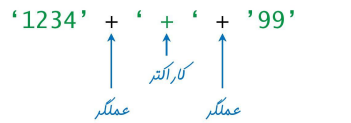
# کار با داده‌های متنی

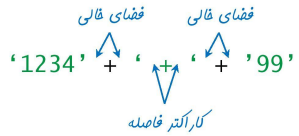
- نوع داده‌ای رشته. مفید برای عملیات ورودی و خروجی برنامه و پردازش متن.

| | |
|---|---|
| *values* | sequence of characters |
| *typical literals* | 'Hello, world' |
| *operation* | concatenation |
| *operator* | + |

| *expression* | *value* |
|---|---|
| 'Hi, ' + 'Bob' | 'Hi, Bob' |
| '1' + ' 2 ' + '1' | '1 2 1' |
| '1234' + ' + ' + '99' | '1234 + 99' |
| '1234' + '99' | '123499' |

هشدار. معنای کاراکترها به محل استفاده آنها بستگی دارد.




In [ ]:
```
s = 'abcde'
print(s[1:3])   #bc
print(s[1:-1])  #bcd
print(s[1:4])   #bcd
print(s[::-1])  #edcba
print(s[:4])    #abcd
print(s[1:])    #bcde
```

In [ ]:
```
s = 'Golzari'
print(len(s))       #7
print(max(s))       #z
print(min(s))       #G
print(ord('G'))     #71
print(chr(71))      #G
```

In [ ]:
```
print(ord('s')) # 115
print(ord('a')) # 97

print(chr(97))  # a
```

In [ ]:
```
s = 'python'

print('py' in s)        #True
print('px' not in s)    #True
print(s == 'Python')    #False
print(s < 'sara')       #True

print(s.islower())      #True
print(s.isupper())      #False
```

In [ ]:
```
s = 'python3'
print(s.isalnum())     # True
print(s.isalpha())     # False
```

In [ ]:
```
s = '#python3'
print(s.isalnum())     # False
print(s.isalpha())     # False
```

In [ ]:
```
s = '123'
print(s.isdigit())     # True

print('\t'.isspace())   #True
```

In [ ]:
```
s = '12a3bcd4'
k = 0
for ch in s:
    if ch.isdigit() == True:
        k += int(ch)

print(k)         # 10 : 1+2+3+4
```

In [ ]:
```
s = 'welcom to python'
print(s.startswith('we'))   # True
print(s.endswith('thon'))   # True

print(s.find('o'))           # 4
print(s.index('o'))          # 4

print(s.find('f'))           # -1
#print(s.index('f'))          # ValueError


print(s.find('o',5))        # 8
print(s.find('o',10))       # 14

print(s.count('o'))         # 3
print(s.count('o',5))       # 2
```

In [ ]:
```
s = 'a.golzari@tabrizu.ac.ir'
i = s.find('@')
print(s[i+1:])            #tabrizu.ac.ir
```

In [ ]:
```
s = 'welcom to python'
print(s.capitalize())     # Welcom to python
print(s.title())          # Welcom To Python
```

In [ ]:
```
s = 'PyThon'
print(s.lower())         # python
print(s.upper())         # PYTHON
print(s.swapcase())      # pYtHON
```

In [ ]:
```
s = 'Mohammad Zadeh'
print(s.replace('Zadeh','Nejad'))
#Mohammad Nejad
```

In [ ]:
```
s = '$$pyt$hon$$$'
print(s.strip('$'))     # pyt$hon
print(s.lstrip('$'))    # pyt$hon$$$
print(s.rstrip('$'))    # $$pyt$hon
```

In [ ]:
```
s = '##ali$$$'
print(s.lstrip('#').rstrip('$'))  # ali
```

In [ ]:
```
s = 'www.sanjesh.org'
print(s.lstrip('www.'))  # sanjesh.org
```

In [ ]:
```
s = 'Python created by Rossum'
a = s.split(' ')
print(a)            # ['Python', 'created', 'by', 'Rossum']
```

In [ ]:
```
b = ['Python', 'created', 'by', 'Rossum']
c = ' '.join(b)
print(c)         #Python created by Rossum
```

In [ ]:
```
name = 'ali.py'
a = name.split('.')
print(a)           # ['ali', 'py']
print(a[1])        # py
print(repr(a[1]))  # 'py'
```

In [ ]:
```
s = 'sara@gmail.com'
u ,d = s.split('@')
print(u)   # sara
print(d)   # gmail.com
```

In [ ]:
```
s = 'ali\nreza'
a = s.split('\n')
print(a)           # ['ali', 'reza']
```

In [ ]:
```
b = s.splitlines()
print(b)           # ['ali', 'reza']
```

In [ ]:
```
s = '127.02.0.001'
b = s.split('.')
a = '.'.join([str(int(i)) for i in b])
print(a)   # 127.2.0.1
```

In [ ]:
```
f = '001'
print(int(f))       # 1
print(str(int(f)))  # 1
```

In [ ]:
```
s = '12'
print(s.zfill(5))   # 00012
print(s.zfill(3))   # 012
```

In [ ]:
```
s = 'sara'
print(s.ljust(7,'+'))      # sara+++
print(s.rjust(7,'+'))      # +++sara
print(s.center(7,'+'))     # ++sara+
```

In [ ]:
```
print('# format #')
year = 2020
e    = 'referendum'
print(f'Results of the {year} {e}')
# Results of the 2020 referendum
```

In [ ]:
```
fname = 'sara'
lname = 'golzari'
print('name: {0} family: {1}'.format(fname,lname))
# name: sara family: golzari
```

In [ ]:
```
s = 'ali'
print(f'name : {s}')     # ali
print(f'name : {s!r}')   # 'ali'

print('name : {}'.format(s))     # ali
print('name : {!r}'.format(s))   # 'ali'
```

In [ ]:
```
n = 14
print('{:d}'.format(n))   # 14
print('{0:d}'.format(n))  # 14

print('{:5d}'.format(n))   #   14
```

In [ ]:
```
a = 12
b = 15
print('{0:f} {1:d}'.format(a,b))   # 12.000000  15
print('{1:f} {0:d}'.format(a,b))   # 15.000000  12
print('{0:d} {1:f}'.format(a,b))   # 12 15.000000
```

In [ ]:
```
f = 15.999
print('{:.2f}'.format(f))   # 16.00
```

In [ ]:
```
f = -15.999
print('{:.2f}'.format(f))   # -16.00
```

In [ ]:
```
p = 0.83
print('{:.2%}'.format(p))  # 83.00%
```

In [ ]:
```
a = 20000000
print('{:,}'.format(a))     # 20,000,000
```

In [ ]:
```
n = 14
print('{:X}'.format(n))     # E
print('{:#X}'.format(n))    # 0XE
```

In [ ]:
```
print('{:b}'.format(n))     # 1110
print('{:#b}'.format(n))     # 0b1110
```

In [ ]:
```
n = 35
print('{:*>6d}'.format(n))    # ****35
print('{:*<6d}'.format(n))    # 35****
print('{:*^6d}'.format(n))    # **35**
```

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Codes and Projects (click here) (https://github.com/Amin-Golzari-Oskouei/Python-Programming-Course-Basic-2021) slides and videos (click here) (https://drive.google.com/drive/folders/1ZsQjBJJ4UAAp9zrGxm3c4qrhnvGBUYHw)