

PythonTip 02 - List Slicing - class version

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1 List Slicing

List slicing is a way to get not just one element of a list, but a whole portion.

```
[8]: L = ["a", "b", "c", "d", "e", "f"]  
L[2]
```

```
[8]: 'c'
```

`L[a:b]` means the portion of the list from index `a` (inclusive) to index `b` (exclusive).

```
[2]: L[2:5] # [L[2], L[3], L[4]]
```

```
[2]: ['c', 'd', 'e']
```

If you leave out `a`, it starts from the beginning of the list. If you leave out `b`, it goes to the end.

```
[3]: L[:4]
```

```
[3]: ['a', 'b', 'c', 'd']
```

```
[5]: L[1:]
```

```
[5]: ['b', 'c', 'd', 'e', 'f']
```

```
[13]: L = ['a', 'b', 'c', 'd', 'e', 'f']
```

```
[16]: R = L[:]  
L.append('g')  
print(L)  
print(R)
```

```
['a', 'b', 'c', 'd', 'e', 'f', 'g', 'g']
```

```
['a', 'b', 'c', 'd', 'e', 'f', 'g']
```

```
[17]: id(L), id(R)
```

```
[17]: (4451119168, 4452336448)
```

```
[ ]: R = L[:] # a copy of the list!  
R = list(L) # another way to do the same thing
```

```
[18]: L = ['a', 'b', 'c', 'd', 'e', 'f']
```

You can use a third piece `L[a:b:c]`, and `c` means how much to go up by each time.

```
[19]: print(L[1:5:2])  
print([L[1], L[3]])
```

```
['b', 'd']  
['b', 'd']
```

```
[20]: L = list(range(0, 21))  
print(L)
```

```
[0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20]
```

```
[21]: L[::3]
```

```
[21]: [0, 3, 6, 9, 12, 15, 18]
```

```
[22]: L[::-1]
```

```
[22]: [20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0]
```

```
[25]: L[11:3:-1]
```

```
[25]: [11, 10, 9, 8, 7, 6, 5, 4]
```

```
[26]: L[11:3:-3]
```

```
[26]: [11, 8, 5]
```

Lastly, you can use negative indexing too. For example, to get the last 3 elements of a list:

```
[27]: L[-3]
```

```
[27]: 18
```

```
[28]: L[-3:]
```

```
[28]: [18, 19, 20]
```

```
[29]: L[len(L)-3:]
```

```
[29]: [18, 19, 20]
```

To get all except the last element:

```
[ ]: L[:len(L)-1]
```

```
[ ]: L[:-1]
[ ]: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19]
[ ]: 
[ ]: 
[ ]: L
[ ]: L[:round(len(L)/2)]
[ ]: L[round(len(L)/2):]
[ ]: L[:5]
[ ]: L[5:]
```