Set

Set is a sequential datatype just like list and tuple. But it is just opposite to list as list are ordered, indexed, changeable and allow duplicates but set is unordered, unchangeable, unindexed and don't allow duplicates.

In [3]:
```
#set program / syntax
keshari = {1,4,7,0}
#set with duplicates throw error
keshari = {1,1,1,2,3,4}
#convert into set
klist = [1,2,3,4,5]
kSet = set(klist)
```

Set is not ordered because their elements has no index and without index the element cannot be in ordered form. Another thing set does not allow duplicate values because it has no index for their element so it cannot distinguish between duplicates if index exist then it distinguish two similar value by their index only.

In [6]:
```
print(kSet)
```

```
{1, 2, 3, 4, 5}
```

Accessing Elements in Set

As we know that, in set there is no indexing that's why we cannot access elements in set through indexing but we can access the elements in set by using membership operator **(in)** operator by applying conditional statement along with membership operator. You can only use of membership operator then also it run.

In [13]:
```
#Access Set Elements
kSet = {1,2,3,4,5}
val = 3
if val in kSet:
    print("Found")
else:
    print("Not Found")
print(5 in kSet)
```

```
Found
True
```

Adding Elements in Set

To add elements in set, we use **add(value)** function. It takes value which we want to add in our set as an argument. First of all we write name of the set variable then we use dot after that we use **add(value)** function and pass value to add that

element. But one more thing as we know that set is unordered so your new element will get random place anywhere in set. We can also use of **update(set)** that takes another set variable as an argument.This function add one set to another set simple means it concate one set to another set.

In [17]:
```
#Add element using add()
amritSet = {"Hello", "Bello", "Gello", "Dello"}
amritSet.add("Uiop")
print(amritSet)
```

```
{'Gello', 'Dello', 'Hello', 'Bello', 'Uiop'}
```

In [19]:
```
#Add element using update()
keshriSet = {"Qwerty","DSA","Werty"}
amritSet = {"Hello","Bello","Gello","Dello"}
keshriSet.update(amritSet)
print(keshriSet)
```

```
{'Hello', 'Bello', 'DSA', 'Qwerty', 'Werty', 'Gello', 'Dello'}
```

Removing Elements in Set

To remove elements in set, we use **remove(value)** and **discard(value)** built in function to remove elements from the set. The only difference between these two functions is that **remove(value)** function removes element if it exists in the set but if not exixt then it throws error but in case of **discard(value)** function if value exixt in set then it removes the element containing that value and if not exixt then it does not throw error. This is the good point of **discard(value)** function. So, we should use **discard(value)** function instead of **remove(value)** function. These both function takes value(element to be deleted) as an argument. First of all, we have to write set name then dot after that call the function and pass value in it for deletion. There is one more function **pop()** it does not take any argument but after using this function it deletes the random element in the set.

In [34]:
```
#Remove element using remove()
amritSet = {"Door","Utensil","Cup","Saucer"}
amritSet.remove("Door")
print(amritSet)
amritSet.discard("Utensil")
print(amritSet)
amritSet.pop()
print(amritSet)
```

```
{'Saucer', 'Cup', 'Utensil'}
{'Saucer', 'Cup'}
{'Cup'}
```

Printing Elements of Set

For printing elements of set, we use for-each loop because set is not indexed so we cannot able to use for loop and while loop instead of for-each loop. We just have to use for-each loop and membership operator (**in**) to visit each value of the set. Here, membership operator takes one element and throw in the **ith** variable and then we print that **ith** variable and this loop operate till visiting all the elements of set but it prints the elements randomly because it has no index and it is unordered in nature.

In [42]:
```
#print elements of set
keshriSet = {"Computer", "Science", "Technology", "Coding"}
for i in keshriSet:
    print(i)
```

```
Computer
Coding
Technology
Science
```