

22-10-2025

List_Data Structure

.List .Tuple .Set .Dict .Range

LIST

```
In [1]: l = []  
l
```

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

```
In [2]: type(l)
```

```
Out[2]: list
```

```
In [4]: len(l)
```

```
Out[4]: 0
```

```
In [5]: l.append()
```

```
-----  
TypeError                                Traceback (most recent call last)  
Cell In[5], line 1  
----> 1 l.append()
```

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

```
In [6]: l.append(10)
```

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

```
Out[7]: [10]
```

```
In [8]: l.append(20)  
l.append(30)  
l.append(40)
```

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

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

```
In [11]: len(l)
```

```
Out[11]: 4
```

```
In [12]: l.append(50)
```

```
In [13]: l
```

```
Out[13]: [10, 20, 30, 40, 50]
```

```
In [14]: l1 = [10,3.4, 'ten', True, 1+2j]
         l1
```

```
Out[14]: [10, 3.4, 'ten', True, (1+2j)]
```

```
In [15]: print(l)
         print(l1)
```

```
[10, 20, 30, 40, 50]
[10, 3.4, 'ten', True, (1+2j)]
```

```
In [17]: print(len(l))
         print(len(l1))
```

```
5
5
```

```
In [18]: print(id(l))
         print(id(l1))
```

```
140706000384936
1625108599808
```

```
In [19]: l2
```

```
-----
NameError                                Traceback (most recent call last)
Cell In[19], line 1
----> 1 l2
```

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

```
In [20]: l2 = l1.copy()
         l2
```

```
Out[20]: [10, 3.4, 'ten', True, (1+2j)]
```

```
In [22]: l1 == l2
```

```
Out[22]: True
```

```
In [23]: l == l2
```

```
Out[23]: False
```

```
In [24]: print(l)
         print(l1)
         print(l2)
```

```
[10, 20, 30, 40, 50]
[10, 3.4, 'ten', True, (1+2j)]
[10, 3.4, 'ten', True, (1+2j)]
```

```
In [25]: l != 12
```

```
Out[25]: True
```

```
In [26]: l
```

```
Out[26]: [10, 20, 30, 40, 50]
```

```
In [27]: l[:]
```

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

```
In [28]: l[0]
```

```
Out[28]: 10
```

```
In [29]: l[-1]
```

```
Out[29]: 50
```

```
In [30]: l
```

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

```
In [31]: l[4]
```

```
Out[31]: 50
```

```
In [32]: l[5]
```

```
-----  
IndexError                                Traceback (most recent call last)  
Cell In[32], line 1  
----> 1 l[5]
```

```
IndexError: list index out of range
```

```
In [33]: l[10]
```

```
-----  
IndexError                                Traceback (most recent call last)  
Cell In[33], line 1  
----> 1 l[10]
```

```
IndexError: list index out of range
```

```
In [34]: l
```

```
Out[34]: [10, 20, 30, 40, 50]
```

```
In [35]: l[0]
```

```
Out[35]: 10
```

```
In [36]: l[0] = 100
```

```
In [37]: l
```

```
Out[37]: [100, 20, 30, 40, 50]
```

```
In [38]: l[-1] = 'jan'
```

```
In [39]: l
```

```
Out[39]: [100, 20, 30, 40, 'jan']
```

```
In [40]: l.append('feb')
```

```
In [41]: l
```

```
Out[41]: [100, 20, 30, 40, 'jan', 'feb']
```

```
In [42]: l.append(40)
l
```

```
Out[42]: [100, 20, 30, 40, 'jan', 'feb', 40]
```

```
In [43]: l
```

```
Out[43]: [100, 20, 30, 40, 'jan', 'feb', 40]
```

```
In [44]: l2
```

```
Out[44]: [10, 3.4, 'ten', True, (1+2j)]
```

```
In [45]: len(l2)
```

```
Out[45]: 5
```

```
In [46]: l2.clear()
```

```
In [47]: l2
```

```
Out[47]: []
```

```
In [49]: len(l2)
```

```
Out[49]: 0
```

```
In [50]: del l2
```

```
In [51]: l
```

```
Out[51]: [100, 20, 30, 40, 'jan', 'feb', 40]
```

```
In [52]: l.count(100)
```

Out[52]: 1

```
In [53]: l.count(40)
```

Out[53]: 2

```
In [54]: l
```

Out[54]: [100, 20, 30, 40, 'jan', 'feb', 40]

```
In [55]: l.count(1000)
```

Out[55]: 0

```
In [56]: print(l)
         print(l1)
```

[100, 20, 30, 40, 'jan', 'feb', 40]
[10, 3.4, 'ten', True, (1+2j)]

```
In [57]: print(len(l))
         print(len(l1))
```

7
5

list membership

```
In [58]: l
```

Out[58]: [100, 20, 30, 40, 'jan', 'feb', 40]

```
In [59]: 100 in l
```

Out[59]: True

```
In [60]: 1000 in l
```

Out[60]: False

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

Out[61]: [100, 20, 30, 40, 'jan', 'feb', 40]

```
In [62]: l1
```

Out[62]: [10, 3.4, 'ten', True, (1+2j)]

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

```
In [64]: print(len(l))
         print(len(l1))
         print(len(l2))
```

```
7
5
0
```

```
In [65]: 1
```

```
Out[65]: [100, 20, 30, 40, 'jan', 'feb', 40]
```

```
In [66]: 11
```

```
Out[66]: [10, 3.4, 'ten', True, (1+2j)]
```

```
In [67]: 12
```

```
Out[67]: []
```

```
In [68]: 12.extend(1)
```

```
In [69]: 12
```

```
Out[69]: [100, 20, 30, 40, 'jan', 'feb', 40]
```

```
In [70]: 12.extend(11)
```

```
In [71]: 12
```

```
Out[71]: [100, 20, 30, 40, 'jan', 'feb', 40, 10, 3.4, 'ten', True, (1+2j)]
```

```
In [72]: 11
```

```
Out[72]: [10, 3.4, 'ten', True, (1+2j)]
```

```
In [73]: 11.extend(12)
```

```
In [74]: 11
```

```
Out[74]: [10,
          3.4,
          'ten',
          True,
          (1+2j),
          100,
          20,
          30,
          40,
          'jan',
          'feb',
          40,
          10,
          3.4,
          'ten',
          True,
          (1+2j)]
```

```
In [75]: len(l1)
```

```
Out[75]: 17
```

```
In [76]: l
```

```
Out[76]: [100, 20, 30, 40, 'jan', 'feb', 40]
```

```
In [77]: l.index('jan')
```

```
Out[77]: 4
```

```
In [78]: l
```

```
Out[78]: [100, 20, 30, 40, 'jan', 'feb', 40]
```

```
In [79]: l[:]
```

```
Out[79]: [100, 20, 30, 40, 'jan', 'feb', 40]
```

```
In [80]: l2
```

```
Out[80]: [100, 20, 30, 40, 'jan', 'feb', 40, 10, 3.4, 'ten', True, (1+2j)]
```

```
In [81]: l2[:]
```

```
Out[81]: [100, 20, 30, 40, 'jan', 'feb', 40, 10, 3.4, 'ten', True, (1+2j)]
```

```
In [82]: l2[0:6]
```

```
Out[82]: [100, 20, 30, 40, 'jan', 'feb']
```

```
In [83]: l2
```

```
Out[83]: [100, 20, 30, 40, 'jan', 'feb', 40, 10, 3.4, 'ten', True, (1+2j)]
```

```
In [84]: l2[3:10]
```

```
Out[84]: [40, 'jan', 'feb', 40, 10, 3.4, 'ten']
```

```
In [85]: l2
```

```
Out[85]: [100, 20, 30, 40, 'jan', 'feb', 40, 10, 3.4, 'ten', True, (1+2j)]
```

```
In [86]: l2[::2]
```

```
Out[86]: [100, 30, 'jan', 40, 3.4, True]
```

```
In [87]: l2
```

```
Out[87]: [100, 20, 30, 40, 'jan', 'feb', 40, 10, 3.4, 'ten', True, (1+2j)]
```

```
In [88]: l2[::5]
```

```
Out[88]: [100, 'feb', True]
```

backward indexing & backward slicing

```
In [89]: 12
```

```
Out[89]: [100, 20, 30, 40, 'jan', 'feb', 40, 10, 3.4, 'ten', True, (1+2j)]
```

```
In [90]: 12[:]
```

```
Out[90]: [100, 20, 30, 40, 'jan', 'feb', 40, 10, 3.4, 'ten', True, (1+2j)]
```

```
In [91]: 12[-5]
```

```
Out[91]: 10
```

```
In [92]: 12
```

```
Out[92]: [100, 20, 30, 40, 'jan', 'feb', 40, 10, 3.4, 'ten', True, (1+2j)]
```

```
In [93]: 12[:-9]
```

```
Out[93]: [100, 20, 30]
```

```
In [94]: 12
```

```
Out[94]: [100, 20, 30, 40, 'jan', 'feb', 40, 10, 3.4, 'ten', True, (1+2j)]
```

```
In [95]: 12[:-3]
```

```
Out[95]: [100, 20, 30, 40, 'jan', 'feb', 40, 10, 3.4]
```

```
In [96]: 12
```

```
Out[96]: [100, 20, 30, 40, 'jan', 'feb', 40, 10, 3.4, 'ten', True, (1+2j)]
```

```
In [97]: 12[-3:]
```

```
Out[97]: ['ten', True, (1+2j)]
```

```
In [98]: 12
```

```
Out[98]: [100, 20, 30, 40, 'jan', 'feb', 40, 10, 3.4, 'ten', True, (1+2j)]
```

```
In [99]: 12[3:-3]
```

```
Out[99]: [40, 'jan', 'feb', 40, 10, 3.4]
```

```
In [100... 12
```

```
Out[100... [100, 20, 30, 40, 'jan', 'feb', 40, 10, 3.4, 'ten', True, (1+2j)]
```



```
In [101... 12[::-1]
```

```
Out[101... [(1+2j), True, 'ten', 3.4, 10, 40, 'feb', 'jan', 40, 30, 20, 100]
```

```
In [102... 12
```

```
Out[102... [100, 20, 30, 40, 'jan', 'feb', 40, 10, 3.4, 'ten', True, (1+2j)]
```

```
In [103... 12[:-3]
```

```
Out[103... [100, 20, 30, 40, 'jan', 'feb', 40, 10, 3.4]
```

```
In [104... 12
```

```
Out[104... [100, 20, 30, 40, 'jan', 'feb', 40, 10, 3.4, 'ten', True, (1+2j)]
```

```
In [105... 12[::-3]
```

```
Out[105... [(1+2j), 3.4, 'feb', 30]
```

```
In [106... print(l)  
          print(l1)  
          print(l2)
```

```
[100, 20, 30, 40, 'jan', 'feb', 40]
```

```
[10, 3.4, 'ten', True, (1+2j), 100, 20, 30, 40, 'jan', 'feb', 40, 10, 3.4, 'ten', Tr  
ue, (1+2j)]
```

```
[100, 20, 30, 40, 'jan', 'feb', 40, 10, 3.4, 'ten', True, (1+2j)]
```

```
In [107... l1.remove(1+2j)
```

```
In [108... print(l1)
```

```
[10, 3.4, 'ten', True, 100, 20, 30, 40, 'jan', 'feb', 40, 10, 3.4, 'ten', True, (1+2  
j)]
```

```
In [ ]:
```