List

List is a sequential datatype that have ability to store multiple values in a single variable. List is arranged in order that's why it is ordered. The elements of list have their own index that's why it is indexed. We can add and remove elements in list and we can replace value of the list elements that's why it is changeable. List allows duplicates values because it find the elements by using index. List is in the square brackets.

In [7]:
```
#List
list1 = [2,4,1,5,5,1,2,6]
print(list1)
```

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

Accessing Elements in List

To access elements in list we use index number. First of all, we have to write the name of list variable then write open square bracket and then write the index number of the value which you want to fetch and then close the square bracket using closing square bracket. To print the value pass this whole expression in the argument of print() function.

In [9]:
```
#Accessing Elements in List
klist = [1,3,5,7]
e = klist[3]
print(e)
print(klist[0])
```

```
7
1
```

Updating Elements in List

To update elements in list we use index number of element in the list. First of all, we have to write the name of the list variable then we have to open square bracket and write index number then close the square bracket and after that use (=) assignment operator to assign new value in that index position after that write value.

In [27]:
```
#Replace value in List
klist = ["Amrit","Keshari","Yaar"]
klist[2]="NeoCode"
print(klist)
#Replace value by slicing
klist = ["Amrit","Keshari","Yaar","Drone"]
```

```
klist[2:3]=["NeoCode","Hyper"]
print(klist)
```

```
['Amrit', 'Keshari', 'NeoCode']
['Amrit', 'Keshari', 'NeoCode', 'Hyper', 'Drone']
```

Adding Elements in List

To add elements in list we use some builtin function which is used in the list. **append()** function is used to add elements at the last position of the list. **extend()** function is used to add another list in present list. **insert(index,value)** function having two arguments the first one contain inserting index position and second one contain value for inserting.

In [23]:
```
#Add value at Last in List
klist = ["Amrit","Keshari","Yaar"]
klist.append("NeoCode")
print(klist)
#Add value at Position in List
klist = ["Amrit","Keshari","Yaar"]
klist.insert(0,"NeoCode")
print(klist)
#Add value at Last in List
klist = ["Amrit","Keshari","Yaar"]
alist = ["Python","OOPS","DSA"]
klist.extend(alist)
print(klist)
```

```
['Amrit', 'Keshari', 'Yaar', 'NeoCode']
['NeoCode', 'Amrit', 'Keshari', 'Yaar']
['Amrit', 'Keshari', 'Yaar', 'Python', 'OOPS', 'DSA']
```

Removing Elements in List

To remove elements in list we use some builtin function of python. **remove(value)** function removes the first element which is same as passed value in the argument. **pop(index)** function removes the element from the list that index is passed in the argument of pop() function. **pop()** function removes the last element of the list. To clear all the elements of the list you can use **clear()** function. We can also use **del** keyword before the list name with index like list1[3] to delete list elements.

In [38]:
```
#Remove value in List
alist = [1,3, 4, 6, 7, 9]
alist.pop()
print(alist)
alist.pop(1)
print(alist)
alist.remove(4)
print(alist)
```

```
alist.clear()
print(alist)
```

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

Printing Elements of List

To print the list of the elements by traversing each element one by one or iterating each element one by one with the help of loops. Some of the loops are used to print the list of elements are for loop, for-each loop and while loop.

Using while loop

In [43]:
```
#while loop
klist = [1,2,3,4,5,6,7]
i = 0
while(i<len(klist)):
    print(klist[i])
    i = i + 1
```

```
1
2
3
4
5
6
7
```

Using for loop

In [46]:
```
#for loop
klist = [2,3,4,5,6,7,8]
for i in range(0,len(klist),1):
    print(klist[i])
```

```
2
3
4
5
6
7
8
```

Using for-each loop

In [52]:
```
#for-each loop
klist = [3,4,5,6,7,8,9]
for i in klist:
    print(i)
```

3
4
5
6
7
8
9