Inbuild ds(primitive)

.LIST

.TUPLE

.SET

.DICT

.RANGE

** List** #Mutable

In [13]:
```
l=[]# empty list
l
```

Out[13]: []

In [37]:
```
type(l)
```

Out[37]: list

In [44]:
```
l.append()
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[44], line 1
----> 1 l.append()

TypeError: list.append() takes exactly one argument (0 given)
```

In [50]:
```
l.append(10)#add the element at last
l
```

Out[50]: [20, 20, 10, 10]

In [52]:
```
l.append(10)
l.append(20)
l.append(30)
l
```

Out[52]: [20, 20, 10, 10, 10, 20, 30]

In [58]:
```
l1=[10, 5.4,'ten',True,(2+3j)]
l1
```

Out[58]: [10, 5.4, 'ten', True, (2+3j)]

In [62]:
```
print(l)
print(l1)
```

```
[20, 20, 10, 10, 10, 20, 30]
[10, 5.4, 'ten', True, (2+3j)]
```

In [66]:
```
print(id(l))
print(id(l1))
```

```
2215984278976
2216003008000
```

In [69]:
```
l2
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[69], line 1
----> 1 l2

NameError: name 'l2' is not defined
```

In [71]:
```
l2=l1.copy()# copy the element from another cell
l2
```

Out[71]: [10, 5.4, 'ten', True, (2+3j)]

In [73]:
```
l1==l2
```

Out[73]: True

In [75]:
```
l==l2
```

Out[75]: False

In [77]:
```
l1!=l2
```

Out[77]: False

In [79]:
```
print(l)
print(l1)
print(l2)
```

```
[20, 20, 10, 10, 10, 20, 30]
[10, 5.4, 'ten', True, (2+3j)]
[10, 5.4, 'ten', True, (2+3j)]
```

In [81]:
```
l
```

Out[81]: [20, 20, 10, 10, 10, 20, 30]

In [83]:
```
l[:]
```

Out[83]: [20, 20, 10, 10, 10, 20, 30]

In [85]:
```
l[0]
```

Out[85]: 20

In [87]:
```
l[-2]
```

Out[87]: 20

In [89]:
```
l[:-4]
```

Out[89]: [20, 20, 10]

In [93]:
```
l
```

Out[93]: [20, 20, 10, 10, 10, 20, 30]

In [99]:
```
l1
```

Out[99]: [10, 5.4, 'ten', True, (2+3j)]

In [101…
```
l1[::4]
```

Out[101… [10, (2+3j)]

In [103…
```
l1[-5]
```

Out[103… 10

In [105…
```
l1[:50]
```

Out[105… [10, 5.4, 'ten', True, (2+3j)]

In [107…
```
l2[::40]
```

Out[107… [10]

In [109…
```
l2
```

Out[109… [10, 5.4, 'ten', True, (2+3j)]

In [111…
```
l2[-::40]
```

```
  Cell In[111], line 1
    l2[-::40]
       ^
SyntaxError: invalid syntax
```

In [115…
```
l2.clear()
```

In [117…
```
l2.append(67)
l2
```

Out[117… [67]

In [119…
```
l1.append(40)
l1
```

Out[119… [10, 5.4, 'ten', True, (2+3j), 40]

*** Count ***

In [121…
```
l.count(40)
```

Out[121… 0

In [123…
```
l1.count(40)
```

Out[123… 1

In [127…
```
l2.count(10)
```

Out[127… 0

In [129…
```
print(l)
print(l1)
```

```
[20, 20, 10, 10, 10, 20, 30]
[10, 5.4, 'ten', True, (2+3j), 40]
```

List Membership

In [134…
```
l
```

Out[134… [20, 20, 10, 10, 10, 20, 30]

In [136…
```
100 in l
```

Out[136… False

In [138…
```
40 in l
```

Out[138… False

In [140…
```
10 in l
```

Out[140… True

In [142…
```
40 in l1
```

Out[142… True

In [144…
```
(2+3j) in l
```

Out[144… False

In [146…
```
True in l
```

Out[146… False

*** extend ***

In [155…
```
l1.extend(l2)
l2
```

Out[155… [67, 20, 20, 10, 10, 10, 20, 30]

In [157…
```
l2.extend(l)
l
```

Out[157… [20, 20, 10, 10, 10, 20, 30]

In [160…
```
l1
```

Out[160… [10, 5.4, 'ten', True, (2+3j), 40, 67, 20, 20, 10, 10, 10, 20, 30]

In [162…
```
l2.extend(l1)
l1
```

Out[162… [10, 5.4, 'ten', True, (2+3j), 40, 67, 20, 20, 10, 10, 10, 20, 30]

Index

In [165…
```
l1.index(40)
```

Out[165… 5

In [169…
```
l1.index(2+3j)
```

Out[169… 4

In [171…
```
l[:]
```

Out[171… [20, 20, 10, 10, 10, 20, 30]

In [173…
```
l2[0:6]
```

Out[173… [67, 20, 20, 10, 10, 10]

In [175…
```
l2[-5::]
```

Out[175… [10, 10, 10, 20, 30]

In [177…
```
l2
```

Out[177…
```
[67,
 20,
 20,
 10,
 10,
 10,
 20,
 30,
 20,
 20,
 10,
 10,
 10,
 20,
 30,
 10,
 5.4,
 'ten',
 True,
 (2+3j),
 40,
 67,
 20,
 20,
 10,
 10,
 10,
 20,
 30]
```

*** Backward indexing & backward slicing ***

In [181…
```
l1
```

Out[181… [10, 5.4, 'ten', True, (2+3j), 40, 67, 20, 20, 10, 10, 10, 20, 30]

In [183…
```
l1[:]
```

Out[183… [10, 5.4, 'ten', True, (2+3j), 40, 67, 20, 20, 10, 10, 10, 20, 30]

In [185…
```
l1[-5]
```

Out[185… 10

In [187…
```
l1[:-8]
```

Out[187… [10, 5.4, 'ten', True, (2+3j), 40]

In [189…
```
l2
```

Out[189…
```
[67,
 20,
 20,
 10,
 10,
 10,
 20,
 30,
 20,
 20,
 10,
 10,
 10,
 20,
 30,
 10,
 5.4,
 'ten',
 True,
 (2+3j),
 40,
 67,
 20,
 20,
 10,
 10,
 10,
 20,
 30]
```

In [193…
```
l
```

Out[193… `[20, 20, 10, 10, 10, 20, 30]`

In [195…
```
l[-3:]
```

Out[195… `[10, 20, 30]`

In [197…
```
l1[3:-3]
```

Out[197… `[True, (2+3j), 40, 67, 20, 20, 10, 10]`

In [199…
```
l1
```

Out[199… `[10, 5.4, 'ten', True, (2+3j), 40, 67, 20, 20, 10, 10, 10, 20, 30]`

In [201…
```
l1[::-1]
```

Out[201… `[30, 20, 10, 10, 10, 20, 20, 67, 40, (2+3j), True, 'ten', 5.4, 10]`

In [203…
```
l2[::-3]
```

Out[203… `[30, 10, 20, (2+3j), 5.4, 20, 10, 30, 10, 20]`

In [205…
```
print(l,id(l))
print(l1,id(l1))
print(l2,id(l2))
```

```
[20, 20, 10, 10, 10, 20, 30] 2215984278976
[10, 5.4, 'ten', True, (2+3j), 40, 67, 20, 20, 10, 10, 10, 20, 30] 2216003008000
[67, 20, 20, 10, 10, 10, 20, 30, 20, 20, 10, 10, 10, 20, 30, 10, 5.4, 'ten', True,
(2+3j), 40, 67, 20, 20, 10, 10, 10, 20, 30] 2216003236992
```

Remove

In [213…
```
l1.remove(10)
print(l1)
```

```
[5.4, 'ten', (2+3j), 40, 67, 20, 20, 10, 10, 10, 20, 30]
```

In [216…
```
l1
```

Out[216…
```
[5.4, 'ten', (2+3j), 40, 67, 20, 20, 10, 10, 10, 20, 30]
```

In [218…
```
l1.remove(2+3j)
print(l1)
```

```
[5.4, 'ten', 40, 67, 20, 20, 10, 10, 10, 20, 30]
```

In [220…
```
l2
```

Out[220…
```
[67,
 20,
 20,
 10,
 10,
 10,
 20,
 30,
 20,
 20,
 10,
 10,
 10,
 20,
 30,
 10,
 5.4,
 'ten',
 True,
 (2+3j),
 40,
 67,
 20,
 20,
 10,
 10,
 10,
 20,
 30]
```

In [223…
```
l2.remove(10,10,40,20,20)
print(l2)
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[223], line 1
----> 1 l2.remove(10,10,40,20,20)
      2 print(l2)

TypeError: list.remove() takes exactly one argument (5 given)
```

List Datastucture

In [4]:
```
l1=[100,20,30,50,]
l1
```

Out[4]: [100, 20, 30, 50]

In [6]:
```
l1.append(9)
l1.append(10)
l1.append(11)
print(l1)
```

```
[100, 20, 30, 50, 9, 10, 11]
```

Index

In [10]:
```
l1.index(100)
```

Out[10]: 0

In [12]:
```
l1.index(50)
```

Out[12]: 3

In [14]:
```
l1.index(9)
```

Out[14]: 4

In [16]:
```
l2=[True,8,(1+2j),8.4]
l2
```

Out[16]: [True, 8, (1+2j), 8.4]

In [18]:
```
print(l2[1])
```

```
8
```

In [24]:
```
print(l2[0][0])
print(l2[0][1])
print(l2[0][2])
print(l2[0][3])
```

```
---------------------------------------------------------------
TypeError                         Traceback (most recent call last)
Cell In[24], line 1
----> 1 print(l2[0][0])
      2 print(l2[0][1])
      3 print(l2[0][2])

TypeError: 'bool' object is not subscriptable
```

In [28]:
```
l2.append('jin')
l2
```

Out[28]: [True, 8, (1+2j), 8.4, 'jin']

In [32]:
```
l2
```

Out[32]: [True, 8, (1+2j), 8.4, 'jin']

In [36]:
```
print(l2[4][0])
print(l2[4][1])
print(l2[4][2])
```

```
j
i
n
```

Insert

In [40]:
```
l2
```

Out[40]: [True, 8, (1+2j), 8.4, 'jin']

In [42]:
```
l2.insert(15,2)
l2
```

Out[42]: [True, 8, (1+2j), 8.4, 'jin', 2]

In [46]:
```
l2.insert(2,2)
l2
```

Out[46]: [True, 8, 2, 2, (1+2j), 8.4, 'jin', 2]

In [48]:
```
l1
```

Out[48]: [100, 20, 30, 50, 9, 10, 11]

In [50]:
```
l1.insert(0,5)
l1
```

Out[50]: [5, 100, 20, 30, 50, 9, 10, 11]

In [ ]:
```

```

POP

In [53]:
```
l1
```

Out[53]: [5, 100, 20, 30, 50, 9, 10, 11]

In [55]:
```
l1.pop()
```

Out[55]: 11

In [57]:
```
l1
```

Out[57]: [5, 100, 20, 30, 50, 9, 10]

In [59]:
```
l1.pop(2)
```

Out[59]: 20

In [61]:
```
l1
```

Out[61]: [5, 100, 30, 50, 9, 10]

In [63]:
```
l2
```

Out[63]: [True, 8, 2, 2, (1+2j), 8.4, 'jin', 2]

In [66]:
```
l2.pop(3)
```

Out[66]: 2

In [68]:
```
l2
```

Out[68]: [True, 8, 2, (1+2j), 8.4, 'jin', 2]

In [70]:
```
l2.pop()
```

Out[70]: 2

In [72]:
```
l2
```

Out[72]: [True, 8, 2, (1+2j), 8.4, 'jin']

In [74]:
```
l1
```

Out[74]: [5, 100, 30, 50, 9, 10]

Sort

In [78]:
```
l1.sort()
l1
```

Out[78]: [5, 9, 10, 30, 50, 100]

In [95]:
```
l3=[10.2,'True',20]
l3
```

Out[95]:
```
[10.2, 'True', 20]
```

In [97]:
```
l3.sort()
```

```
---------------------------------------------------------------------
TypeError                         Traceback (most recent call last)
Cell In[97], line 1
----> 1 l3.sort()

TypeError: '<' not supported between instances of 'str' and 'float'
```

In [99]:
```
l2
```

Out[99]:
```
[True, 8, 2, (1+2j), 8.4, 'jin']
```

In [103…
```
l1.sort()
l1
```

Out[103…
```
[5, 9, 10, 30, 50, 100]
```

In [107…
```
l1.sort(reverse=True)
l1
```

Out[107…
```
[100, 50, 30, 10, 9, 5]
```

In [109…
```
l1.sort(reverse=False)
l1
```

Out[109…
```
[5, 9, 10, 30, 50, 100]
```

In [ ]: