In [1]:
```
txt = " abc def ghi "
```

In [3]:
```
txt.lstrip()
```

Out[3]:
```
'abc def ghi '
```

In [5]:
```
print(txt)
```

```
abc def ghi
```

In [7]:
```
txt.strip()
```

Out[7]:
```
'abc def ghi'
```

Using Escape Character

In [10]:
```
#Using double quotes in the string is not allowed.
mystr = "My favourite TV Series is "Game of Thrones""
```

```
  Cell In[10], line 2
    mystr = "My favourite TV Series is "Game of Thrones""
                                        ^
SyntaxError: invalid syntax
```

In [14]:
```
# Using escape character to allow illegal characters
mystr = "My favourite series is \"Game of Thrones\""
print(mystr)
```

```
My favourite series is "Game of Thrones"
```

List

List Creation

In [20]:
```
list1 = [] # Empty List
```

In [22]:
```
print(type(list1))
```

```
<class 'list'>
```

In [24]:
```
list2 = [10,30,60] # List of integers numbers
```

In [26]:
```
list3 = [10.77,30.66,60.89] # List of float numbers
```

In [28]:
```
list4 = ['one','two' , "three"] # List of strings
```

In [30]:
```
list5 = ['Asif', 25 ,[50, 100],[150, 90]] # Nested Lists
```

In [32]:
```
list6 = [100, 'Asif', 17.765] # List of mixed data types
```

In [34]:
```
list7 = ['Asif', 25 ,[50, 100],[150, 90] , {'John' , 'David'}]
```

In [36]:
```
len(list7) #Length of list
```

Out[36]: 5

List Indexing

In [39]:
```
list2
```

Out[39]: [10, 30, 60]

In [47]:
```
list2[0] # Retreive first element of the list
```

Out[47]: 10

In [43]:
```
list4
```

Out[43]: ['one', 'two', 'three']

In [49]:
```
list4[0] # Retreive first element of the list
```

Out[49]: 'one'

In [51]:
```
list4[0][0] # Nested indexing - Access the first character of the first list ele
```

Out[51]: 'o'

In [53]:
```
list4[-1] # Last item of the list
```

Out[53]: 'three'

In [59]:
```
list7
```

Out[59]: ['Asif', 25, [50, 100], [150, 90], {'David', 'John'}]

In [61]:
```
list7[-1] # Last item of the list
```

Out[61]: {'David', 'John'}

List Slicing

In [105…
```
mylist = ['one' , 'two' , 'three' , 'four' , 'five' , 'six' , 'seven' , 'eight']
```

In [107…
```
mylist[0:3] # Return all items from 0th to 3rd index location excluding the item
```

Out[107… ['one', 'two', 'three']

In [109…
```
mylist[2:5] # List all items from 2nd to 5th index location excluding the item a
```

Out[109… ['three', 'four', 'five']

In [111…
```
mylist[:3] # Return first three items
```

Out[111… ['one', 'two', 'three']

In [113…
```
mylist[:2] # Return first two items
```

Out[113… ['one', 'two']

In [115…
```
mylist[-3:] # Return last three items
```

Out[115… ['six', 'seven', 'eight']

In [117…
```
mylist[-2:] # Return last two items
```

Out[117… ['seven', 'eight']

In [119…
```
mylist[-1] # Return last item of the list
```

Out[119… 'eight'

In [120…
```
mylist[:] # Return whole list
```

Out[120… ['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']

Add , Remove & Change Items

In [122…
```
mylist
```

Out[122… ['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']

In [126…
```
mylist.append('nine') # Add an item to the end of the list
mylist
```

Out[126… ['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight', 'nine']

In [128…
```
mylist.insert(9,'ten') # Add item at index location 9
mylist
```

Out[128… ['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight', 'nine', 'ten']

In [130…
```
mylist.insert(1,'ONE') # Add item at index location 1
mylist
```

Out[130…
```
['one',
 'ONE',
 'two',
 'three',
 'four',
 'five',
 'six',
 'seven',
 'eight',
 'nine',
 'ten']
```

In [132…
```
mylist.remove('ONE') # Remove item "ONE"
mylist
```

Out[132… ['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight', 'nine', 'ten']

In [134…
```
mylist.pop() # Remove last item of the list
mylist
```

Out[134… ['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight', 'nine']

In [136…
```
mylist.pop(8) # Remove item at index location 8
mylist
```

Out[136… ['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']

In [138…
```
del mylist[7] # Remove item at index location 7
mylist
```

Out[138… ['one', 'two', 'three', 'four', 'five', 'six', 'seven']

In [142…
```
# Change value of the string
mylist[0]=1
mylist[1]=2
mylist[2]=3
mylist
```

Out[142… [1, 2, 3, 'four', 'five', 'six', 'seven']

In [144…
```
mylist.clear() # Empty List / Delete all items in the list
mylist
```

Out[144… []

In [146…
```
del mylist # Delete the whole list
mylist
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[146], line 2
      1 del mylist # Delete the whole list
----> 2 mylist

NameError: name 'mylist' is not defined
```

Copy List

In [151…
```
mylist = ['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight', 'nine'
```

In [153…
```
mylist1 = mylist # Create a new reference "mylist1"
```

In [155…
```
id(mylist) , id(mylist1) # The address of both mylist & mylist1 will be the same
```

Out[155… (2330253735168, 2330253735168)

In [157…
```
mylist2 = mylist.copy() # Create a copy of the list
```

In [159…
```
id(mylist2) # The address of mylist2 will be different from mylist because mylis
```

Out[159… 2330253730112

In [161…
```
mylist[0]=1
```

In [163…
```
mylist
```

Out[163… [1, 'two', 'three', 'four', 'five', 'six', 'seven', 'eight', 'nine']

In [169…
```
mylist1 # mylist1 will be also impacted as it is pointing to the same list
```

Out[169… [1, 'two', 'three', 'four', 'five', 'six', 'seven', 'eight', 'nine']

In [171…
```
mylist2 # Copy of list won't be impacted due to changes made on the original lis
```

Out[171… ['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight', 'nine']

Join Lists

In [174…
```
list1 = ['one', 'two', 'three', 'four']
list2 = ['five', 'six', 'seven', 'eight']
```

In [176…
```
list3 = list1 + list2 # Join two lists by '+' operator
list3
```

Out[176… ['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']

In [178…
```
list1.extend(list2) #Append list2 with list1
list1
```

Out[178… ['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']

List Membership

In [182…
```
list1
```

Out[182… ['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']

In [184…
```
'one' in list1 # Check if 'one' exist in the list
```

Out[184… True

In [186…
```
'ten' in list1 # Check if 'ten' exist in the list
```

Out[186… False

In [192…
```
if 'three' in list1: # Check if 'three' exist in the list
    print('Three is present in the list')
else:
    print('Three is not present in the list')
```

Three is present in the list

In [194…
```
if 'eleven' in list1: # Check if 'eleven' exist in the list
    print('eleven is present in the list')
else:
    print('eleven is not present in the list')
```

```
eleven is not present in the list
```

Reverse & Sort List

In [197…
```
list1
```

Out[197…
```
['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']
```

In [199…
```
list1.reverse() # Reverse the list
list1
```

Out[199…
```
['eight', 'seven', 'six', 'five', 'four', 'three', 'two', 'one']
```

In [201…
```
list1 = list1[::-1] # Reverse the list
list1
```

Out[201…
```
['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']
```

In [203…
```
mylist3 = [9,5,2,99,12,88,34]
mylist3.sort() # Sort list in ascending order
mylist3
```

Out[203…
```
[2, 5, 9, 12, 34, 88, 99]
```

In [205…
```
mylist3 = [9,5,2,99,12,88,34]
mylist3.sort(reverse=True) # Sort list in descending order
mylist3
```

Out[205…
```
[99, 88, 34, 12, 9, 5, 2]
```

In [207…
```
mylist4 = [88,65,33,21,11,98]
sorted(mylist4)
# Returns a new sorted list and doesn't change original l
```

Out[207…
```
[11, 21, 33, 65, 88, 98]
```

In [209…
```
mylist4
```

Out[209…
```
[88, 65, 33, 21, 11, 98]
```

Loop through a list

In [212…
```
list1
```

Out[212…
```
['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']
```

In [214…
```
for i in list1:
    print(i)
```

```
one
two
three
four
five
six
seven
eight
```

In [216…
```
for i in enumerate(list1):
    print(i)
```

```
(0, 'one')
(1, 'two')
(2, 'three')
(3, 'four')
(4, 'five')
(5, 'six')
(6, 'seven')
(7, 'eight')
```

Count

In [219…
```
list10 =['one', 'two', 'three', 'four', 'one', 'one', 'two', 'three']
```

In [221…
```
list10.count('one') # Number of times item "one" occurred in the list.
```

Out[221… 3

In [223…
```
list10.count('two') # Occurence of item 'two' in the list
```

Out[223… 2

In [225…
```
list10.count('four') #Occurence of item 'four' in the list
```

Out[225… 1

All / Any

In [229…
```
L1 = [1,2,3,4,0]
```

In [231…
```
all(L1) # Will Return false as one value is false (Value 0)
```

Out[231… False

In [233…
```
any(L1) # Will Return True as we have items in the list with True value
```

Out[233… True

In [235…
```
L2 = [1,2,3,4,True,False]
```

In [237…
```
all(L2) # Returns false as one value is false
```

Out[237… False

In [239…
```
any(L2) # Will Return True as we have items in the list with True value
```

Out[239…
```
True
```

In [241…
```
L3 = [1,2,3,True]
```

In [243…
```
all(L3) # Will return True as all items in the list are True
```

Out[243…
```
True
```