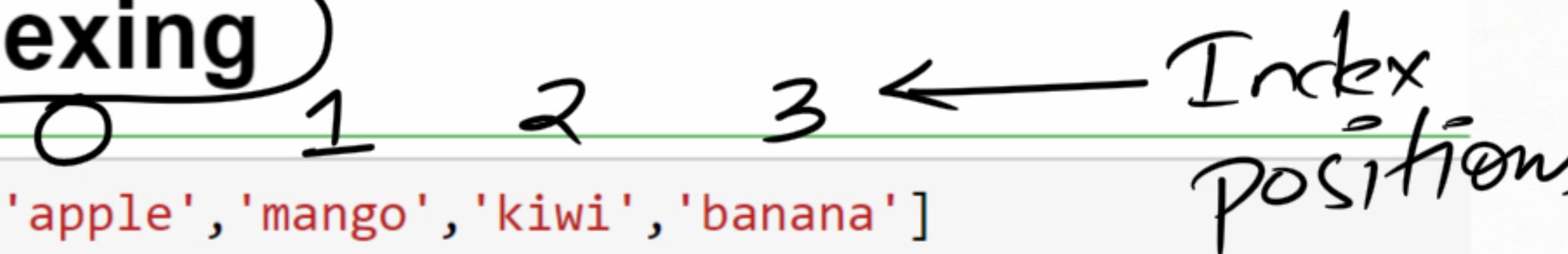


## Indexing

```
In [ ]: x = ['apple', 'mango', 'kiwi', 'banana']
```

# Index Position starts with 0 in python.



Accessing the items present at these index positions is known as indexing.

$x[\underline{\text{Index}} \underline{\text{Position}}]$

$x[0]$  // "apple"  
 $x[1]$  // "mango"

# Indexing

0 1 2 3 4 X

In [ ]: `x = ['apple', 'mango', 'kiwi', 'banana']`

# Index Position starts with 0 in python.

$x[4]$

index out of  
range error

## Indexing

-5      -4      -3      -2      -1

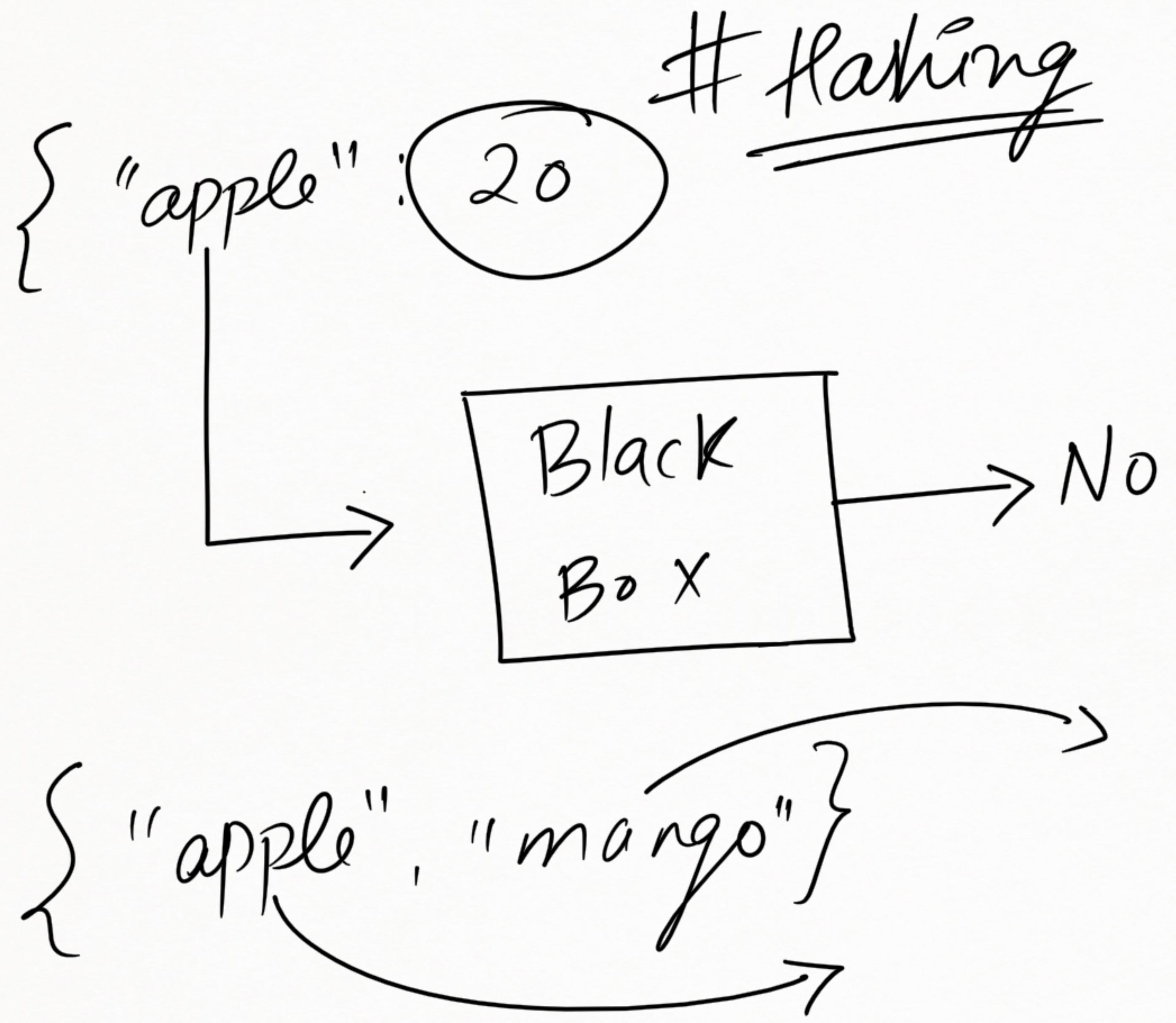
In [ ]: x = ['apple', 'mango', 'kiwi', 'banana']  
# Index Position starts with 0 in python.s|

index  
out of  
range

x[-1] // banana

x[-2] // Kiwi

x[-5] // index out of range error.



In [38]: `x = 'Mango123$#~!'`

O  
↓12345678910!!  
↑↑

In [39]: `x[0]`

Out[39]: 'M'

In [40]: `x[7]`

Out[40]: '3'

In [41]: `x[9]`

Out[41]: '#'

```
In [ ]: # how to access items in dict?  
# ans => with key, because keys are unique and hashing automatically converts  
# a key into a position for the value of that key.
```

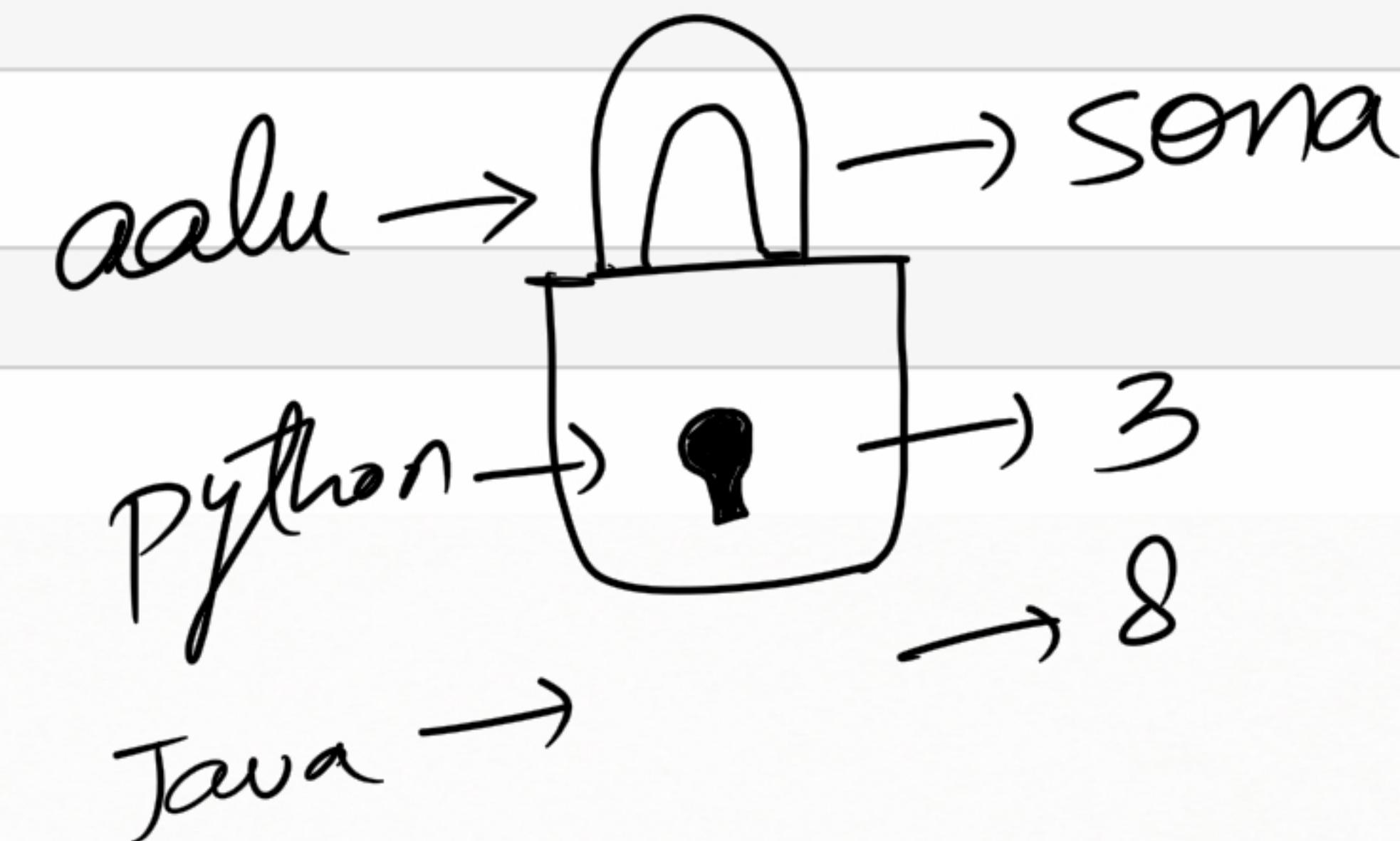
```
In [50]: x = {'python':3,'java':8}
```

```
In [51]: x['python']
```

```
Out[51]: 3
```

```
In [52]: x['java']
```

```
Out[52]: 8
```



In [70]: `x = ['apple', 'mango']`

In [71]: `x[0]`

Out[71]: 'apple'

In [72]: `x[1]`

Out[72]: 'mango'

In [73]: `y = x[0]  
print(y)`

apple

In [74]: `y[0]`

Out[74]: 'a'

In [75]: `x[0][0]`

Out[75]: 'a'

$y = x[0]$

$y[0] = "a"$

$x[0][0] = "a"$

1<sup>st</sup> D - Black  
2<sup>nd</sup> D - Green

```
In [86]: x = [{'python': [45, 55]}, {'java': 8}]
```

```
In [87]: x[0]['python'][1]
```

```
Out[87]: 55
```

$x(0)[\text{'python}] \Rightarrow [45, 55]$

$x = [45, 55]$

$x[0]$

## Assignment

code in Python 3.6

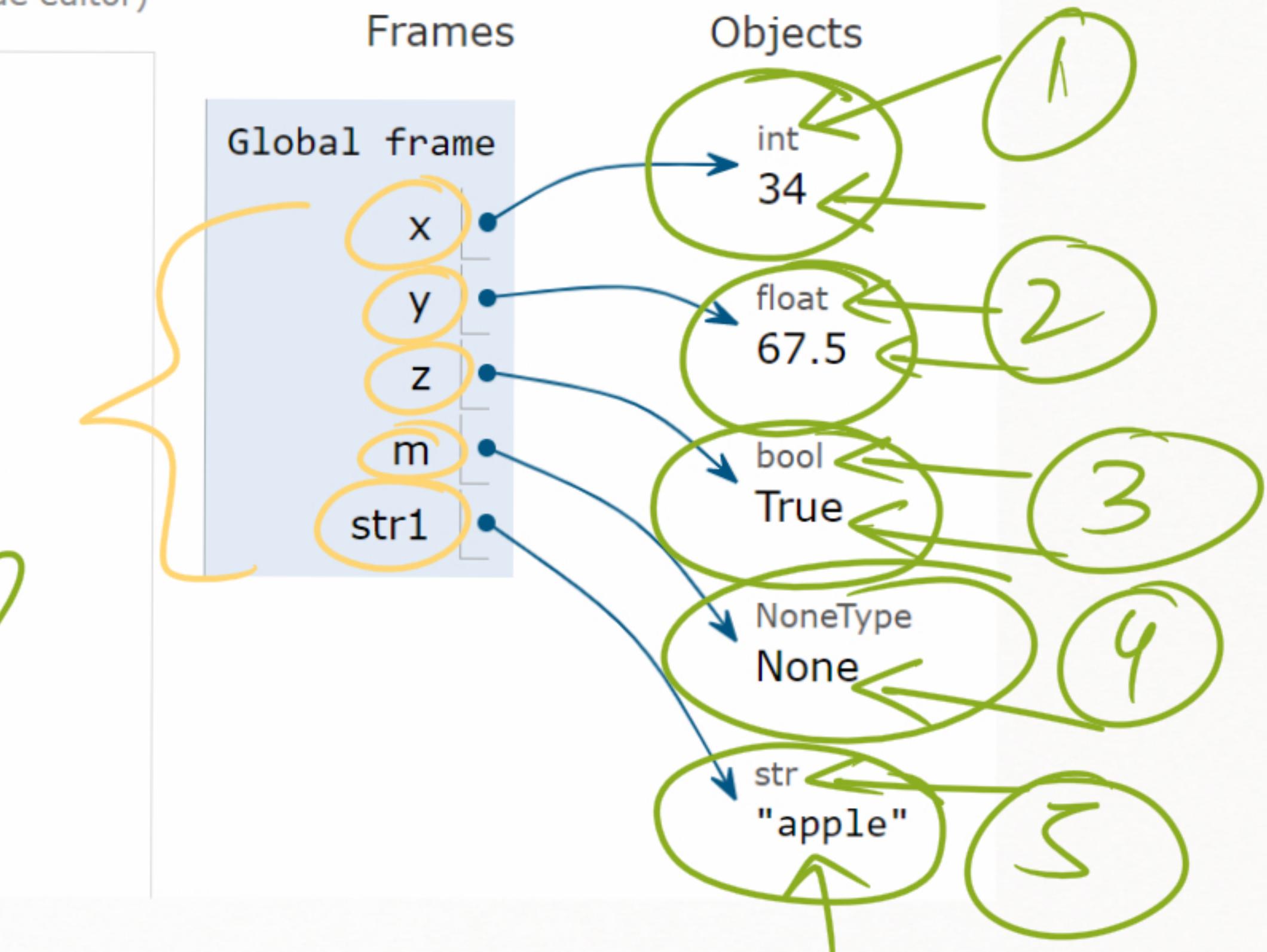
```
x = 34  
y = 67.50  
z = True  
m = None  
str1 = 'apple'
```

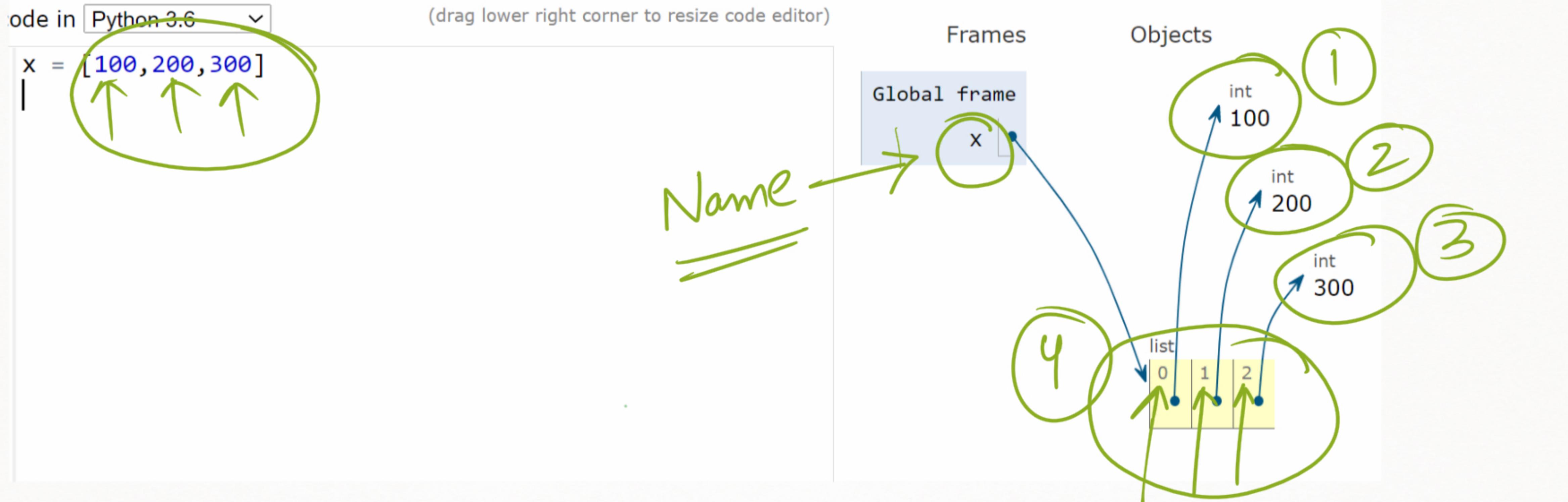
## Object Storage

(drag lower right corner to resize code editor)

How many objects?  
⇒ 5

Names





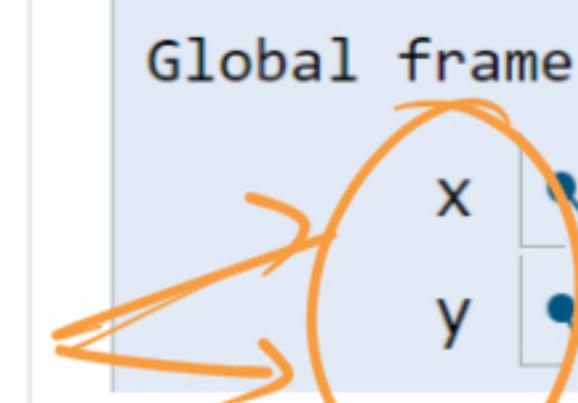
Code in Python 3.6

```
x = [100, 200, 300]  
y = [100, 200, 300]
```

(drag lower right corner to resize code editor)

Names

Frames



Objects

