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# Tuples

It is a sequence of immutable objects. It is just like list. *Difference between the tuples and the lists is that the tuples cannot be changed unlike lists.* Lists uses square bracket where as tuples use parentheses.

## Creating A Tuple

A tuple is enclosed in parentheses () for creation and each item is separated by a comma.

e.g.

tup1 = ('comp sc', 'info practices', 2017, 2018) tup2 = (5,11,22,44)

**NOTE:-** Indexing of tuple is just similar to indexing of list.

## Accessing Values from Tuples/tuple slicing

Use the square brackets for slicing along with the index or indices to obtain the value available at that index.

e.g.

```
tup1 = ("comp sc", "info practices", 2017, 2018)
tup2 = (5,11,22,44,9,66)
print ("tup1[0]: ", tup1[0])
print ("tup2[1:5]: ", tup2[1:5])
```

Output

```
('tup1[0]: ', 'comp sc')
('tup2[1:5]: ', (11, 22, 44, 9))
```

## Iterating Through A Tuple

Element of the tuple can be accessed sequentially using loop.

e.g.

```
tup = (5,11,22)
for i in range(0,len(tup)):
    print(tup[i])
```

Output

5

11

22

## Updating Tuples

Tuples are immutable, that's why we can't change the content of tuple. Its alternate way is to take contents of existing tuple and create another tuple with these contents as well as new content.

E.g.

```
tup1 = (1, 2)
tup2 = ('a', 'b')
tup3 = tup1 + tup2
print (tup3)
```

Output

```
(1, 2, 'a', 'b')
```

## Delete Tuple Elements

Direct deletion of tuple element is not possible but shifting of required content after discard of unwanted content to another tuple.

e.g.

```
tup1 = (1, 2, 3)
tup3 = tup1[0:1] + tup1[2:]
print (tup3)
```

Output

(1, 3)

NOTE : Entire tuple can be deleted using del statement.

e.g. `del tup1`

## Basic Tuples Operations

Python Expression	Results	Description
<code>len((1, 2))</code>	<code>2</code>	Length
<code>(1, 2) + (4, 5)</code>	<code>(1, 2, 4, 5)</code>	Concatenation
<code>('CS',) * 2</code>	<code>('CS', 'CS')</code>	Repetition
<code>5 in (1, 2, 3)</code>	<code>False</code>	Membership
<code>for x in (4,2,3) :     print (x, end = ' ')</code>	<code>4 2 3</code>	Iteration

## Tuple Functions

S.No.	Function & Description
1	<u><a href="#">tuple(seq)</a></u> Converts a list into tuple.
2	<u><a href="#">min(tuple)</a></u> Returns item from the tuple with min value.can be done via list.
3	<u><a href="#">max(tuple)</a></u> Returns item from the tuple with max value.can be done via list.
4	<u><a href="#">len(tuple)</a></u> Gives the total length of the tuple.
5	<u><a href="#">cmp(tuple1, tuple2)</a></u> Compares elements of both tuples.

## Tuple Functions

## Tuples

S.No.	Function & Description
6	<code>count()</code> - method returns the number of times a specified value appears in the tuple. <code>thistuple = (1, 3, 7, 8, 7, 5, 4, 6, 8, 5)</code> <code>x = thistuple.count(5)</code> <code>print(x)</code> OUTPUT-> 5
7	<code>index()</code> - returns the index position of first occurrence of a value in tuple <code>vowels = ('a', 'e', 'i', 'o', 'i', 'u')</code> <code>index = vowels.index('e')</code> <code>print('The index of e:', index)</code> OUTPUT ->1



## Tuple Functions

## Tuples

S.No.	Function & Description
8	<code>sum()</code> - sum of tuple elements can be done via list <code>x = (1,4,6)</code> <code>r= sum(list(x))</code> <code>print('sum of elements in tuple', r)</code> OUTPUT->11
9	<code>sorted()</code> - returns the sorted elements list <code>x = (1,4,6)</code> <code>r= sorted(x)</code> <code>print(sorted elements in tuple', r)</code>

**\*max of a tuple elements.**

```
x = (1,4,6)
```

```
r= max(x)
```

```
print('maximum value in tuple', r)
```

**OUTPUT->6**

**\*mean/average of a tuple elements.**

```
x = (1,4,6)
```

```
r= sum(x)/len(x)
```

```
print(mean of tuple is ', r)
```

**OUTPUT->3.66**

## Linear Search in Tuple

```
Tuple= (1, 2, 3, 4, 5, 6)
```

```
n = 5
```

```
B=False
```

```
for i in range(len(Tuple)):
```

```
    if Tuple[i] == n:
```

```
        B=True
```

```
if (B==True):
```

```
    print("Found")
```

```
else:
```

```
    print("Not Found")
```