Q1. What are the characteristics of the tuples? Is tuple immutable?

In [6]:
```
# ans:- characteristics of the tuple are given below:-
#          1.Tuple are denoted by parenthesis
#          2.tuple are only two function:
#            a.count()
#            b.index()
#          3.Tuple is static character

#   yes, Tuple is immutable because we can't modified inside the tuple
```

Q2. What are the two tuple methods in python? Give an example of each method. Give a reason why tuples have only two in-built methods as compared to Lists

In [8]:
```
# the two tuple method in python are
#     a.count()
t1=(1,2,2,2,3,3,4,5,"vivek")

t1.count(2)
```

Out[8]:
```
3
```

In [9]:
```
#     b.index()
t1=(1,2,2,2,3,3,4,5,"vivek")
t1.index(4)
```

Out[9]:
```
6
```

In [10]:
```
#  ans:- tuple has only two inbuild function because a tuple is an immutable sequence type.
```

Q3. Which collection datatypes in python do not allow duplicate items? Write a code using a set to remove duplicates from the given list.

List = [1, 1, 1, 2, 1, 3, 1, 4, 2, 1, 2, 2, 2, 3, 2, 4, 3, 1, 3, 2, 3, 3, 3, 4, 4, 1, 4, 2, 4, 3, 4, 4]

In [8]:
```
#  Set is a collection which is unordered, unchangeable, and unindexed. No duplicate members.
List = [1, 1, 1, 2, 1, 3, 1, 4, 2, 1, 2, 2, 2, 3, 2, 4, 3, 1, 3, 2, 3, 3, 3, 4, 4, 1, 4, 2, 4, 3, 4, 4]
```

In [9]:
```
set(List)
```

Out[9]:
```
{1, 2, 3, 4}
```

Q4. Explain the difference between the union() and update() methods for a set. Give an example of each method.

In [30]:
```
# The diffrence between union and update are :-

#  UNION:- the value which is single times comes between minimumum two set and repeted not allowed

#  UPDATE:-the update() function means it allocate the new space for the variable and it,s is not affected by the previous cell in python
#
s1={1, 1, 1, 2, 1, 3, 1, 4, 2, 1, 2, 2, 2, 3, 2, 4, 3, 1, 3, 2, 3, 3, 3, 4, 4, 1, 4, 2, 4, 3, 4, 4}
s2={1,2,3,4,5,6,7,8,9,0,3,4,5,55,65,67}
```

In [16]:
```
type(s1) and  type(s2)
```

Out[16]:
```
set
```

In [70]:
```
 s1.union(s2)
```

Out[70]:
```
{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 55, 65, 67}
```

In [74]:
```
s3={3,545,657,54,"vivek"}
```

In [76]:
```
s3.update("kumar")
```

In [77]:
```
s3
```

Out[77]:
```
{3, 54, 545, 657, 'a', 'k', 'm', 'r', 'u', 'vivek'}
```

Q5. What is a dictionary? Give an example. Also, state whether a dictionary is ordered or unordered.

In [78]:
```
#  Dictionaries are used to store data values in key:value pairs.
# A dictionary is a collection which is ordered, changeable and do not allow duplicates.
```

In [81]:
```
dict={"First name":"vivek","Last name":"kumar","Adress":"Ghaziabad","phone no":"62*******8","Mail":"vivek*********@gmail.com"}
```

In [80]:
```
type(dict)
```

Out[80]:
```
dict
```

In [82]:
```
dict
```

Out[82]:
```
{'First name': 'vivek',
 'Last name': 'kumar',
 'Adress': 'Ghaziabad',
 'phone no': '62*******8',
 'Mail': 'vivek*********@gmail.com'}
```

Q6. Can we create a nested dictionary? If so, please give an example by creating a simple one-level nested dictionary.

In [90]:
```
# yes we can create easily a nested dictionary
#  example of nested dictionary
dict1={"school":{"class":8,"roll no":205,"section":"A"}}
```

In [91]:
```
dict1
```

Out[91]:
```
{'school': {'class': 8, 'roll no': 205, 'section': 'A'}}
```

Q7. Using setdefault() method, create key named topics in the given dictionary and also add the value of the key as this list ['Python', 'Machine Learning', 'Deep Learning'] dict1 = {'language' : 'Python', 'course': 'Data Science Masters'}

In [96]:
```
skills={"course":["DSA","web devlopment","Android devlopment"]}
```

In [97]:
```
skills
```

Out[97]:
```
{'course': ['DSA', 'web devlopment', 'Android devlopment']}
```

In [101…
```
skills["course"]
```

Out[101]:
```
['DSA', 'web devlopment', 'Android devlopment']
```

In [105…
```
skills["course"]=("Pthon","Mchine Larning","Deep Learning")
```

In [103…
```
skills
```

Out[103]:
```
{'course': ('Pthon', 'Mchine Larning', 'Deep Learning')}
```

Q8. What are the three view objects in dictionaries? Use the three in-built methods in python to display these three view objects for the given dictionary.

dict1 = {'Sport': 'Cricket' , 'Teams': ['India', 'Australia', 'England', 'South Africa', 'Sri Lanka', 'New Zealand']}

In [1]:
```
# The main view objects of dictionary in python are keys, values and items
dict1 = {'Sport': 'Cricket' , 'Teams': ['India', 'Australia', 'England', 'South Africa', 'Sri Lanka', 'New Zealand']}
```

In [2]:
```
dict1
```

Out[2]:
```
{'Sport': 'Cricket',
 'Teams': ['India',
  'Australia',
  'England',
  'South Africa',
  'Sri Lanka',
  'New Zealand']}
```

In [3]:
```
dict1.keys()
```

Out[3]:
```
dict_keys(['Sport', 'Teams'])
```

In [4]:
```
dict1.values()
```

Out[4]:
```
dict_values(['Cricket', ['India', 'Australia', 'England', 'South Africa', 'Sri Lanka', 'New Zealand']])
```

In [5]:
```
dict1.items()
```

Out[5]:
```
dict_items([('Sport', 'Cricket'), ('Teams', ['India', 'Australia', 'England', 'South Africa', 'Sri Lanka', 'New Zealand'])])
```

In [ ]:
```

```