Int data type or class

“int” is a predefined class in python.
This class or data type is used for allocating memory for integer object.
The size of integer is unlimited length. Because the memory is allocated dynamically and it is dynamic in size.
Int is immutable data type or class.
After creating integer object we cannot modify value.
After creating object if we cannot change or update data, it is called immutable.
Immutable data types are also called constants.

How to allocate memory for integer object/value?

1. By assigning integer value to a variable
2. By using int class

Integer object is created by assigning integer value to variable

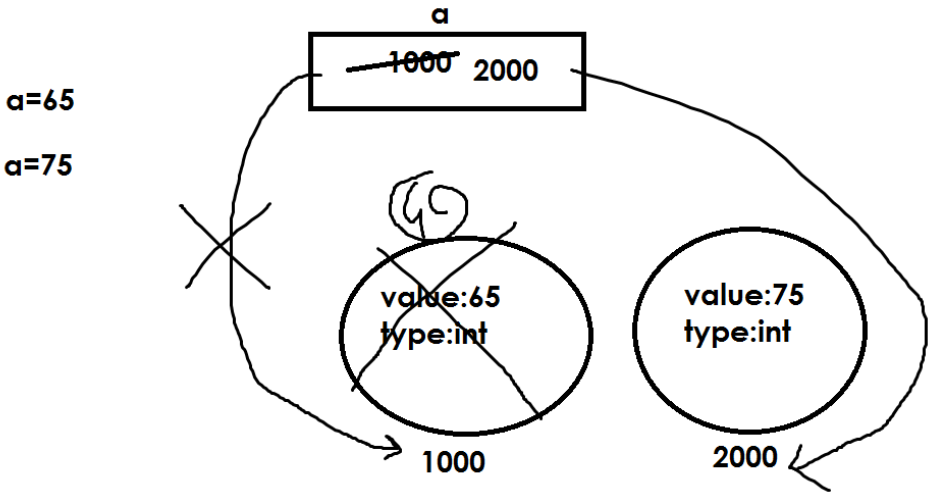
Example:

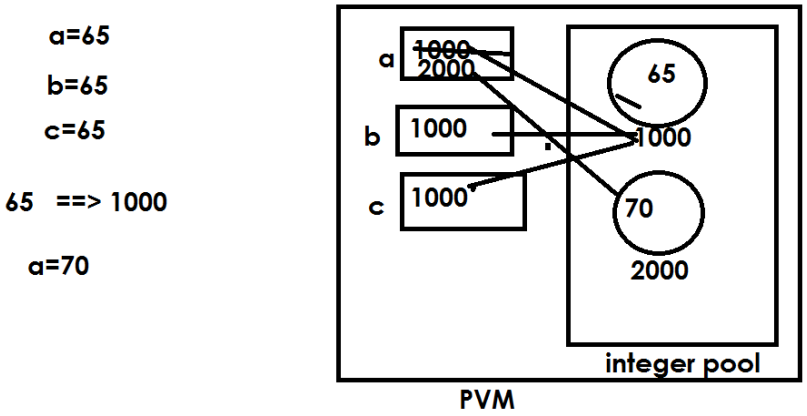
```
>>> a=65
>>> 70
70
>>> b=75
>>> c=85
>>> a
65
>>> b
75
>>> c
85
>>> type(a)
<class 'int'>
>>> type(b)
<class 'int'>
>>> type(c)
<class 'int'>
>>>
```

type() : it is predefined function in python. This function is exists in built-ins module, the default module imported by any python program

is built-ins module. This function returns type of object hold by a variable (OR) variable type.

Integers are immutable because of that they are sharable.
Whenever we modify or update the value of integer object, it will create new object.





How many variables and objects are created in the following code?

```
a=60
b=70
c=130-60
```

Ans: 3 variables
2 objects

Id(): Every object in python is identified with unique number called address. Id() is predefined function in python which returns address of object.

```
>>> a=10
>>> b=10
>>> id(a)
921962441296
>>> id(b)
921962441296
>>>
```

Integer literals

Literal is constant whose value is never changed.
Integer literal is numeric value, which does not have precisions.
In python integers are represented in 4 formats.

1. Decimal integer
2. Octal integer
3. Hexadecimal integer
4. Binary integer

Decimal, octal,hexadecimal and binary are called number systm.
Number system define set of rules and regulations to represent numbers with in computer science.

Decimal integer

An integer value with base 10 is called decimal integer.
This integer is created using digits from 0-9.
This integer is not prefix with any special character except + or –
It is not prefix with 0

It allows only one special character in between _
_ is used for grouping digits.

```
>>> a=1,500
>>> a
(1, 500)
>>> type(a)
<class 'tuple'>
>>> b=1_500
>>> b
1500
>>> type(b)
<class 'int'>
>>> c=_65
Traceback (most recent call last):
  File "<pyshell#23>", line 1, in <module>
    c=_65
NameError: name '_65' is not defined
>>> d=65_
SyntaxError: invalid decimal literal
>>>
>>> d=097
SyntaxError: leading zeros in decimal integer literals are not permitted; use an 0o prefix for octal integers
>>>
```

Default representation of integer is decimal format.

```
>>> a=65
>>> b=6789
>>>
c=99999999999999999999999999999999999999999999999999999999999999999999999999999

>>>
```

Octal integer
An integer value with base 8 is called octal integer.
This integer consists of or created using digits from 0-7
This integer is prefix with 0o or 0O