List

-List is an ordered sequence of items. -We can have different data types under a list. E.g we can have integer, float and string items in asame list

In [2]:
```
#list creation
l=[]
print(type(l))
```

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

In [5]:
```
#list of intger numbers
l1=[1,2,3]
#list of float numbers
l2=[2.3,3.4,5.6]
#list of string
l3=['sana','hana','amara']
#list of mixed datatpes
l4=[1,2.3,'sana']
# nested list
l5=[1,2.3,'sana',[2,3,4]]
#length of list
print(len(l4))
print(len(l1))
print(len(l3))
print(len(l2))
```

```
3
3
3
3
```

In [13]:
```
#list indexing
print(l1[2])
print(l2[1])
print(l4[2])
print(l4[2][2])
print(l5[3][2])
print(l4[-1])
```

```
3
3.4
sana
n
4
sana
```

In [15]:
```
#list slicing
fruits=['apple','banana','orange','grapes','mango']
print(fruits[:2])
print(fruits[1:2])
print(fruits[2:])
print(fruits[:4])
print(fruits[1:3])
print(fruits[0:4])
print(fruits[3:])
print(fruits[-3:])
print(fruits[:-4])
```

```
['apple', 'banana']
['banana']
['orange', 'grapes', 'mango']
['apple', 'banana', 'orange', 'grapes']
['banana', 'orange']
['apple', 'banana', 'orange', 'grapes']
['grapes', 'mango']
['orange', 'grapes', 'mango']
['apple']
```

list methods

In [16]:
```
#Add remove and change items
l=[1,2,3,4,5,6,7]
l
```

Out[16]:
```
[1, 2, 3, 4, 5, 6, 7]
```

In [23]:
```
#append
l.append(8)
print(l)
#insert
l.insert(5,0)
print(l)
#remove
l.remove(0)
print(l)
#pop
l.pop()
print(l)
#changing value
l[0]='one'
l[1]='tw0'
l[2]='three'
print(l)
```

```
['one', 'tw0', 'three', 4, 5, 6, 7, 8, 8, 8]
['one', 'tw0', 'three', 4, 5, 0, 6, 7, 8, 8, 8]
['one', 'tw0', 'three', 4, 5, 6, 7, 8, 8, 8]
['one', 'tw0', 'three', 4, 5, 6, 7, 8, 8]
['one', 'tw0', 'three', 4, 5, 6, 7, 8, 8]
```

In [24]:
```
#delete
del l[3]
print(l)
```

```
['one', 'tw0', 'three', 5, 6, 7, 8, 8]
```

In [25]:
```
#clear
l.clear()
print(l)
```

```
[]
```

In [27]:
```
del l   #delete the list
l
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[27], line 1
----> 1 del l
      2 l

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

In [31]:
```
#copy
l1=['s','w','g',1,2,3]
print(id(l1))
l2=['h','f',7,8,9]
print(id(l2))
l3=l1.copy()
print(l3)
print(id(l3))
```

```
2526247330816
2526247619136
['s', 'w', 'g', 1, 2, 3]
2526247619200
```

In [32]:
```
l1[0]='b'
print(l1)
print(l2)
print(l3)
```

```
['b', 'w', 'g', 1, 2, 3]
['h', 'f', 7, 8, 9]
['s', 'w', 'g', 1, 2, 3]
```

In [33]:
```
#join
l=[1,'d','t','u',3,5]
l1=[4,7,8,'b',3.5,7.8,1+4j]
l3=l1+l2
print(l3)
```

```
[4, 7, 8, 'b', 3.5, 7.8, (1+4j), 'h', 'f', 7, 8, 9]
```

In [36]:
```
#extend
l2.extend(l1)
l2
```

Out[36]:
```
['h',
 'f',
 7,
 8,
 9,
 4,
 7,
 8,
 'b',
 3.5,
 7.8,
 (1+4j),
 'h',
 'f',
 7,
 8,
 9,
 'h',
 'f',
 7,
 8,
 9]
```

In [38]:
```
#List membership
l1=['hello','hi',1,2,3]
l2=['good','bye',7,8,9]
print(l1)
print(l2)
```

```
['hello', 'hi', 1, 2, 3]
['good', 'bye', 7, 8, 9]
```

In [40]:
```
'good' in l2
```

Out[40]: True

In [41]:
```
1 in l1
```

Out[41]: True

In [42]:
```
'hello'in l2
```

Out[42]: False

In [45]:
```
#reverse sort list
list=[4,5,6,7,3,2,1]
list.reverse()
print(list)
```

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

In [46]:
```
list=list[::-1]  #reverse the list
list
```

Out[46]: [4, 5, 6, 7, 3, 2, 1]

In [47]:
```
list.sort()
list
```

Out[47]:
```
[1, 2, 3, 4, 5, 6, 7]
```

In [48]:
```
list.sort(reverse=True)
list
```

Out[48]:
```
[7, 6, 5, 4, 3, 2, 1]
```

In [50]:
```
#loop throughout alist
print(list)
for i in list:
    print(i)
```

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

In [52]:
```
#count
l=[2,3,2,4,4,5,6,7]
print(l.count(6))
print(l.count(2))
print(l.count(4))
```

```
1
2
2
```

In [55]:
```
#all/any
# The all() methods returns:
# .True- If all elements in a list are true
# .False- If any element in a list is false
# The any() function returns True if any element in the list is True.If not,any(
mylist=[0,1,2,3,4,'str',True,False]
print(all(mylist))
print(any(mylist))
```

```
False
True
```

In [57]:
```
l=[1,2,3,4]
all(l)
```

Out[57]:
```
True
```

In [59]:
```
l1=[1,2,3,4,False] #false reperesents 0
all(l1)
```

Out[59]:
```
False
```

In [ ]: