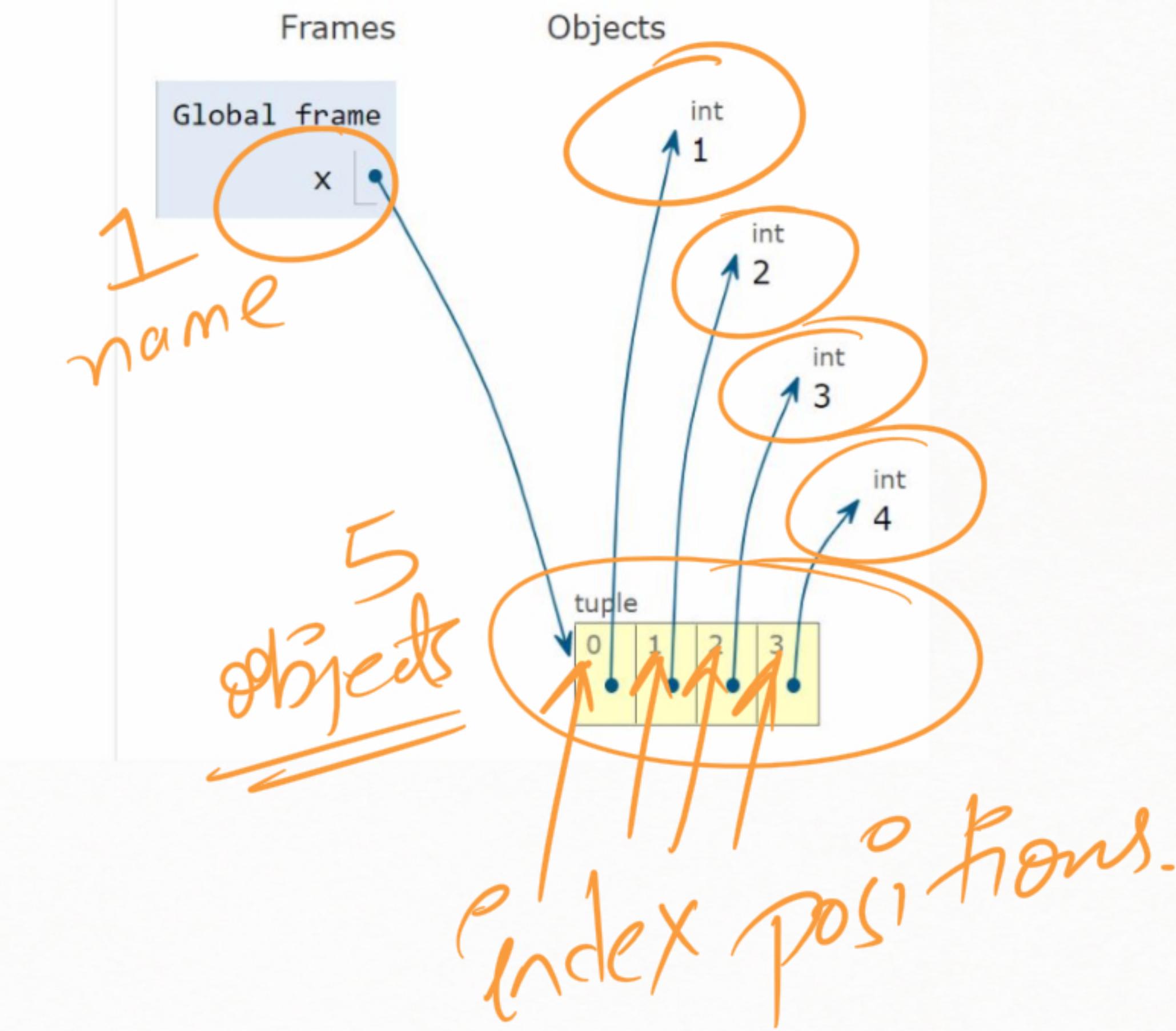
code in Python 3.6

```
x = (1,2,3,4)  
print(x[2])
```

(drag lower right corner to resize code editor)

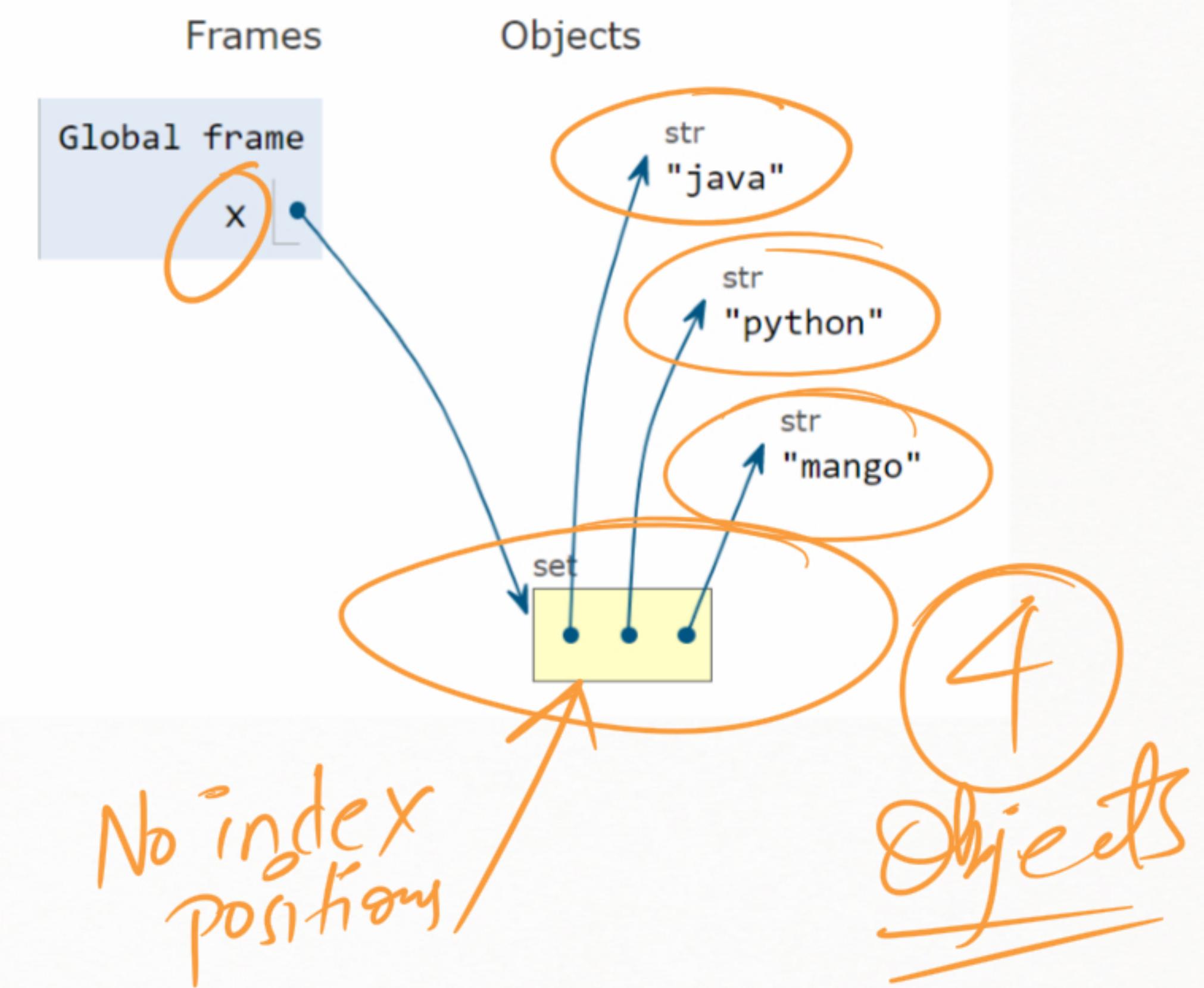
Print output (drag lower right corner to resize)

3



Code in Python 3.6 (drag lower right corner to resize code editor)

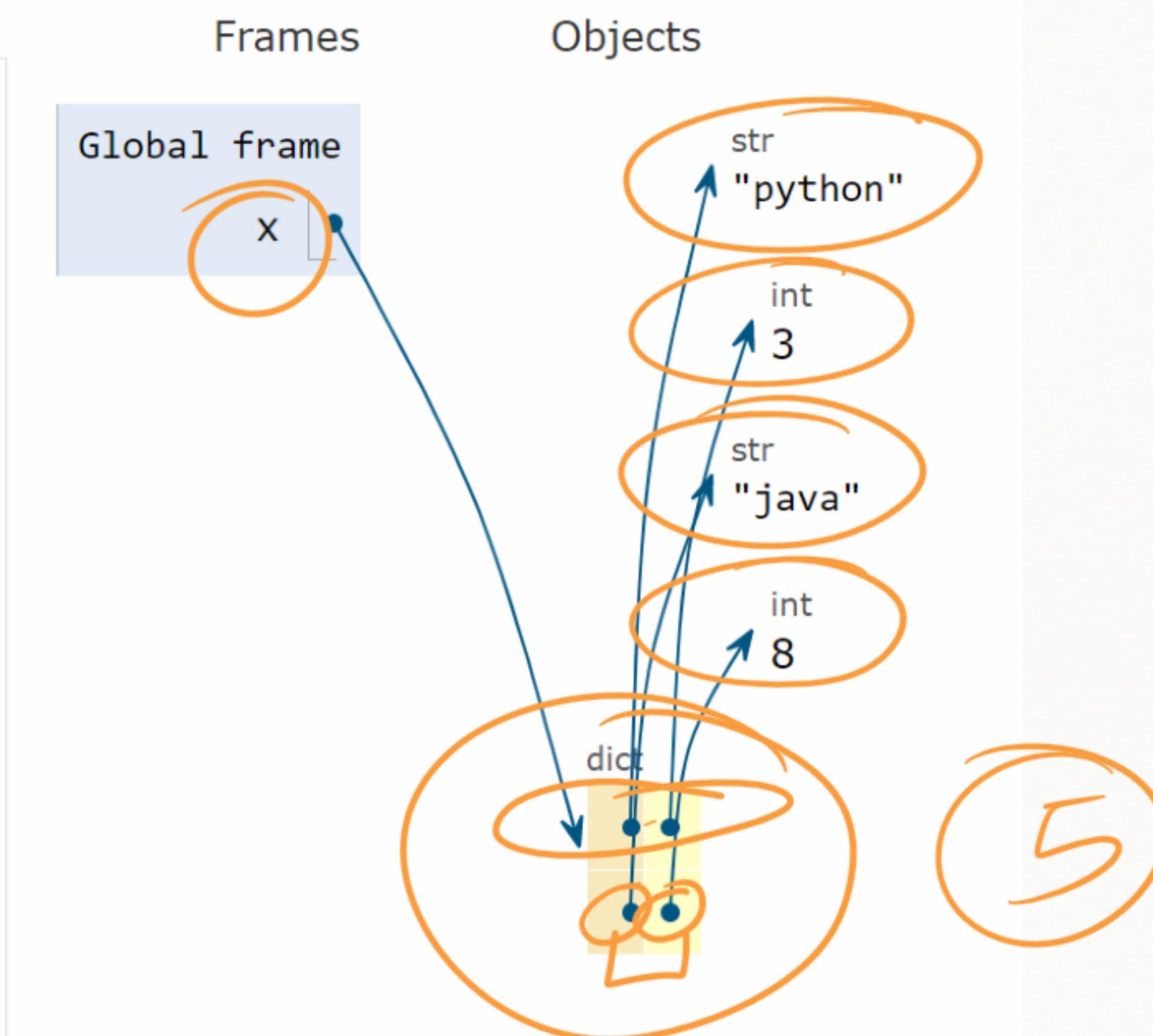
```
x = {'python', 'java', 'mango'}
```



ode in Python 3.6

(drag lower right corner to resize code editor)

```
x = {'python':3, 'java':8}
```



Immutability

Tuples are immutable

$$a = (1, 2)$$

You can not change

Choose pointers.

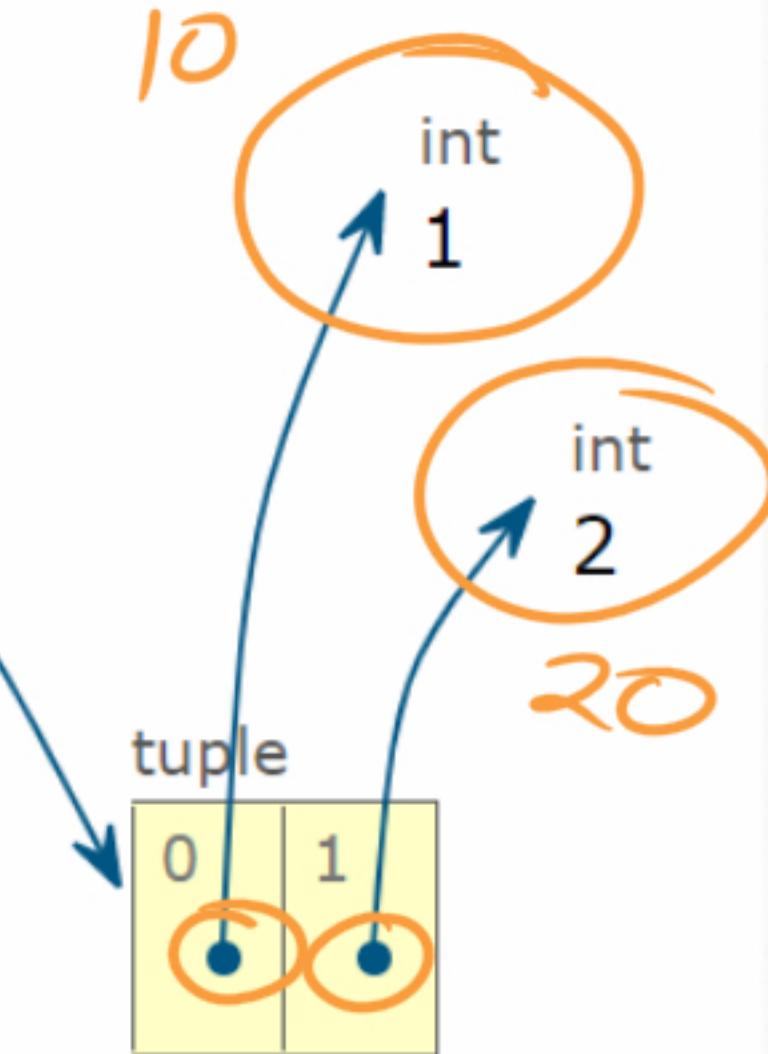
Add X Delete X } edit.
Change X

$$\text{id}(1) = 10$$
$$\text{id}(2) = 20$$

Frames

Global frame
a

Objects

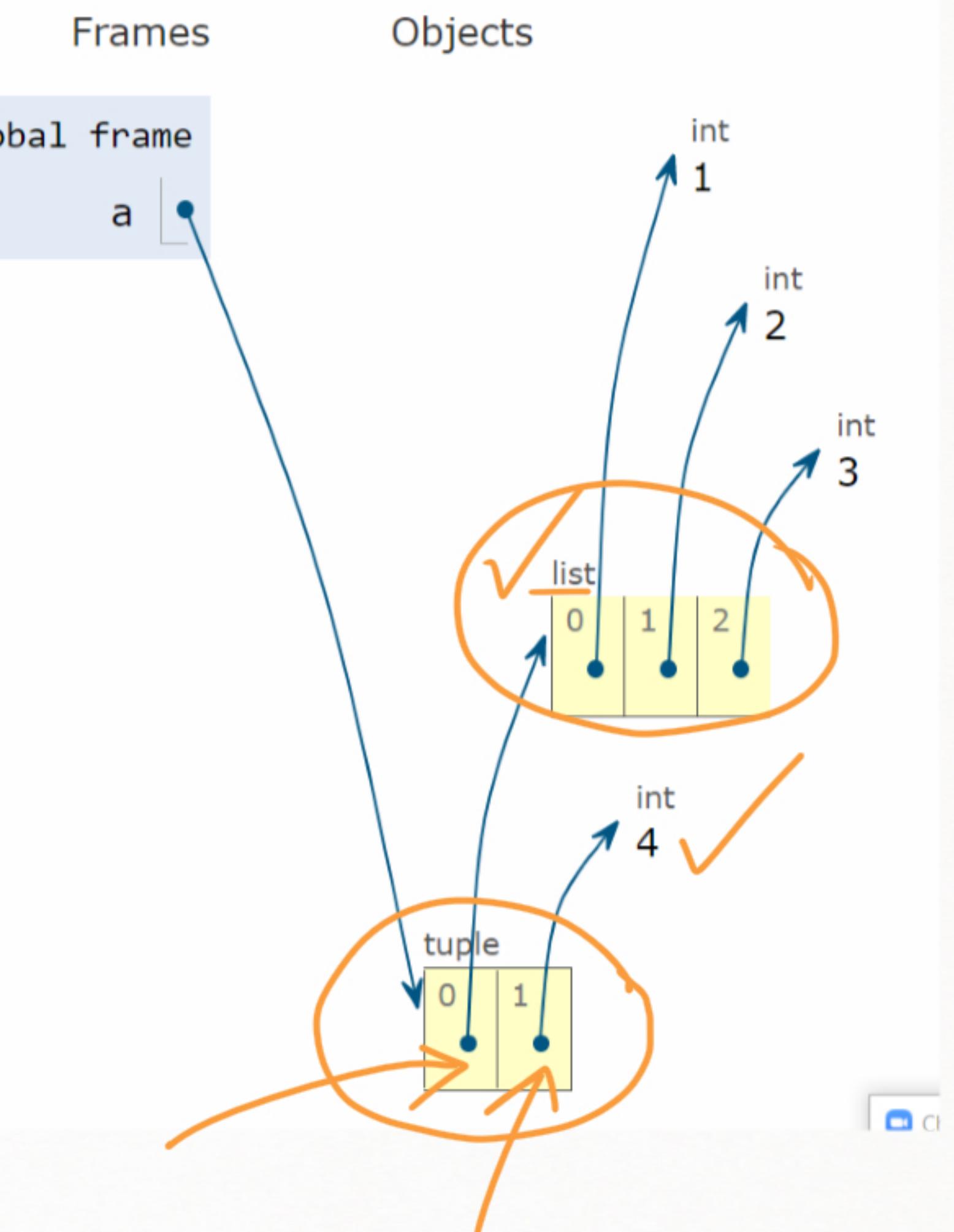


code in Python 3.6

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```
a = ([1,2,3],4)
```

Tuples are immutable
But lists are
mutable



ode in Python 3.6

```
a = ([1,2,3],4)
a[0][0] = 10
a[0][1] = 20
a[0][2] = 30
print(a)
a[0].append(40)
print(a)
```

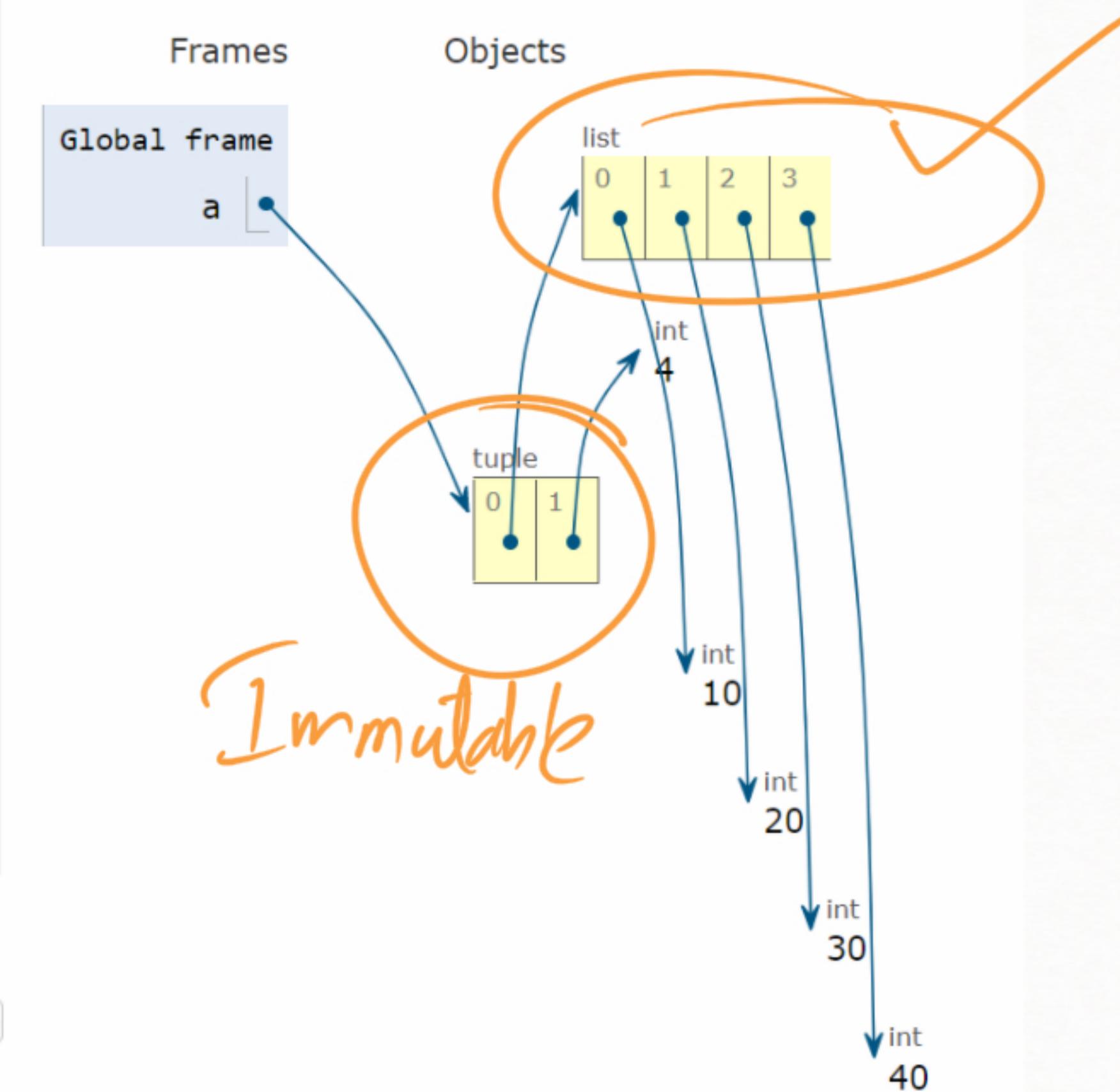
(drag lower right corner to resize code editor)

that just executed
: line to execute

<< First < Prev Next > Last >>

Print output (drag lower right corner to resize)

```
([10, 20, 30], 4)
([10, 20, 30, 40], 4)
```



$a = 50$
 $b = 47.5$
 $c = \text{True}$
 $d = \text{None}$

Immutable

$a \rightarrow \text{"apple"}$
 $b = a$
 $a = a + \text{"mango"}$
 $\rightarrow \text{"apple mango"}$

Strings and Immutability

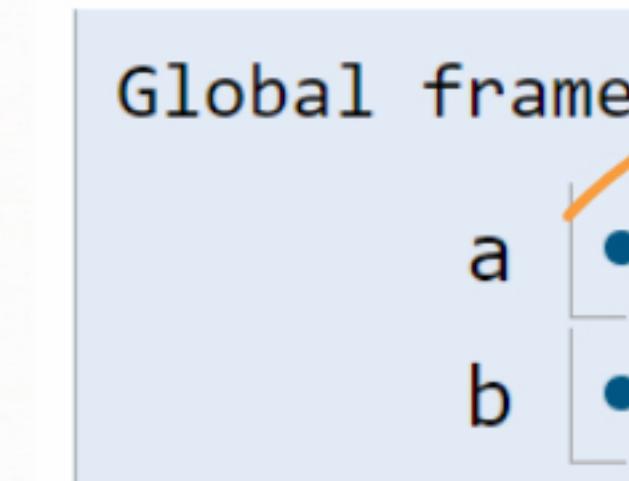
ode in Python 3.6

```
a = 'apple'  
b = a  
print(id(a))  
a = a + ' mango'  
print(id(a))  
print(id(b))
```

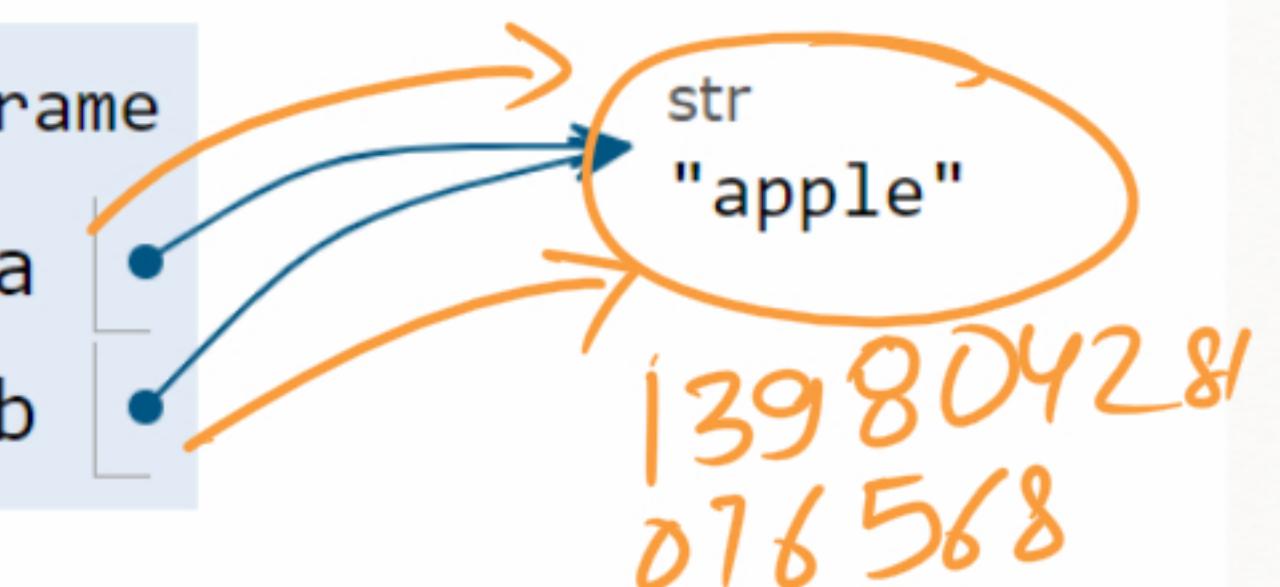
Print output (drag lower right corner to resize)

```
139804281076568  
139804185754864  
139804281076568
```

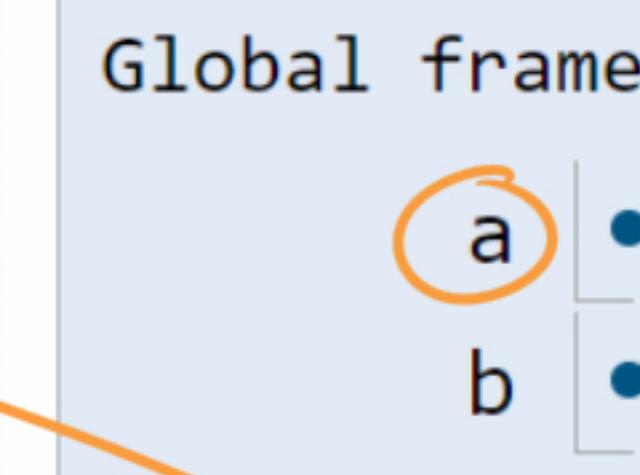
Frames



Objects



Frames



Objects

