Fundamentals02

February 8, 2024

1 Fundamentals of Python Class 02

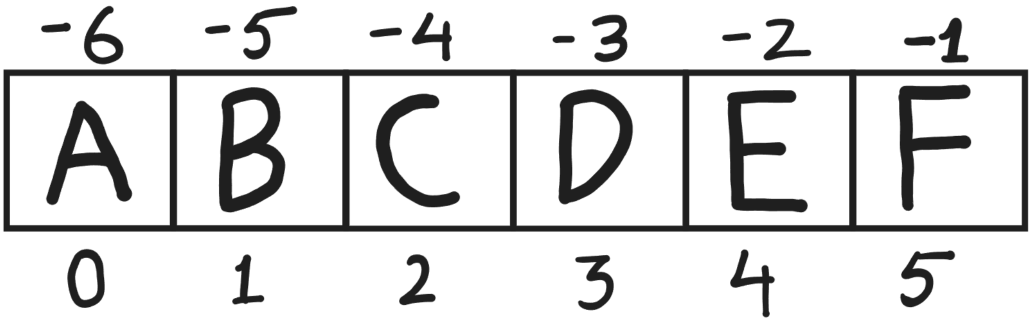
1.1 REPL (Read, Evaluate, Printing, Loop)

[1]:
```
print("Jupyter notebook is a REPL")
```

```
Jupyter notebook is a REPL
```

1.2 String (Continued)

1.2.1 Sample



[2]:
```
string = 'ABCDEF'
```

[3]:
```
print(string[0])
print(string[-6])
```

```
A
A
```

[4]:
```
print(string[4])
print(string[-2])
print(string[-2] == string[4])
```

```
E
E
True
```

```
[8]: print(string[6])
```

```
---------------------------------------------------------------------------
IndexError                                Traceback (most recent call last)
Cell In[8], line 1
----> 1 print(string[6])

IndexError: string index out of range
```

1.2.2 Slicing

```
[12]: string[1:5] # 1 -> 4
```

```
[12]: 'BCDE'
```

```
[13]: string[::-1] # Reverse
```

```
[13]: 'FEDCBA'
```

```
[15]: string[1:100] # 1 -> 100
```

```
[15]: 'BCDEF'
```

```
[17]: string[:100] # 0 -> 100
```

```
[17]: 'ABCDEF'
```

```
[18]: string[0:] # 0 -> End of string
```

```
[18]: 'ABCDEF'
```

```
[19]: string[:] # whole string
```

```
[19]: 'ABCDEF'
```

1.3 Operators with String

1. Concatenation (+)
2. Repetition (*)
3. Indexing ([])
4. Slicing ([start : end : step])

```
[20]: s = 'Sparsh'
```

1.3.1 Repetition (*)

```
[21]: s*2
```

```
[21]: 'SparshSparsh'
```

```
[22]: s*3
```

```
[22]: 'SparshSparshSparsh'
```

In Python, when you multiply a string by a negative integer, it will result in an empty string.

```
[23]: s*-1
```

```
[23]: ''
```

```
[24]: s*-2
```

```
[24]: ''
```

1.3.2 Concatenation (+)

only supports 'str + str'

```
[25]: s + 1
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[25], line 1
----> 1 s + 1

TypeError: can only concatenate str (not "int") to str
```

```
[26]: s + str(1)
```

```
[26]: 'Sparsh1'
```

```
[29]: s - 1
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[29], line 1
----> 1 s - 1

TypeError: unsupported operand type(s) for -: 'str' and 'int'
```

```
[30]: len(s)
```

```
[30]: 6
```

```
[31]: s
```

```
[31]: 'Sparsh'
```

1.4 Type Casting

1.4.1 int()

converts other types to int

```
[32]: int(12.4)
```

```
[32]: 12
```

```
[33]: int('12')
```

```
[33]: 12
```

```
[35]: int('12.4')
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[35], line 1
----> 1 int('12.4')

ValueError: invalid literal for int() with base 10: '12.4'
```

```
[36]: int(10+4j)
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[36], line 1
----> 1 int(10+4j)

TypeError: int() argument must be a string, a bytes-like object or a real␣
  ↪number, not 'complex'
```

```
[37]: int('One')
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[37], line 1
```

```
----> 1 int('One')

ValueError: invalid literal for int() with base 10: 'One'
```

```
[39]: int((10.4+4j).real)
```

```
[39]: 10
```

```
[47]: int((10.4+4j).imag)
```

```
[47]: 4
```

```
[41]: print(int(True))
      print(int(False))
```

```
1
0
```

1.4.2 float()

converts other types to float

```
[42]: float(12)
```

```
[42]: 12.0
```

```
[48]: float('12')
```

```
[48]: 12.0
```

```
[43]: float('12.4')
```

```
[43]: 12.4
```

```
[44]: float(10 + 5j)
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[44], line 1
----> 1 float(10 + 5j)

TypeError: float() argument must be a string or a real number, not 'complex'
```

```
[45]: float('hi')
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
```

```
Cell In[45], line 1
----> 1 float('hi')

ValueError: could not convert string to float: 'hi'
```

```
[46]: float((10+5j).imag)
```

```
[46]: 5.0
```

```
[49]: print(float(True))
      print(float(False))
```

```
1.0
0.0
```

1.4.3 complex()

converts other types to complex

```
[50]: complex(10)
```

```
[50]: (10+0j)
```

```
[51]: complex('10')
```

```
[51]: (10+0j)
```

```
[52]: complex(real= 10, imag= 3)
```

```
[52]: (10+3j)
```

```
[53]: complex(10.3)
```

```
[53]: (10.3+0j)
```

```
[54]: complex('10.7')
```

```
[54]: (10.7+0j)
```

1.4.4 bool()

converts other types to bool

```
[55]: bool(1)
```

```
[55]: True
```

```
[56]: bool(0)
```

```
[56]: False
```

```
[57]: bool(0+0j)
```

```
[57]: False
```

```
[58]: bool(0+2j)
```

```
[58]: True
```

```
[59]: bool('')
```

```
[59]: False
```

```
[60]: bool('k')
```

```
[60]: True
```

```
[61]: bool(0.0)
```

```
[61]: False
```

```
[62]: bool(0.3)
```

```
[62]: True
```

1.4.5 str()

converts other types to str

```
[63]: str(12)
```

```
[63]: '12'
```

```
[64]: str(12.7)
```

```
[64]: '12.7'
```

```
[65]: str(True)
```

```
[65]: 'True'
```

```
[66]: str(bool(1))
```

```
[66]: 'True'
```

```
[67]: str(10+9j)
```

```
[67]: '(10+9j)'
```