

Data Strucure

- LIST
- TUPLE
- SET
- DICT
- RANGE

1. LIST

```
In [2]: l = []  
l
```

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

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

```
Out[3]: list
```

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

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

```
In [5]: print(type(l))  
print(len(l))
```

```
<class 'list'>  
0
```

```
In [7]: l.append()
```

```
-----  
TypeError                                Traceback (most recent call last)  
Cell In[7], line 1  
----> 1 l.append()  
  
TypeError: list.append() takes exactly one argument (0 given)
```

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

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

```
In [11]: l
```

```
Out[11]: [10, 20, 30, 10, 20, 30, 10, 20, 30]
```

```
In [13]: l=[10, 20, 30, 40,]  
l
```

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

```
In [14]: l.append(50)
l
```

Out[14]: []

```
In [15]: l
```

Out[15]: [10, 20, 30, 40, 50]

```
In [17]: l1 = [10,2.5,'ten',True,(2+3j)]
l1
```

Out[17]: [10, 2.5, 'ten', True, (2+3j)]

```
In [24]: print(l)
print(l1)
print(len(l),len(l1))
print(id(l),id(l1))
```

[10, 20, 30, 40, 50]
[10, 2.5, 'ten', True, (2+3j)]
5 5
2711510632256 2711510986112

```
In [25]: l.clear
```

Out[25]: <function list.clear()>

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

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

```
In [30]: print(l[0])
print(l[1])
print(l[2])
print(l[-1])
```

10
20
30
50

```
In [32]: l2=l1.copy()
l2
```

Out[32]: [10, 2.5, 'ten', True, (2+3j)]

```
In [33]: l1==l2
```

Out[33]: True

```
In [34]: l1!=l2
```

Out[34]: False

```
In [40]: l[0]=100 # changing values is called mutable
1
```

```
Out[40]: [100, 20, 30, 40, 50, 'jan']
```

```
In [38]: l.append('jan')
1
```

```
Out[38]: [100, 20, 30, 40, 50, 'jan']
```

```
In [41]: l[0:4]
```

```
Out[41]: [100, 20, 30, 40]
```

```
In [42]: l[0:5:2]
```

```
Out[42]: [100, 30, 50]
```

```
In [44]: l[::2]
```

```
Out[44]: [100, 30, 50]
```

```
In [45]: l.clear()
```

```
In [46]: l
```

```
Out[46]: []
```

```
In [47]: len(l)
```

```
Out[47]: 0
```

```
In [49]: del l
1
```

```
-----
NameError                                Traceback (most recent call last)
Cell In[49], line 1
----> 1 del l
      2 l

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

```
In [50]: l=[100, 20, 30, 40, 50, 'jan']
1
```

```
Out[50]: [100, 20, 30, 40, 50, 'jan']
```

```
In [51]: l.count(20)
```

```
Out[51]: 1
```

```
In [52]: print(l.count('jan'))
```

```
1
```

```
In [53]: # list mebership
```

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

```
Out[54]: [100, 20, 30, 40, 50, 'jan']
```

```
In [55]: print(100 in l)
         print(50 in l)
         print(200 in l)
```

```
True
True
False
```

```
In [56]: print(l)
         print(l1)
         print(l2)
```

```
[100, 20, 30, 40, 50, 'jan']
[10, 2.5, 'ten', True, (2+3j)]
[10, 2.5, 'ten', True, (2+3j)]
```

```
In [57]: l1.append('srikar')
         l2.clear()
```

```
In [58]: print(l1)
         print(l2)
```

```
[10, 2.5, 'ten', True, (2+3j), 'srikar']
[]
```

```
In [60]: l2.extend(l1)
         l2
```

```
Out[60]: [100, 20, 30, 40, 50, 'jan']
```

```
In [61]: l2.extend(l1)
         l2
```

```
Out[61]: [100, 20, 30, 40, 50, 'jan', 10, 2.5, 'ten', True, (2+3j), 'srikar']
```

```
In [62]: l2.remove(2.5)
         l2
```

```
Out[62]: [100, 20, 30, 40, 50, 'jan', 10, 'ten', True, (2+3j), 'srikar']
```

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

```
[100, 20, 30, 40, 50, 'jan']
[10, 2.5, 'ten', True, (2+3j), 'srikar']
[100, 20, 30, 40, 50, 'jan', 10, 'ten', True, (2+3j), 'srikar']
```

```
In [65]: l1.extend(l2)
         l1
```

```
Out[65]: [10,
          2.5,
          'ten',
          True,
          (2+3j),
          'srikar',
          100,
          20,
          30,
          40,
          50,
          'jan',
          10,
          'ten',
          True,
          (2+3j),
          'srikar']
```

```
In [66]: l.index('jan')
```

```
Out[66]: 5
```

```
In [67]: 1
```

```
Out[67]: [100, 20, 30, 40, 50, 'jan']
```

```
In [68]: l[:]
```

```
Out[68]: [100, 20, 30, 40, 50, 'jan']
```

```
In [69]: l2[2:4]
```

```
Out[69]: [30, 40]
```

```
In [70]: l2
```

```
Out[70]: [100, 20, 30, 40, 50, 'jan', 10, 'ten', True, (2+3j), 'srikar']
```

```
In [72]: print(l2[:4])
          print(l2[0:10])
          print(l2[3:8])
          print(l2[:4])
          print(l2[::4])
```

```
[100, 20, 30, 40]
[100, 20, 30, 40, 50, 'jan', 10, 'ten', True, (2+3j)]
[40, 50, 'jan', 10, 'ten']
[100, 20, 30, 40]
[100, 50, True]
```

backward indexing, backward slicing

```
In [73]: l2
```

```
Out[73]: [100, 20, 30, 40, 50, 'jan', 10, 'ten', True, (2+3j), 'srikar']
```

```
In [83]: print(l2[-4])
print(l2[:-8])
print(l2[-4:])
print(l2[:-4])
print(l2[3:-3])
print(l2[:-1])
```

ten

[100, 20, 30]

['ten', True, (2+3j), 'srikar']

['srikar', 10, 30]

[40, 50, 'jan', 10, 'ten']

['srikar', (2+3j), True, 'ten', 10, 'jan', 50, 40, 30, 20, 100]

In []: