In [1]:
```python
import sys
sys.version
```

Out[1]: '3.12.7 | packaged by Anaconda, Inc. | (main, Oct 4 2024, 13:17:27) [MSC v.1929 6
4 bit (AMD64)]'

List Datastructure

In [16]:
```python
l=[]
l
```

Out[16]: []

In [3]:
```python
print(type(l))
```

<class 'list'>

In [4]:
```python
type(l)
```

Out[4]: list

In [17]:
```python
len(l)
```

Out[17]: 0

In [18]:
```python
l.append(10)
```

In [7]:
```python
l
```

Out[7]: [10]

In [19]:
```python
l.append(20)
l.append(30)
l.append(40)
l.append(50)
```

In [9]:
```python
l
```

Out[9]: [10, 20, 30, 40, 50]

In [20]:
```python
len(l)
```

Out[20]: 5

In [21]:
```python
l.append(60,70)
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[21], line 1
----> 1 l.append(60,70)

TypeError: list.append() takes exactly one argument (2 given)
```

In [22]: `l`

Out[22]: `[10, 20, 30, 40, 50]`

In [23]: `l.append(10)`

In [24]: `l`

Out[24]: `[10, 20, 30, 40, 50, 10]`

In [25]: `l[0]`

Out[25]: `10`

In [26]: `l[0]=100`

In [27]: `l`

Out[27]: `[100, 20, 30, 40, 50, 10]`

In [28]: `l[-1]=-10`

In [29]: `l`

Out[29]: `[100, 20, 30, 40, 50, -10]`

In [30]: `l1=l.copy()`

In [31]: `l1`

Out[31]: `[100, 20, 30, 40, 50, -10]`

In [32]:
```
print(l)
print(l1)
```
```
[100, 20, 30, 40, 50, -10]
[100, 20, 30, 40, 50, -10]
```

In [33]: `l==l1`

Out[33]: `True`

In [34]: `id(l)==id(l1)`

Out[34]: `False`

In [35]: `id(l)!=id(l1)`

Out[35]: True

In [36]: `l.count(20)`

Out[36]: 1

In [37]: `l.append(20)`

In [38]: `l`

Out[38]: `[100, 20, 30, 40, 50, -10, 20]`

In [39]: `l.count(20)`

Out[39]: 2

In [40]: `len(l1)`

Out[40]: 6

In [41]: `l1`

Out[41]: `[100, 20, 30, 40, 50, -10]`

In [43]: `l1.clear()`

In [44]: `l1`

Out[44]: `[]`

In [45]: `id(l1)`

Out[45]: 1956175271040

In [46]: `del l1`

In [47]: `l1`

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[47], line 1
----> 1 l1

NameError: name 'l1' is not defined
```

In [48]: `l`

Out[48]: `[100, 20, 30, 40, 50, -10, 20]`

```
In [49]:   l2=[]
```

```
In [50]:   l2.append(8)
           l2.append('nit')
           l2.append(True)
           l2.append(1+2j)
           l2.append(9.3)
```

```
In [51]:   l2
```

```
Out[51]:   [8, 'nit', True, (1+2j), 9.3]
```

```
In [52]:   print(l)
           print(l2)
```

```
           [100, 20, 30, 40, 50, -10, 20]
           [8, 'nit', True, (1+2j), 9.3]
```

```
In [53]:   l.index(100)
```

```
Out[53]:   0
```

```
In [54]:   l.index(20)
```

```
Out[54]:   1
```

```
In [55]:   l2[2]
```

```
Out[55]:   True
```

```
In [56]:   l2[1]
```

```
Out[56]:   'nit'
```

```
In [57]:   l2[1][0]
```

```
Out[57]:   'n'
```

```
In [58]:   l2
```

```
Out[58]:   [8, 'nit', True, (1+2j), 9.3]
```

```
In [59]:   print(l2[1])
```

```
           nit
```

```
In [60]:   print(l2[1][0])
           print(l2[1][1])
           print(l2[1][2])
```

```
           n
           i
           t
```

```
In [61]: l[:]
```

```
Out[61]: [100, 20, 30, 40, 50, -10, 20]
```

```
In [63]: l[3:]
```

```
Out[63]: [40, 50, -10, 20]
```

```
In [64]: l[:10]
```

```
Out[64]: [100, 20, 30, 40, 50, -10, 20]
```

```
In [65]: l[0:8:3]
```

```
Out[65]: [100, 40, 20]
```

```
In [66]: l2
```

```
Out[66]: [8, 'nit', True, (1+2j), 9.3]
```

```
In [67]: l2[1:6:2]
```

```
Out[67]: ['nit', (1+2j)]
```

```
In [68]: l.insert(2,15)
```

```
In [69]: l
```

```
Out[69]: [100, 20, 15, 30, 40, 50, -10, 20]
```

```
In [70]: l.pop()
```

```
Out[70]: 20
```

```
In [71]: l
```

```
Out[71]: [100, 20, 15, 30, 40, 50, -10]
```

```
In [72]: l.pop(2)
```

```
Out[72]: 15
```

```
In [73]: l
```

```
Out[73]: [100, 20, 30, 40, 50, -10]
```

```
In [74]: l2
```

```
Out[74]: [8, 'nit', True, (1+2j), 9.3]
```

```
In [75]: l2.remove('nit')
```

```
In [76]:  l2
```

```
Out[76]:  [8, True, (1+2j), 9.3]
```

```
In [77]:  list1=[]
```

```
In [78]:  print(type(list1))
          <class 'list'>
```

```
In [79]:  list2=[10,20,30]
```

```
In [80]:  list3=[11.1,22.2,33.3]
```

```
In [81]:  list4=['vakula','hello','hi']
```

```
In [82]:  list5=['okula',25,[50,100],[150,90]]
```

```
In [83]:  list6=['okula',29,22.22]
```

```
In [84]:  list7=['okula',30,[50,100],[150,90],{'okula','anugu'}]
```

```
In [85]:  len(list6)
```

```
Out[85]:  3
```

```
In [86]:  list2
```

```
Out[86]:  [10, 20, 30]
```

```
In [88]:  list2[1]
```

```
Out[88]:  20
```

```
In [89]:  list4
```

```
Out[89]:  ['vakula', 'hello', 'hi']
```

```
In [90]:  list4[0]
```

```
Out[90]:  'vakula'
```

```
In [91]:  list4[1][1]
```

```
Out[91]:  'e'
```

```
In [92]:  list4[-1]
```

```
Out[92]:  'hi'
```

```
In [93]:  list5
```

Out[93]: ['okula', 25, [50, 100], [150, 90]]

In [94]: `list5[-1]`

Out[94]: [150, 90]

In [95]: `mylist=['one','two','three','four','five','six','seven','eight']`

In [96]: `mylist[0:3]`

Out[96]: ['one', 'two', 'three']

In [97]: `mylist[:2]`

Out[97]: ['one', 'two']

In [98]: `mylist[2:5]`

Out[98]: ['three', 'four', 'five']

In [99]: `mylist[:3]`

Out[99]: ['one', 'two', 'three']

In [100… `mylist[-3:]`

Out[100… ['six', 'seven', 'eight']

In [101… `mylist[-2]`

Out[101… 'seven'

In [102… `mylist[-2:]`

Out[102… ['seven', 'eight']

In [103… `mylist[-1:]`

Out[103… ['eight']

In [104… `mylist[:]`

Out[104… ['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']

In [105… `mylist.append('nine')`

In [106… `mylist`

Out[106… ['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight', 'nine']

In [107… `mylist.insert(8,'eightANDhalf')`

```
In [108…  mylist
```

```
Out[108…  ['one',
           'two',
           'three',
           'four',
           'five',
           'six',
           'seven',
           'eight',
           'eightANDhalf',
           'nine']
```

```
In [109…  mylist.remove('eightANDhalf')
```

```
In [110…  mylist
```

```
Out[110…  ['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight', 'nine']
```

```
In [111…  mylist.pop()
```

```
Out[111…   'nine'
```

```
In [112…  mylist
```

```
Out[112…  ['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']
```

```
In [113…  mylist.insert(5,'ten')
```

```
In [114…  mylist
```

```
Out[114…  ['one', 'two', 'three', 'four', 'five', 'ten', 'six', 'seven', 'eight']
```

```
In [115…  mylist.pop(5)
```

```
Out[115…   'ten'
```

```
In [116…  mylist
```

```
Out[116…  ['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']
```

```
In [117…  del mylist[7]
```

```
In [118…  mylist
```

```
Out[118…  ['one', 'two', 'three', 'four', 'five', 'six', 'seven']
```

```
In [119…  del mylist('five')
```

```
  Cell In[119], line 1
    del mylist('five')
          ^
SyntaxError: cannot delete function call
```

In [120… `mylist.remove('four')`

In [121… `mylist`

Out[121… `['one', 'two', 'three', 'five', 'six', 'seven']`

In [122… `mylist.clear()`

In [123… `mylist()`

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[123], line 1
----> 1 mylist()

TypeError: 'list' object is not callable
```

In [124… `mylist`

Out[124… `[]`

In [125… `del mylist`

In [126… `mylist`

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[126], line 1
----> 1 mylist

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

In [127… `mylist=[1,2,3,4,5,6,7,8,9]`

In [128… `mylist`

Out[128… `[1, 2, 3, 4, 5, 6, 7, 8, 9]`

In [129… `mylist1=mylist`

In [130… `mylist1`

Out[130… `[1, 2, 3, 4, 5, 6, 7, 8, 9]`

In [131… `id(mylist)==id(mylist1)`

Out[131… `True`

In [132... `mylist2=mylist.copy()`

In [133... `mylist2==mylist`

Out[133... True

In [134... `id(mylist2)==id(mylist)`

Out[134... False

In [135... `mylist[0]='one'`

In [136... `mylist`

Out[136... `['one', 2, 3, 4, 5, 6, 7, 8, 9]`

In [137... `mylist1`

Out[137... `['one', 2, 3, 4, 5, 6, 7, 8, 9]`

In [138... `mylist2`

Out[138... `[1, 2, 3, 4, 5, 6, 7, 8, 9]`

In [141... `list2`

Out[141... `[10, 20, 30]`

In [142... `list2.clear()`

In [143... `list2`

Out[143... `[]`

In [144... `list1=[1,2,3,4]`

In [145... `list2=[5,6,7,8]`

In [146... `list3=list1+list2`

In [147... `list3`

Out[147... `[1, 2, 3, 4, 5, 6, 7, 8]`

In [148... `list1.extend(list2)`

In [149... `list1`

Out[149... `[1, 2, 3, 4, 5, 6, 7, 8]`

In [150… `list1.clear()`

In [151… `list()`

Out[151… `[]`

List Membership

In [152… `list=['one','two','three','four','five','six','seven','eight']`

In [153… `'one' in list`

Out[153… `True`

In [154… `'ten' in list`

Out[154… `False`

In [155…
```python
if 'three' in list:
    print('three is present in list')
else:
    print('three is not present in list')
```
`three is present in list`

In [156…
```python
if 'ten' in list:
    print('ten is present in list')
else:
    print('ten is not present in list')
```
`ten is not present in list`

Reverse & Sort List

In [157… `list.reverse()`

In [158… `list`

Out[158… `['eight', 'seven', 'six', 'five', 'four', 'three', 'two', 'one']`

In [8]: `list`

Out[8]: `['eight', 'seven', 'six', 'five', 'four', 'three', 'two', 'one']`

In [9]: `list1=list[::-1]`

In [10]: `list1`

Out[10]: `['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']`

```
In [11]:   list
```

```
Out[11]:   ['eight', 'seven', 'six', 'five', 'four', 'three', 'two', 'one']
```

```
In [12]:   list2=[9,13,2,66,7,1]
```

```
In [13]:   list2.sort()
```

```
In [14]:   list2
```

```
Out[14]:   [1, 2, 7, 9, 13, 66]
```

```
In [15]:   list3=[66,2,1,45,8,99,7]
```

```
In [16]:   list3.sort(reverse=True)
```

```
In [17]:   list3
```

```
Out[17]:   [99, 66, 45, 8, 7, 2, 1]
```

```
In [18]:   list4=[88,65,33,21,11,98]
           sorted(list4)
```

```
Out[18]:   [11, 21, 33, 65, 88, 98]
```

```
In [19]:   list4
```

```
Out[19]:   [88, 65, 33, 21, 11, 98]
```

loop through a list

```
In [21]:   list1
```

```
Out[21]:   ['one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight']
```

```
In [22]:   for i in list1:
               print(i)
```

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

```
In [23]:   for i in enumerate(list1):
               print(i)
```

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

All/Any

In [26]: `l1=[1,2,3,4,0]`

In [27]: `all(l1)`

Out[27]: False

In [28]: `any(l1)`

Out[28]: True

In [ ]: `l`

In [30]: `l2=[1,2,3,4,True,False]`

In [31]: `all(l2)`

Out[31]: False

In [32]: `any(l2)`

Out[32]: True

In [33]: `L3=[1,2,3,'NIT',True]`

In [35]: `all(L3)`

Out[35]: True

In [36]: `any(L3)`

Out[36]: True

In [ ]:

In [ ]:

In [ ]:

In [ ]:

In [ ]: