

Section4 - String Objects

1. String Object Basics

```
In [1]: s = "Python"
```

```
In [2]: type(s)
```

```
Out[2]: str
```

```
In [3]: len(s)
```

```
Out[3]: 6
```

```
In [4]: s[0]
```

```
Out[4]: 'P'
```

```
In [5]: s[4]
```

```
Out[5]: 'o'
```

```
In [6]: s[-1]
```

```
Out[6]: 'n'
```

```
In [7]: s
```

```
Out[7]: 'Python'
```

```
In [8]: s[-3]
```

```
Out[8]: 'h'
```

```
In [9]: s[0] = 'Z'
```

```
-----  
-----  
TypeError                                Traceback (most recent c  
all last)  
<ipython-input-9-5fac232d0251> in <module>()  
----> 1 s[0] = 'Z'  
  
TypeError: 'str' object does not support item assignment
```

```
In [10]: s
```

```
Out[10]: 'Python'
```

```
In [11]: s = "Java"
```

```
In [12]: id(s)
```

```
Out[12]: 4336788232
```

```
In [13]: s = "Python"
```

```
In [14]: id(s)
```

```
Out[14]: 4302134552
```

```
In [15]: s = "Python String Object"
```

```
In [16]: s
```

```
Out[16]: 'Python String Object'
```

```
In [17]: s[0]
```

```
Out[17]: 'P'
```

```
In [18]: s[10]
```

```
Out[18]: 'i'
```

```
In [19]: s[0:4]
```

```
Out[19]: 'Pyth'
```

```
In [20]: s[7:14]
```

```
Out[20]: 'String '
```

```
In [21]: s1 = "0123456789"
```

```
In [22]: s1[0:4]
```

```
Out[22]: '0123'
```

```
In [23]: s1[4:]
```

```
Out[23]: '456789'
```

```
In [24]: s1[:5]
```

```
Out[24]: '01234'
```

```
In [25]: len(s1)
```

```
Out[25]: 10
```

```
In [26]: s1[15]
```

```
-----  
-----  
IndexError                                Traceback (most recent c  
all last)  
<ipython-input-26-838a0af8fa72> in <module>()  
----> 1 s1[15]  
  
IndexError: string index out of range
```

```
In [28]: s1
```

```
Out[28]: '0123456789'
```

```
In [29]: s1[10]
```

```
-----  
-----  
IndexError                                Traceback (most recent c  
all last)  
<ipython-input-29-4dc38ab641ae> in <module>()  
----> 1 s1[10]  
  
IndexError: string index out of range
```

2. String Object Methods

```
In [30]: s = "string object methods"
```

```
In [31]: s
```

```
Out[31]: 'string object methods'
```

```
In [32]: s.capitalize()
```

```
Out[32]: 'String object methods'
```

```
In [33]: s.upper()
```

```
Out[33]: 'STRING OBJECT METHODS'
```

```
In [34]: s
```

```
Out[34]: 'string object methods'
```

```
In [35]: s1 = s.upper()
```

```
In [36]: s1
```

```
Out[36]: 'STRING OBJECT METHODS'
```

```
In [37]: s1.lower()
```

```
Out[37]: 'string object methods'
```

```
In [38]: s1
```

```
Out[38]: 'STRING OBJECT METHODS'
```

```
In [39]: s
```

```
Out[39]: 'string object methods'
```

```
In [40]: s1 = s.capitalize()
```

```
In [41]: s1
```

```
Out[41]: 'String object methods'
```

```
In [42]: s1 = "String Objects"
```

```
In [43]: s1.swapcase()
```

```
Out[43]: 'sTRING OBJECTS'
```

```
In [44]: s
```

```
Out[44]: 'string object methods'
```

```
In [45]: s = "Python"
```

```
In [46]: s.ljust(20, '*')
```

```
Out[46]: 'Python*****'
```

```
In [47]: s.rjust(20, '*')
```

```
Out[47]: '*****Python'
```

```
In [48]: s.center(20, '+')
```

```
Out[48]: '+++++++Python++++++'
```

```
In [49]: s
```

```
Out[49]: 'Python'
```

```
In [50]: s1 = s.center(20, ' ')
```

```
In [51]: s1
```

```
Out[51]: '      Python      '
```

```
In [52]: s1.lstrip()
```

```
Out[52]: 'Python      '
```

```
In [53]: s1.rstrip()
```

```
Out[53]: '      Python'
```

```
In [55]: s1
```

```
Out[55]: '      Python      '
```

```
In [56]: s1.strip()
```

```
Out[56]: 'Python'
```

```
In [61]: s1 = s.center(20, ' ')
```

```
In [62]: s1
```

```
Out[62]: '      Python      '
```

```
In [63]: s2 = s1.center(50, '*')
```

```
In [64]: s2
```

```
Out[64]: '*****          Python          *****'
```

```
In [65]: s2.lstrip('*')
```

```
Out[65]: '      Python          *****'
```

```
In [66]: s2.lstrip('* ')
```

```
Out[66]: 'Python          *****'
```

```
In [67]: x = "125"
```

```
In [68]: x.zfill(10)
```

```
Out[68]: '0000000125'
```

3. More String Methods

```
In [69]: s = "Python Programming"
```

```
In [70]: s.find('mm')
```

```
Out[70]: 13
```

```
In [71]: s.find('nn')
```

```
Out[71]: -1
```

```
In [72]: s.find('mm', 1, 18)
```

```
Out[72]: 13
```

```
In [73]: len(s)
```

```
Out[73]: 18
```

```
In [74]: s.find('mm', 1, 10)
```

```
Out[74]: -1
```

```
In [75]: s.find('Pro', 1, 18)
```

```
Out[75]: 7
```

```
In [76]: 'mm' in s
```

```
Out[76]: True
```

```
In [77]: s
```

```
Out[77]: 'Python Programming'
```

```
In [78]: 'nn' in s
```

```
Out[78]: False
```

```
In [79]: s.index('mm')
```

```
Out[79]: 13
```

```
In [80]: s.index('nn')
```

```
-----  
-----  
ValueError                                Traceback (most recent c  
all last)  
<ipython-input-80-c72afc8e57ef> in <module>()  
----> 1 s.index('nn')  
  
ValueError: substring not found
```

```
In [81]: s = "aaaaaaaaaaaaa"
```

```
In [82]: s.replace('a', 'b')
```

```
Out[82]: 'bbbbbbbbbbbbbb'
```

```
In [83]: s.replace('a', 'b', 4)
```

```
Out[83]: 'bbbbaaaaaaaaa'
```

```
In [84]: s = "abc123"
```

```
In [85]: s
```

```
Out[85]: 'abc123'
```

```
In [86]: s.isalnum()
```

```
Out[86]: True
```

```
In [87]: s.isalpha()
```

```
Out[87]: False
```

```
In [88]: s.isdigit()
```

```
Out[88]: False
```

```
In [89]: s.isidentifier()
```

```
Out[89]: True
```

```
In [90]: s
```

```
Out[90]: 'abc123'
```

```
In [91]: s = "    "
```

```
In [92]: s.isspace()
```

```
Out[92]: True
```

4. Splitting & Joining Strings

```
In [93]: s = "Lorem Ipsum is simply dummy text of the printing and typesetting industry."
```

```
In [94]: s
```

```
Out[94]: 'Lorem Ipsum is simply dummy text of the printing and typesetting industry.'
```

```
In [95]: s.split()
```

```
Out[95]: ['Lorem',  
          'Ipsum',  
          'is',  
          'simply',  
          'dummy',  
          'text',  
          'of',  
          'the',  
          'printing',  
          'and',  
          'typesetting',  
          'industry.']
```

```
In [97]: s.split('s')
```

```
Out[97]: ['Lorem Ip',  
          'um i',  
          ' ',  
          'imply dummy text of the printing and type',  
          'etting indu',  
          'try.']
```

```
In [98]: s.split(' ', 5)
```

```
Out[98]: ['Lorem',  
          'Ipsum',  
          'is',  
          'simply',  
          'dummy',  
          'text of the printing and typesetting industry.']
```



```
In [99]: s
```

```
Out[99]: 'Lorem Ipsum is simply dummy text of the printing and typesetting
industry.'
```

```
In [100]: a = s.split()
```

```
In [101]: type(a)
```

```
Out[101]: list
```

```
In [102]: a
```

```
Out[102]: ['Lorem',
            'Ipsum',
            'is',
            'simply',
            'dummy',
            'text',
            'of',
            'the',
            'printing',
            'and',
            'typesetting',
            'industry.']
```

```
In [103]: for w in a:
           print(w)
```

```
Lorem
Ipsum
is
simply
dummy
text
of
the
printing
and
typesetting
industry.
```

```
In [104]: s1 = ""
```

```
In [105]: type(s1)
```

```
Out[105]: str
```

```
In [106]: len(s1)
```

```
Out[106]: 0
```

```
In [107]: s1.join(a)
```

```
Out[107]: 'LoremIpsumissimplydummytextoftheprintingandtypesettingindustry.'
```

```
In [108]: s
```

```
Out[108]: 'Lorem Ipsum is simply dummy text of the printing and typesetting
industry.'
```

5. String Format Method

```
In [111]: s = "Scores are : {0}, {2}, {1}".format(95, 88, 90)
```

```
In [112]: print(s)
```

```
Scores are : 95, 90, 88
```

```
In [113]: s = "Scores are : {}, {}, {}".format(95, 88, 90)
print(s)
```

```
Scores are : 95, 88, 90
```

```
In [114]: s = "Scores are : {0}, {0}, {1}".format(95, 88)
print(s)
```

```
Scores are : 95, 95, 88
```

```
In [115]: s = "Password: {0}{02}{1}".format(*'xyz')
print(s)
```

```
Password: xzy
```

```
In [116]: t = ( 10, 20, 30 )
```

```
In [118]: s = "Id: {0}-{02}-{1}".format(*t)
print(s)
```

```
Id: 10-30-20
```

```
In [119]: s1 = "x value = {x}, y value = {y}".format( x=10.5, y = 20.25)
print(s1)
```

```
x value = 10.5, y value = 20.25
```

```
In [122]: '{:<20}'.format("Python")
```

```
Out[122]: 'Python'
```

```
In [123]: '{:>20}'.format("Python")
```

```
Out[123]: '                Python'
```

```
In [125]: '{:^20}'.format("Python")
```

```
Out[125]: '-----Python-----'
```

```
In [126]: s1 = "int: {0:d}".format(122)
          print(s1)
```

```
int: 122
```

```
In [128]: s1 = "int: {0:d}, hex: {0:X}".format(122)
          print(s1)
```

```
int: 122, hex: 7A
```

```
In [131]: s1 = "int: {0:d}, hex: {0:X}, oct: {0:o}, bin: {0:b}".format(122)
          print(s1)
```

```
int: 122, hex: 7A, oct: 172, bin: 1111010
```

```
In [132]: x = 2 ** 100
```

```
In [133]: x
```

```
Out[133]: 1267650600228229401496703205376
```

```
In [136]: s1 = "{:,}".format(x)
          print(s1)
```

```
1,267,650,600,228,229,401,496,703,205,376
```

```
In [ ]:
```