List is a data type in Python. It is mutable data types means it values can be modified, add and delete. List fall under sequence data type in python.

List items are changeable, and allow duplicate values.

In [2]:
```
#Before understanding above contents, first of all lets create a lists
l=[1,2,3,4.5,"Ram"]
```

In [3]:
```
type(l)
```

Out[3]:
```
list
```

Add item in List - append, insert, extend

In [4]:
```
#adding elements or new item in list
l.append("Hari")
```

In [5]:
```
print(l)
```

```
[1, 2, 3, 4.5, 'Ram', 'Hari']
```

In [6]:
```
#there are other ways too to add item in lists: insert and extend too.
#insert- adding elements in specified index
l.insert(0,"Krishna")
```

In [7]:
```
print(l)
```

```
['Krishna', 1, 2, 3, 4.5, 'Ram', 'Hari']
```

Different between insert and append?

- append add item at end of list, But, insert add item at specefic index or position

In [8]:
```
#extend - its like adding another lists
l.extend([10,11,12])
```

In [9]:
```
print(l)
```

```
['Krishna', 1, 2, 3, 4.5, 'Ram', 'Hari', 10, 11, 12]
```

Access list item (Slicing and Indexing)

In [10]:
```
#lets create new list with duplicate value to show, list accept duplicate values too
l2=[2,3,4,"Ram","apple","apple"]
print(l2)
```

```
[2, 3, 4, 'Ram', 'apple', 'apple']
```

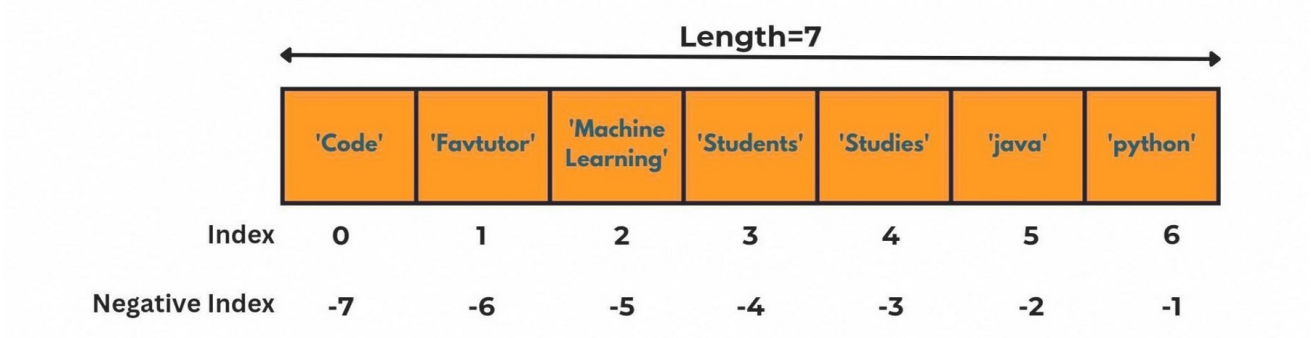
In [11]:
```
#positive index
l2[1]
```

Out[11]:
```
3
```

In [12]:
```
#it provide output (that value which is at 1st position)-above
#similarly, negative index
l2[-1]
```

Out[12]:
```
'apple'
```

Note: Positive index start from 0 but negative index start from -1, example:



In [13]:
```
#Range of indexes
l2[0:3]
```

Out[13]:
```
[2, 3, 4]
```

Change list item- Mutuable

In [14]:
```
#change last item of l2 - apple to grapes
l2[-1]="Grapes"  # or instead of -1 we can write positive index too l2[6]="Grapes"
```

In [15]:
```
print(l2)
```

```
[2, 3, 4, 'Ram', 'apple', 'Grapes']
```

In [16]:
```
#change range of index 2,3,4 to 7,8,9
l2[0:3]=[7,8,9]                #we keep 3 because index or position count one position before then given posit
```

In [17]:
```
print(l2)
```

```
[7, 8, 9, 'Ram', 'apple', 'Grapes']
```

Remove list item - Remove, pop, delete, clear

In [18]:
```
l2
```

Out[18]:
```
[7, 8, 9, 'Ram', 'apple', 'Grapes']
```

In [19]:
```
l2.remove("Ram")      # remove method remove specefied item.
```

In [20]:
```
l2
```

Out[20]:
```
[7, 8, 9, 'apple', 'Grapes']
```

In [21]:
```
l2.pop(2)
```

Out[21]:
```
9
```

In [22]:
```
#pop remove specefied index 's item
l2
```

Out[22]:
```
[7, 8, 'apple', 'Grapes']
```

In [23]:
```
#if we just pop(), it remove last item.
l2.pop()
```

Out[23]:
```
'Grapes'
```

In [26]:
```
#pop() and del[] is same but syntax is different.
del l2[1]
```

In [27]:
```
l2
```

Out[27]:
```
[7, 'apple']
```

In [28]:
```
#now clear will clear the list and note del can totally delete the list too.
l2.clear()
```

In [29]:
```
l2
```

Out[29]:
```
[]
```

In [30]:
```
del l2
```

In [31]:
```
l2
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[31], line 1
----> 1 l2

NameError: name 'l2' is not defined
```

Sort the list

In [46]:
```
thislist = ["orange", "mango", "kiwi", "pineapple", "banana"]
thislist.sort()
print(thislist)
```

```
['banana', 'kiwi', 'mango', 'orange', 'pineapple']
```

In [47]:
```
thislist.sort(reverse=True)
```

```
print(thislist)
```

```
['pineapple', 'orange', 'mango', 'kiwi', 'banana']
```

In [ ]:
```
#reverse = True provide descending to Ascending
```

Join the list= + and extend

In [49]:
```
#add
a=[1,2,3]
b=[4,5,6]
c=[7,8,9]
d= (a+b)
print(d)
```

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

In [50]:
```
#extend
d.extend(c)
```

In [51]:
```
print(d)
```

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

List Methods

Method	Description
append()	Adds an element at the end of the list
clear()	Removes all the elements from the list
copy()	Returns a copy of the list
count()	Returns the number of elements with the specified value
extend()	Add the elements of a list (or any iterable), to the end of the current list
index()	Returns the index of the first element with the specified value
insert()	Adds an element at the specified position
pop()	Removes the element at the specified position
remove()	Removes the item with the specified value
reverse()	Reverses the order of the list
sort()	Sorts the list

In [ ]:
```

```