list-task-3

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1 List

1) List is an ordered sequence of items.
2) We can have different data types under a list. E.g we can have integer, float and string items ina same list.

1.1 List Creation

[9]:
```
list1=[]
```

[11]:
```
print(type(list1))
```

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

[13]:
```
list2=[10,30,60]
```

[15]:
```
list3=[10,77,30,66,60,89]
```

[17]:
```
list4 = ['one','two' , "three"]
```

[19]:
```
list5 = ['Asif', 25 ,[50, 100],[150, 90]]
```

[21]:
```
list6 = [100, 'Asif', 17.765]
```

[23]:
```
list7 = ['Asif', 25 ,[50, 100],[150, 90] , {'John' , 'David'}]
```

[25]:
```
len(list6)
```

[25]:
```
3
```

[27]:
```
list2[0]
```

[27]:
```
10
```

[29]:
```
list4[0]
```

[29]:
```
'one'
```

[31]:
```
list4[0][0]
```

[31]:
```
'o'
```

[33]:
```
list4[-1]
```

[33]:
```
'three'
```

[35]:
```
list5[-1]
```

[35]:
```
[150, 90]
```

1.2 List Slicing

[37]:
```
mylist=['one','two','three','four','five','six','seven','eight']
```

[39]:
```
mylist[0:3]
```

[39]:
```
['one', 'two', 'three']
```

[43]:
```
mylist[2:5]
```

[43]:
```
['three', 'four', 'five']
```

[45]:
```
mylist[:3]
```

[45]:
```
['one', 'two', 'three']
```

[47]:
```
mylist[:2]
```

[47]:
```
['one', 'two']
```

[49]:
```
mylist[:-3]
```

[49]:
```
['one', 'two', 'three', 'four', 'five']
```

[53]:
```
mylist[3:]
```

[53]:
```
['four', 'five', 'six', 'seven', 'eight']
```

[55]:
```
mylist[-2:]
```

[55]:
```
['seven', 'eight']
```

[57]:
```
mylist[-1]
```

[57]:
```
'eight'
```

[59]:
```
mylist[:]
```

[59]:
```
['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']
```

1.3 Add , Remove & Change Items

[61]:
```
mylist
```

[61]:
```
['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']
```

[67]:
```
mylist.append('nine')
mylist
```

[67]:
```
['one',
 'two',
 'three',
 'four',
 'five',
 'six',
 'seven',
 'eight',
 'nine',
 'nine',
 'nine']
```

[71]:
```
mylist.insert(9,'ten')
mylist
```

[71]:
```
['one',
 'two',
 'three',
 'four',
 'five',
 'six',
 'seven',
 'eight',
 'nine',
 'ten',
 'nine',
 'nine']
```

[73]:
```
mylist.insert(1,'ONE')
mylist
```

[73]:
```
['one',
 'ONE',
 'two',
```

```
 'three',
 'four',
 'five',
 'six',
 'seven',
 'eight',
 'nine',
 'ten',
 'nine',
 'nine']
```

[75]:
```
mylist.remove('ONE')
mylist
```

[75]:
```
['one',
 'two',
 'three',
 'four',
 'five',
 'six',
 'seven',
 'eight',
 'nine',
 'ten',
 'nine',
 'nine']
```

[77]:
```
mylist.pop()
mylist
```

[77]:
```
['one',
 'two',
 'three',
 'four',
 'five',
 'six',
 'seven',
 'eight',
 'nine',
 'ten',
 'nine']
```

[79]:
```
mylist.pop(8)
mylist
```

[79]:
```
['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight', 'ten', 'nine']
```

[81]:
```
del mylist[7]
mylist
```

[81]:
```
['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'ten', 'nine']
```

[85]:
```
#change value of the string
mylist[0] = 1
mylist[1] = 2
mylist[2] = 3
mylist
```

[85]:
```
[1, 2, 3, 'four', 'five', 'six', 'seven', 'ten', 'nine']
```

[87]:
```
mylist.clear()
mylist
```

[87]:
```
[]
```

[89]:
```
del mylist
mylist
```

```
---------------------------------------------------------------------
NameError                         Traceback (most recent call last)
Cell In[89], line 2
      1 del mylist
----> 2 mylist

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

1.4 CopyList

[91]:
```
mylist = ['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight',␣
 ↪'nine']
```

[93]:
```
mylist1=mylist
```

[95]:
```
id(mylist) , id(mylist1)
```

[95]:
```
(1997049286528, 1997049286528)
```

[97]:
```
mylist2 = mylist.copy()
```

[101]:
```
id(mylist2)
```

[101]:
```
1997049235520
```

[103]:
```
mylist[0] = 1
```

[105]:
```
mylist
```

[105]:
```
[1, 'two', 'three', 'four', 'five', 'six', 'seven', 'eight', 'nine']
```

[107]:
```
mylist1
```

[107]:
```
[1, 'two', 'three', 'four', 'five', 'six', 'seven', 'eight', 'nine']
```

[109]:
```
mylist2
```

[109]:
```
['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight', 'nine']
```

1.5 Join Lists

[111]:
```
list1 = ['one', 'two', 'three', 'four']
list2 = ['five', 'six', 'seven', 'eight']
```

[113]:
```
list3 = list1 + list2 # Join two lists by '+' operator
list3
```

[113]:
```
['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']
```

[115]:
```
list1.extend(list2)
list1
```

[115]:
```
['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']
```

1.6 List Membership

[117]:
```
list1
```

[117]:
```
['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']
```

[119]:
```
'one' in list1
```

[119]:
```
True
```

[121]:
```
'ten' in list1
```

[121]:
```
False
```

[129]:
```
if 'three' in list1:
    print('Three is present in the list')
else:
    print('Three is not present in the list')
```

```
Three is present in the list
```

[131]:
```
if 'eleven' in list1:
    print('It is present in the list')
else:
    print('It is not present in the list')
```

```
It is not present in the list
```

1.7 Reverse & Sort List

[133]:
```
list1
```

[133]:
```
['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']
```

[137]:
```
list1.reverse()
list1
```

[137]:
```
['eight', 'seven', 'six', 'five', 'four', 'three', 'two', 'one']
```

[139]:
```
list1 = list1[::-1]
list1
```

[139]:
```
['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']
```

[141]:
```
mylist3 = [9,5,2,99,12,88,34]
mylist3.sort()
mylist3
```

[141]:
```
[2, 5, 9, 12, 34, 88, 99]
```

[143]:
```
mylist3 = [9,5,2,99,12,88,34]
mylist3.sort(reverse=True)
mylist3
```

[143]:
```
[99, 88, 34, 12, 9, 5, 2]
```

[145]:
```
mylist4 = [88,65,33,21,11,98]
sorted(mylist4)
```

[145]:
```
[11, 21, 33, 65, 88, 98]
```

[147]:
```
mylist4
```

[147]:
```
[88, 65, 33, 21, 11, 98]
```

1.8 Loop through a list

[149]:
```
list1
```

[149]:
```
['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']
```

[153]:
```
for i in list1:
    print(i)
```

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

[155]:
```
for i in enumerate(list1):
    print(i)
```

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

1.9 Count

[157]:
```
list10 =['one', 'two', 'three', 'four', 'one', 'one', 'two', 'three']
```

[159]:
```
list10.count('one')
```

[159]:
```
3
```

[161]:
```
list10.count('two')
```

[161]:
```
2
```

[163]:
```
list10.count('four')
```

[163]:
```
1
```

2 All / Any

[ ]:
```
The all() method returns:
True - If all elements in a list are true
False - If any element in a list is false
The any() function returns True if any element in the list is True. If not,␣
 ↪any() returns Fals
```

[165]:
```
L1=[1,2,3,4,0]
```

[167]:
```
all(L1)
```

[167]: False

[169]:
```
any(L1)
```

[169]: True

[171]:
```
L2=[1,2,3,4,True,False]
```

[175]:
```
all(L2)
```

[175]: False

[177]:
```
any(L2)
```

[177]: True

[179]:
```
L3=[1,2,3,True]
```

[181]:
```
all(L3)
```

[181]: True

[183]:
```
any(L3)
```

[183]: True

[ ]:
```

```