Data Structures

1. Lists

2. Tuple

3. Dictionary

4. Sets

In [1]:

```
# 1. Lists

# Accessing list

mylist = ["Donkey", "Monkey", "Dog", "Cow", "Cat", "Lion"]
print("Length of mylist : %d" % len(mylist))
print("First item of mylist: %s " % mylist[0]) # Indexing starts at 0
print("Last item of mylist: %s" % mylist[-1])
print("Sub List: %s " % str(mylist[2:4]))
print("Sub List: %s " % str(mylist[2:-1]))
print("Sub List: %s" % str(mylist[1:]))
print("Sub List: %s" % str(mylist[:3]))
print("Sub List: %s" % str(mylist[-4:-1]))
print("Sub List: %s" % str(mylist[-4:]))
print("Sub List: %s" % str(mylist[:]))

# print list

print("Mylist: ", end='')
for item in mylist:
    print(item, end=' ')

print(mylist.index('Monkey'))
print("\nPopped Item : %d " % mylist.count('Monkey'))
```

```
Length of mylist : 6
First item of mylist: Donkey
Last item of mylist: Lion
Sub List: ['Dog', 'Cow']
Sub List: ['Dog', 'Cow', 'Cat']
Sub List: ['Monkey', 'Dog', 'Cow', 'Cat', 'Lion']
Sub List: ['Donkey', 'Monkey', 'Dog']
Sub List: ['Dog', 'Cow', 'Cat']
Sub List: ['Dog', 'Cow', 'Cat', 'Lion']
Sub List: ['Donkey', 'Monkey', 'Dog', 'Cow', 'Cat', 'Lion']
Mylist: Donkey Monkey Dog Cow Cat Lion 1

Popped Item : 1
```

Operations on List

- Lenghth : len(mylist)
- Concatenation : result = mylist1 + mylist2
- Repetation: result = mymylist * 3
- Membership : x in mylist
- Append : mylist.append(item)
- Pop : mylist.pop()
- reverse : mylist.reverse()
- sort : mylist.sort()
- clear : mylist.clear()
- delete : del mylist[1]
- count : mylist.count(item)
- index : mylist.index(item)

In [2]:

```
# 2. Tuple
student = (1, "Mahendra Garodi")
roll_number, name = student
print("Roll Number : %d" % roll_number)
```

```
Roll Number : 1
```

Operations on Tuple

- Unpacking : elements,... = mytuple
- count : mytuple.count(item)
- index : mytuple.index(item)

In [3]:

```
# Dictionaries

mydict = {100 : "Mahendra", 200 : "Pravin"}

# Access My Dictionaries
print(mydict)
print("Keys : %s" % mydict.keys())
print("Values : %s " % mydict.values())
print("Items : %s" %mydict.items())

print(mydict.get(100))
print(mydict[200])
mydict[300] = "Harshal"
mydict[100] = "Mahi"
print(mydict)
```

```
{100: 'Mahendra', 200: 'Pravin'}
Keys : dict_keys([100, 200])
Values : dict_values(['Mahendra', 'Pravin'])
Items : dict_items([(100, 'Mahendra'), (200, 'Pravin')])
Mahendra
Pravin
{100: 'Mahi', 200: 'Pravin', 300: 'Harshal'}
```

Operations on dictionary

- Add : mydict[key] = values
- get : value = mydict.get(key, defualtValue)
- clear : mydict.clear()
- keys : mydict.keys()
- values : mydict.values()
- items : mydict.items()
- pop : value = mydict.pop(key, defaultValue)
- popitem : item = mydict.popitem()
- update : mydict.update(yourdict/yourtuple)

In [4]:

```
mydict[300] = [1, 2, 3]
for key in mydict.keys():
    print("mydict[%s] = %s" %(str(key), str(mydict[key])))

100 in mydict # True
```

```
mydict[100] = Mahi
mydict[200] = Pravin
mydict[300] = [1, 2, 3]
```

Out[4]:

```
True
```

In [5]:

```
# 4. Sets

myset = {1, 2, 3, 2}
print(myset)
myset.remove(1)
for value in myset:
    print(value)
```

```
{1, 2, 3}
2
3
```

Operations on Set

- add
- clear
- remove
- difference
- intersection
- union
- isdisjoint
- issubset
- issuperset
- pop