Tuples

May 6, 2019

```
In [34]: # Tuple is a default data structure
         # () --> are not mandotory
         # Tuples are immutable objects else these are exactly same as list
         # Tuples allow duplicates like lists
         # Tuples can be part of set elements and dictionary keys

In [3]: #Tuples Creation Methos

In [4]: t0=()#Empty tuple

In [5]: type(t0)

Out[5]: tuple

In [6]: t1=(1)#Tuple with one element

In [7]: type(t1)

Out[7]: int

In [8]: t1=(1,)#If we want to create a tuple with one element , one shoul keep comma at the en

In [9]: type(t1)

Out[9]: tuple

In [11]: t2=2,3,4,1,3,2,3,5,7

In [13]: type(t2)

Out[13]: tuple

In [26]: t3=tuple([2,3,4,5]) # Tuple creation from the list

In [27]: t3

Out[27]: (2, 3, 4, 5)

In [29]: t4=tuple('Mohith Narayana') # Tuple creating from the string
```

```
In [30]: t4

Out[30]: ('M', 'o', 'h', 'i', 't', 'h', ' ', 'N', 'a', 'r', 'a', 'y', 'a', 'n', 'a')

In [32]: t5=tuple('Mohith Narayana Pasupula'.split())

In [33]: t5

Out[33]: ('Mohith', 'Narayana', 'Pasupula')

In [35]: t6=tuple({2:4,3:9,4:16,5:25}.keys())

In [36]: t6

Out[36]: (2, 3, 4, 5)

In [14]: #Built in Functions / Methdos

In [15]: t2

Out[15]: (2, 3, 4, 1, 3, 2, 3, 5, 7)

In [16]: max(t2)#Maximum Element from the Tuple

Out[16]: 7

In [17]: min(t2) # Minimum Element from the Tuple

Out[17]: 1

In [18]: len(t2) # Length of a Tuple

Out[18]: 9

In [20]: sum(t2) # Total of the Elements

Out[20]: 30

In [21]: sum(t2,3)

Out[21]: 33

In [23]: t2.count(3) # Counting the required element

Out[23]: 3

In [24]: t2.index(5) # Finding the index for the required element

Out[24]: 7

In [37]: #Accessing Tuples

In [38]: #Tuples are immutable but by using we can access inexes
```

```
In [39]: t2

Out[39]: (2, 3, 4, 1, 3, 2, 3, 5, 7)

In [40]: t2[4]

Out[40]: 3

In [45]: s=slice(2,6) # Using Slice object also we can access

In [44]: t2[s]

Out[44]: (4, 1, 3, 2)

In [46]: for i in t2: # Using for loop we can access the Tuple
             print(i,end=' ')

2 3 4 1 3 2 3 5 7

In [48]: for i,j in enumerate(t2): # Using Enumerate Function
             print('Index of the element : ',i,'The actual value : ',j)

Index of the element :  0 The actual value :  2
Index of the element :  1 The actual value :  3
Index of the element :  2 The actual value :  4
Index of the element :  3 The actual value :  1
Index of the element :  4 The actual value :  3
Index of the element :  5 The actual value :  2
Index of the element :  6 The actual value :  3
Index of the element :  7 The actual value :  5
Index of the element :  8 The actual value :  7


In [49]: #Sorting the List of Tuples

In [50]: l0=[('Mohith',2,'A'),('Karthik',1,'C'),('Lakshmi',3,'B')]

In [51]: l0

Out[51]: [('Mohith', 2, 'A'), ('Karthik', 1, 'C'), ('Lakshmi', 3, 'B')]

In [53]: sorted(l0,key=lambda e:e[1])

Out[53]: [('Karthik', 1, 'C'), ('Mohith', 2, 'A'), ('Lakshmi', 3, 'B')]

In [54]: #Operations on Tuples

In [59]: t0=(1,2,3)

In [56]: t1=(4,5,6)
```

```
In [60]: t0
         t1

Out[60]: (4, 5, 6)

In [61]: t0+t1

Out[61]: (1, 2, 3, 4, 5, 6)

In [62]: t0*2

Out[62]: (1, 2, 3, 1, 2, 3)

In [63]: t0<t1

Out[63]: True

In [64]: t0>t1

Out[64]: False

In [66]: 5 in t1 # Member Checking

Out[66]: True

In [67]: #Reversing The Tuple Elements

In [68]: for i in reversed(t1):
             print(i,end=' ')

6 5 4

In [69]: t1[::-1]

Out[69]: (6, 5, 4)

In [70]: #Tuples Unpacking

In [72]: x,y,z=t0

In [73]: x
         y
         z

Out[73]: 3

In [74]: #Tuples Modification
         #Tuples are immutable but if tuple elements are mutable then we can change the elemen

In [75]: t0=(2,3,4,[5,6,7],8,9)

In [76]: t0

Out[76]: (2, 3, 4, [5, 6, 7], 8, 9)

In [77]: t0[3][1]=666

In [78]: t0

Out[78]: (2, 3, 4, [5, 666, 7], 8, 9)

In [ ]:
```