List

- Lists are used to store multple items in a single variable.
- Lists are one of 4 built-in data types in python used to store collection of data, the other 3 are Tuple, Set, Dictionary.
- Lists are created using square brackets '[]'.

```
1 thislist = ['mumbai','pune','satara']
2 print(thislist)
```

```
['mumbai', 'pune', 'satara']
```

List Items

- List items are **ordered**, **changeable**, and **allow duplicate values**.
- List items are **indexed**, the first item has index [0], the second item has index [1] etc.

Ordered

- When we say that lists are **ordered**, it means that the items have a defined order, and that **order will not change**.
- If you add new items to a list, the new items will be placed at the end of the list.

Changeable

- The list is changeable, means that we can change, add, and remove items in a list after it has been created.

Allow Duplicates

- Since lists are indexed, lists can have items with the same value.

List Length

- len() function is used to get the lenth of the list.

```
1 len(thislist)
```

```
3
```

List Items

- List items can be of any data types.
- List can contain values with different data type.

```
1 new_list = ['mumbai',400064,True]
2 print(new_list)
```

```
['mumbai', 400064, True]
```

type()

- From Python's perspective, lists are defined as objects with the data type '**list**'.

```
1 print(type(thislist))
```

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

The list() Constructor

- It is also possible to use list() constructor when we are creating a new list.

- It is also possible to use list() constructor when we are creating a new list.
- **NOTE** - 2 times rounded brackets are required, because we can pass only 1 argument.

```
1 new_list = list((1,2,3,4,5,True,False,"mumbai","pune"))
2 print(new_list)
```

```
[1, 2, 3, 4, 5, True, False, 'mumbai', 'pune']
```

List Methods

1. append()

- Adds an element at the end of the list.
- Need to pass only one element at the time of execution.

```
1 colors = ['orange','black','green']
2 colors.append('pink')
3 colors
```

```
['orange', 'black', 'green', 'pink']
```

```
1 l1 = ['blue','yellow','brown']
2 colors.append(l1)
3 colors
```

```
['orange', 'black', 'green', 'pink', ['blue', 'yellow', 'brown']]
```

2. copy()

- It will copy a particular list.

```
1 colors2 = colors.copy()
2 colors2
```

```
['orange', 'black', 'green', 'pink', ['blue', 'yellow', 'brown']]
```

3. count()

- It will return the count of the specified element.

```
1 list1 = [1,2,3,4,5,6,7,8,9,9,0,9,8,9,8,7,5,4,4,3,2]
```

```
1 list1.count(9)
```

```
4
```

4. extend()

- It will add specified list to the end of the current list.

```
1 list1.extend(colors)
2 print(list1)
```

```
[1, 2, 3, 4, 5, 6, 7, 8, 9, 9, 0, 9, 8, 9, 8, 7, 5, 4, 4, 3, 2, 'orange', 'black', 'green', 'pink', ['blue', 'yellow', 'brown'], 'orange
```

5. index()

- It will return the index of the first occurance of the specified element.

```
1 list1.index(9)
```

```
8
```

6. insert()

- It will insert the specified value at the specified position as you want.

```
1 colors.insert(1,'silver')
2 colors
```

```
['orange', 'silver', 'black', 'green', 'pink', ['blue', 'yellow', 'brown']]
```

7. pop()

- It will remove the element from the specified position.
- Default value is -1, which returns the last element.

```
1 colors.pop()
2 colors
```

```
['orange', 'silver', 'black', 'green', 'pink']
```

```
1 colors.pop(1)
2 colors
```

```
['orange', 'black', 'green', 'pink']
```

8. remove()

- It will remove the first occurance of the element with the specified value.

```
1 list1.remove(9)
2 list1
```

```
[1,
 2,
 3,
 4,
 5,
 6,
 7,
 8,
 9,
 0,
 9,
 8,
 9,
 8,
 7,
 5,
 4,
 4,
 3,
 2,
 'orange',
 'black',
 'green',
 'pink',
 ['blue', 'yellow', 'brown'],
 'orange',
 'black',
 'green',
 'pink',
 ['blue', 'yellow', 'brown']]
```

9. reverse()

- It will reverse the order of the list.

```
1 colors.reverse()
2 colors
```

```
['pink', 'green', 'black', 'orange']
```

reversed()

- It will reverse a iterator object.

```
1 reverse_colors = reversed(colors)
2 for i in reverse_colors:
3   print(i)
```

```
black
green
orange
pink
```

10. sort()

- It will sort the list in ascending order.
- To store in descending order --> reverse = True.
- Bydefault is reverse = False.

```
1 colors.sort()
2 colors
```

```
['black', 'green', 'orange', 'pink']
```

```
1 colors.sort(reverse=True)
2 colors
```

```
['pink', 'orange', 'green', 'black']
```

11. clear()

- It will remove all the elements from the list.

```
1 colors.clear()
2 colors
```

```
[]
```

```
1
```