

In []: LIST -->

List **is** denoted by Square bracket []

List **is** a mutable -- > it means, can be modified after creation

2- Element maintain their ordered.

3- Accessing the value by Index (0)

4- List can store differnt data types (Heterogeneous)

5- It can size the on runtime

In [1]: # 1 (empty list creation)

```
lst = []
print(lst)
```

[]

In [2]: # List Creation

```
numbers = [1,2,3,4,5,6]

mised_value = [1,"hello", 3.14,True,234,100,"John"]
```

In [4]: list(range(5))

Out[4]: [0, 1, 2, 3, 4]

In [7]: # LList operations

```
list1 = [1,2,3,4,5]
list2 = [2,4,6,7,9]

lst = list1 + list2
print(lst)
lst1 = list1 * 2
print(lst1)
```

[1, 2, 3, 4, 5, 2, 4, 6, 7, 9]

[1, 2, 3, 4, 5, 1, 2, 3, 4, 5]

In [9]: l1 = [1,2,3]
l2 = [1]

```
l3= l2 + l1
print(l3)
```

[1, 1, 2, 3]

In [12]: # Index and slicing

```
fruits = ["apple","mango","cherry", "banana"] #=> values
```

```
        # 0      1      2      3      #=> indexes
```

```
print(fruits[0])
```

```
print(fruits[4]) # error
```

apple

```
-----
IndexError                                Traceback (most recent call last)
Cell In[12], line 8
      4          # 0      1      2      3      #=> indexes
      6 print(fruits[0])
----> 8 print(fruits[4])

IndexError: list index out of range
```

```
In [13]: s = []
        print(s)
```

[]

```
In [14]: print(fruits[0:2])
```

['apple', 'mango']

```
In [15]: print(fruits[0:-1])
```

['apple', 'mango', 'cherry']

```
In [16]: print(fruits[: -1])
```

['apple', 'mango', 'cherry']

```
In [27]: # modifying list
```

```
lst = [1]
print(lst)

lst.append(2)
print(lst)

lst.insert(0,4) #
print(lst)
```

[1]
[1, 2]
[4, 1, 2]

```
In [28]: lst.insert(20,10) #
        print(lst)
```

[4, 1, 2, 10]

```
In [30]: lst.remove(10) # any values of the deletion
        print(lst)
```

[4, 1, 2]

```
In [32]: lst.pop() ## last values deleteion
```

```
Out[32]: 2
```

```
In [33]: lst
```

```
Out[33]: [4, 1]
```

```
In [34]: del lst[0] # index wise deletions
```

```
In [35]: lst
```

```
Out[35]: [1]
```

```
In [47]: # list methods
```

```
numbers = [2,4,5,6,7,8,67,10,11,23,45,56,1,5]

print(f"length {len(numbers)}")

print(f"Max {max(numbers)}")

print(f"Min {min(numbers)}")

print(f"Sum {sum(numbers)}")

print(f"find {numbers.count(5)}")

print(f"index {numbers.index(8)}") # value of index

print(f"index {numbers[8]}") ## index of the value
```

```
length 14
Max 67
Min 1
Sum 250
find 2
index 5
index 11
```

```
In [48]: print(f"sort {sorted(numbers)}") # ascending
```

```
sort [1, 2, 4, 5, 5, 6, 7, 8, 10, 11, 23, 45, 56, 67]
```

```
In [53]: numbers.reverse()
print(numbers)
```

```
[5, 1, 56, 45, 23, 11, 10, 67, 8, 7, 6, 5, 4, 2]
```

```
In [57]: squares = [ x ** 3 for x in numbers] # list comprehensions
```

```
In [58]: squares
```

```
Out[58]: [125, 1, 175616, 91125, 12167, 1331, 1000, 300763, 512, 343, 216, 125, 64, 8]
```

```
In [ ]:
```