

In [3]:

```

1 # List Concatination (+)
2 a = [1,2,3,4,5]
3 b = ['a','b','c','d','e']
4 print(a + b)
5 print(a)
6 print(b)
7 d= a+b
8 print(d)

```

```

[1, 2, 3, 4, 5, 'a', 'b', 'c', 'd', 'e']
[1, 2, 3, 4, 5]
['a', 'b', 'c', 'd', 'e']
[1, 2, 3, 4, 5, 'a', 'b', 'c', 'd', 'e']

```

In [4]:

```
1 a + 'hello'
```

```

-----
TypeError                                Traceback (most recent call last)
<ipython-input-4-8e2c061730ef> in <module>
----> 1 a + 'hello'

```

**TypeError:** can only concatenate list (not "str") to list

In [5]:

```
1 a + ["hello",'hi','ram',123]
```

Out[5]:

```
[1, 2, 3, 4, 5, 'hello', 'hi', 'ram', 123]
```

In [8]:

```
1 print(a+b+a+d)
```

```

[1, 2, 3, 4, 5, 'a', 'b', 'c', 'd', 'e', 1, 2, 3, 4, 5, 1, 2, 3, 4, 5, 'a',
'b', 'c', 'd', 'e']

```

In [9]:

```

1 # Repetition (*)
2 a * 2

```

Out[9]:

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

In [13]:

```
1 # updation in list
2 print(a)
3
```

[1, 21, 3, 4, 5]

In [14]:

```
1 a[1] = 51
2 print(a)
```

[1, 51, 3, 4, 5]

In [15]:

```
1 a[:2]
```

Out[15]:

[1, 51]

In [18]:

```
1 a[:2]=[7,8,44]
```

In [19]:

```
1 a
```

Out[19]:

[7, 8, 44, 3, 4, 5]

In [20]:

```
1 # Delete list elements & list variable
```

In [21]:

```
1 # Delete List elements using del
2 del a[0]
```

In [22]:

```
1 print(a)
```

[8, 44, 3, 4, 5]

In [23]:

```
1 del a[0:3+1]
```

In [24]:

```
1 print(a)
```

[5]

In [25]:

```
1 # delete variable
2 del a
```

In [26]:

```
1 print(a)
```

```
-----
NameError                                Traceback (most recent call last)
<ipython-input-26-bca0e2660b9f> in <module>
----> 1 print(a)
```

**NameError:** name 'a' is not defined

In [27]:

```
1 # List Methods
2 # dir(variablename)
3 # dir(data type value)
4 # dir(builtin function)
```

In [28]:

```
1 print(dir(list))
```

```
['__add__', '__class__', '__contains__', '__delattr__', '__delitem__', '__di
r__', '__doc__', '__eq__', '__format__', '__ge__', '__getattribute__', '__ge
titem__', '__gt__', '__hash__', '__iadd__', '__imul__', '__init__', '__init_
subclass__', '__iter__', '__le__', '__len__', '__lt__', '__mul__', '__ne__',
 '__new__', '__reduce__', '__reduce_ex__', '__repr__', '__reversed__', '__rmu
l__', '__setattr__', '__setitem__', '__sizeof__', '__str__', '__subclasshook
__', 'append', 'clear', 'copy', 'count', 'extend', 'index', 'insert', 'pop',
'remove', 'reverse', 'sort']
```

In [30]:

```
1 # append()
2 # variablename/value.methodname()
3 names = ['ravi', 'ayyapa', 'rk', 'narayana']
4 print(names)
5 names.append('surya')
```

```
['ravi', 'ayyapa', 'rk', 'narayana']
```

In [31]:

```
1 names
```

Out[31]:

```
['ravi', 'ayyapa', 'rk', 'narayana', 'surya']
```

In [33]:

```
1 names.append(['anil', 'kiran'])
```

In [34]:

```
1 names
```

Out[34]:

```
['ravi', 'ayyapa', 'rk', 'narayana', 'surya', ['anil', 'kiran']]
```

In [35]:

```
1 # Extend() --->iterable data only accepted
2 b
```

Out[35]:

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

In [36]:

```
1 b.extend('programming')
```

In [37]:

```
1 print(b)
```

```
['a', 'b', 'c', 'd', 'e', 'p', 'r', 'o', 'g', 'r', 'a', 'm', 'm', 'i', 'n', 'g']
```

In [38]:

```
1 b.extend(65656434346848)
```

```
-----
TypeError                                 Traceback (most recent call last)
<ipython-input-38-5636140609d9> in <module>
----> 1 b.extend(465656434346848)
```

**TypeError:** 'int' object is not iterable

In [39]:

```
1 b.extend([65656434346848])
```

In [41]:

```
1 print(b)
```

```
['a', 'b', 'c', 'd', 'e', 'p', 'r', 'o', 'g', 'r', 'a', 'm', 'm', 'i', 'n',  
'g', 65656434346848]
```

In [42]:

```
1 b.extend(['ramu', 'somu', 41, 52.3])
```

In [43]:

```
1 print(b)
```

```
['a', 'b', 'c', 'd', 'e', 'p', 'r', 'o', 'g', 'r', 'a', 'm', 'm', 'i', 'n',  
'g', 65656434346848, 'ramu', 'somu', 41, 52.3]
```

In [44]:

```
1 # copy()  
2 temp = [1, 2, 'a', 'b', 'c', 41.25]  
3 temp1 = temp #when use '=' it will store variable address  
4 print(temp1)
```

```
[1, 2, 'a', 'b', 'c', 41.25]
```

In [45]:

```
1 temp1[0]="check me"  
2 print(temp1)
```

```
['check me', 2, 'a', 'b', 'c', 41.25]
```

In [46]:

```
1 print(temp)
```

```
['check me', 2, 'a', 'b', 'c', 41.25]
```

In [48]:

```
1 aa = temp      # stored address  
2 t = temp.copy() # stored values
```

In [50]:

```
1 print(t)
```

```
['check me', 2, 'a', 'b', 'c', 41.25]
```

In [51]:

```
1 del t[:]
```

In [52]:

```
1 t
```

Out[52]:

```
[]
```

In [53]:

```
1 t.extend('abcdefgh')
```

In [54]:

```
1 print(t)
```

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

In [55]:

```
1 temp
```

Out[55]:

```
['check me', 2, 'a', 'b', 'c', 41.25]
```

In [56]:

```
1 print(temp[:])
```

```
['check me', 2, 'a', 'b', 'c', 41.25]
```

In [58]:

```
1 a1,a2,a3=temp.copy(),temp.copy(),temp.copy()
```

In [59]:

```
1 print(a1,a2,a3)
```

```
['check me', 2, 'a', 'b', 'c', 41.25] ['check me', 2, 'a', 'b', 'c', 41.25]
```

```
['check me', 2, 'a', 'b', 'c', 41.25]
```

In [60]:

```
1 # count()
2 [1,2,4,2,5,6,1,2,4,5,23,5,5,14,4,3,25].count(1)
```

Out[60]:

```
2
```

In [61]:

```
1 ['a', 'b', 'c'].count('r')
```

Out[61]:

0

In [64]:

```
1 print(temp)
```

['check me', 2, 'a', 'b', 'c', 41.25]

In [65]:

```
1 # index() ---> find index using value
2 temp.index('a')
```

Out[65]:

2

In [66]:

```
1 temp.index('Ooops')
```

```
-----
ValueError                                Traceback (most recent call last)
<ipython-input-66-e8c3dbb6add3> in <module>
----> 1 temp.index('Ooops')
```

**ValueError:** 'Ooops' is not in list

In [69]:

```
1 # insert()
2 temp.insert(0, "python")
```

In [70]:

```
1 print(temp)
```

['python', 'check me', 2, 'python', 'a', 'b', 'c', 41.25]

In [72]:

```
1 # pop()
2 temp.pop()
```

Out[72]:

41.25

In [73]:

```
1 print(temp)
```

```
['python', 'check me', 2, 'python', 'a', 'b', 'c']
```

In [74]:

```
1 # remove()  
2 temp.remove('check me')
```

In [75]:

```
1 print(temp)
```

```
['python', 2, 'python', 'a', 'b', 'c']
```

In [76]:

```
1 temp.remove('python')
```

In [77]:

```
1 print(temp)
```

```
[2, 'python', 'a', 'b', 'c']
```

In [78]:

```
1 # reverse()  
2 temp.reverse()
```

In [79]:

```
1 print(temp)
```

```
['c', 'b', 'a', 'python', 2]
```

In [80]:

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

In [81]:

```
1 numbers.reverse()
```

In [82]:

```
1 print(numbers)
```

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



In [83]:

```
1 # sort()
2 numbers.sort()
```

In [84]:

```
1 print(numbers)
```

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

In [85]:

```
1 numbers.sort(reverse = True)
```

In [86]:

```
1 print(numbers)
```

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

In [87]:

```
1 numbers.sort(reverse = False)
```

In [88]:

```
1 print(numbers)
```

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

In [91]:

```
1 numbers[:4].sort(reverse = False)
```

In [92]:

```
1 print(numbers)
```

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

In [93]:

```
1 # clear()
2 numbers.clear()
```

In [94]:

```
1 numbers
```

Out[94]:

[]

In [95]:

```
1 temp
```

Out[95]:

```
['c', 'b', 'a', 'python', 2]
```

In [96]:

```
1 temp[:3].clear()
```

In [97]:

```
1 temp
```

Out[97]:

```
['c', 'b', 'a', 'python', 2]
```

In [98]:

```
1 # find length of list elements
2 len(temp)
```

Out[98]:

```
5
```

In [99]:

```
1 max(temp)
```

```
-----
TypeError                                Traceback (most recent call last)
<ipython-input-99-a410585de09d> in <module>
----> 1 max(temp)
```

**TypeError:** '>' not supported between instances of 'int' and 'str'

In [100]:

```
1 max([1,3,32,544,333])
```

Out[100]:

```
544
```

In [101]:

```
1 min([1,3,32,544,333])
```

Out[101]:

```
1
```

In [102]:

```
1 max(['av', 'sw', 'b', 'wr'])
```

Out[102]:

'wr'

In [103]:

```
1 min(['av', 'sw', 'b', 'wr'])
```

Out[103]:

'av'

In [104]:

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

In [105]:

```
1 sorted(numbers)
```

Out[105]:

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

In [112]:

```
1 temp = [1,4,2,3,1,5,87,45]
```

In [107]:

```
1 sorted(temp)
```

Out[107]:

[1, 1, 2, 3, 4, 5, 45, 87]

In [113]:

```
1 print(temp)
2 print(temp[1:6])
3 sorted(temp[1:6])
```

[1, 4, 2, 3, 1, 5, 87, 45]

[4, 2, 3, 1, 5]

Out[113]:

[1, 2, 3, 4, 5]

In [ ]:

```
1
```

