Decimal_Fraction_and_Complex

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0.1 Decimal

Is part of the standard library. Decimal is a floating point class with configurable precision, by default uses 28 digits of decimal precision.

[1]:
```
from decimal import Decimal

f1 = 0.7
f2 = 0.8

print('Float: {}'.format(f2-f1))

d1 = Decimal('0.7') # Remember to use strings in the Decimal constructor
d2 = Decimal('0.8')

print('Decimal: {}'.format(d2-d1))
```

```
Float: 0.10000000000000009
Decimal: 0.1
```

0.2 Fraction

Is part of the standard libray and it's used to represent rational numbers

Note: Denominator cannot be zero

[2]:
```
from fractions import Fraction

f1 = Fraction('1/3')
f2 = Fraction('5/9')

print(f1 * f2)
```

```
5/27
```

0.3 Complex

Python uses the electrical notation for the imaginary part ***j***.

[3]:
```
c1 = 3 + 4j
print('Implicit call to the complex constructor: {}'.format(c1))
c2 = complex(3)
print('Explicit call to the complex constructor: {}'.format(c2))
c3 = complex(-3, 5)
print('Explicit call to the complex constructor with both parts: {}'.format(c3))
c4 = complex('-3+7j')
print('Explicit call to the complex constructor with a string parameter: {}'.
 ↪format(c4))

# Never use whitespaces to separate the complex number parts
complex('-5 + 6j')
```

```
Implicit call to the complex constructor: (3+4j)
Explicit call to the complex constructor: (3+0j)
Explicit call to the complex constructor with both parts: (-3+5j)
Explicit call to the complex constructor with a string parameter: (-3+7j)
```

```
      ␣
↪---------------------------------------------------------------------------

       ValueError                                Traceback (most recent call␣
↪last)

       <ipython-input-3-2a3d2781ab99> in <module>
         9
        10 # Never use whitespaces to separate the complex number parts
   ---> 11 complex('-5 + 6j')


       ValueError: complex() arg is a malformed string
```

[4]:
```
from decimal import Decimal
from fractions import Fraction

c = complex(Decimal('0.7'), Fraction('1/3'))
print('Complex accepts both Decimal and Fraction types as parameters: {}'.
 ↪format(c))
```

```
Complex accepts both Decimal and Fraction types as parameters:
(0.7+0.3333333333333333j)
```