Numeric Data Type

- The numeric data type that are available in python are:

- **Integer (int)** is the numeric data without any decimal point .
- It can contain, both positive and negative numbers.
- **Example :**

  a = 125
  b = 2164
  c = -17
  x = 129734864

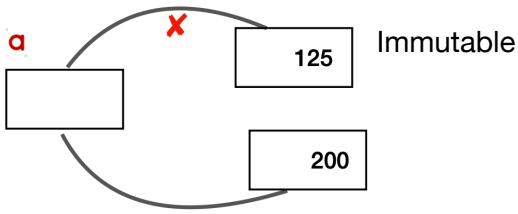
  - In integers there is no size limit or range to an integer value .

    x = 12345678901234567890123456789 .

- Not only in integers but there is no fixed size memory taken by any datatype in python.
- Suppose you want to know the size of any value then we use ‘sizeof’ method, see the example below :
- x.__sizeof__()

```
>>> x=12345678901234567890123456789
>>> print(x)
12345678901234567890123456789
>>> y=-17
>>> y
-17
>>> print(x.__sizeof__())
40
>>>
```

- Lets consider an example and see what happen when we assign a variable two different values.
- a = 125 and a = 200.
- Here the first **a** is the reference to the value 125 and it is available in the memory.
- when we change the value of **a** from 125 to 200, then **a** will point/refer to the new object 200.
- Here the actual value that is 125 is not changing but a new value is created and now **a** points to this new value, therefore we can say that values are immutable or it cannot be changed.



- Now the question is where is 125 in memory?. The value 125 will be garbage collected by PVM (python virtual machine) ,and it will be deleted from the memory.

Floating point :

- Any numeric value with a decimal point is called a floating point number.
- They can either be positive or negative numbers.

Example

a = 13.25

b = -17

- Floating point number can also be in written scientific format as well ,

12.59

0 . 1259 * 100

0 . 1259 * 10^{2}

0 . 1259E2 # 10^{2} - E2 (floating point representation)

- Float datatype is immutable.