Float Literal and Float Data Type

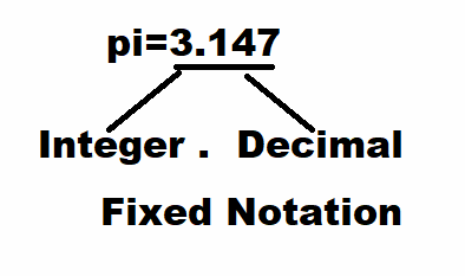
What is float value/data?
Float value is numeric value with fractional part or decimal part.
For float data ,memory is allocated by float data type.

```
>>> a=1.5
>>> b=2.0
>>> type(a)
<class 'float'>
>>> type(b)
<class 'float'>
>>> amt=5000.0
>>> mean=1.5
>>> type(amt)
<class 'float'>
>>> type(mean)
<class 'float'>
>>> mean
1.5
```

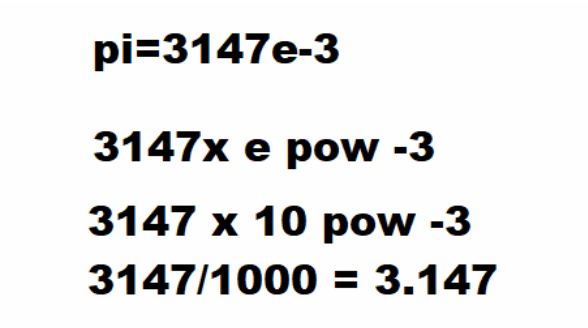
In python float values are represented in 2 formats

1. Fixed format
2. Exponent format/Scientific format

Fixed notation is a default notation of float value.
1. integer part
2. decimal part



In Scientific notation/Exponent notation there is one special character is used “E”. Larger values are represented in exponent notation. The value of “E” is 10.




```
>>> a=3147e-3
>>> a
3.147
>>> b=1.456e2
>>> b
145.6
>>> c=14.56e-1
>>> c
1.456
```

The size of float data type fixed. Float data type is developed by following the rules given IEEE. The size of float data type is 8bytes.

```
>>> import sys
>>> sys.float_info
sys.float_info(max=1.7976931348623157e+308, max_exp=1024,
max_10_exp=308, min=2.2250738585072014e-308, min_exp=-1021,
min_10_exp=-307, dig=15, mant_dig=53, epsilon=2.220446049250313e-
16, radix=2, rounds=1)
>>> a=1.80e309
>>> a
Inf
>>> a=1.1234567891234567
>>> a
1.1234567891234568
>>> b=1.12121212121212121212121212121212121212122
>>> b
1.121212121212121
```

Complex numbers and complex data type

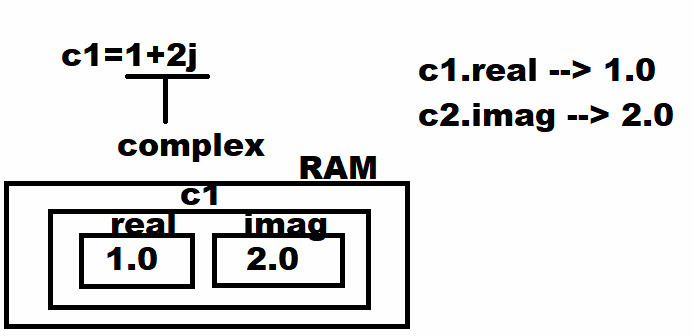
Complex number is a numeric value contains two values

1. Real
2. Imag

Syntax of representation of complex number

real+imag j

for these complex numbers python reserves memory using complex data type.




```
>>> a=1+2j
>>> a
(1+2j)
>>> type(a)
<class 'complex'>
>>> a.real
1.0
>>> a.imag
2.0
>>> b=3j
>>> type(b)
<class 'complex'>
>>> b.real
0.0
>>> b.imag
3.0
>>> c=2
>>> type(c)
<class 'int'>
```

```
>>> c=1+0j
>>> c.real
1.0
>>> c.imag
0.0
>>> d=2j+1
>>> type(d)
<class 'complex'>
>>> d
(1+2j)
>>> d=2j-1
>>> type(d)
<class 'complex'>
>>> d
(-1+2j)
```

Non numeric type

1. Boolean
2. String
3. None Type

Boolean Data type and Boolean Values/Literals

Rollno=101
Fees=5000.0
Fee_paid=True

Type(rollno) → int
Type(fees) → float
Type(fee_paid) → Boolean

Ticket no=11111111111
Seatno=34
conf=False

Boolean values in python are represented using two keywords.

1. True
2. False

Boolean value memory is reserved by bool data type.

```
>>> a=True
>>> a
True
>>> type(a)
<class 'bool'>
>>> b=False
>>> b
False
>>> type(b)
<class 'bool'>
>>> c=true
Traceback (most recent call last):
  File "<pyshell#56>", line 1, in <module>
    c=true
>>> c=True
>>> type(c)
<class 'bool'>
>>> c
True
>>> True+True
2
>>> False+True
1
>>> False+False
0
>>> True+1+20
22
```

Internal representation of Boolean True=1 and False=0

String data type (collection type) and string literal

Day-1 https://youtu.be/0RdZ-i5tjVwDay-2 https://youtu.be/XuD_tHMqDbIDay-3 https://youtu.be/lBwuPoPEswMDay-4 https://youtu.be/ZBCAe39TYQoDay-5 https://youtu.be/45hY-KNvnDADay-6 https://youtu.be/69m61L2K0akDay-7 https://youtu.be/imMWzFpF3Y8

codewithsatishgupta