TUPLE
CHEAT SHEET

Tuple

A Tuple is a data structure, that is immutable (values cannot be modified) and ordered sequence(maintains index value of each item)of elements .It contains duplicate items.
Tuples have values between parenthesis () ,

```
In:   t=()
      t

Out:  ()
```

Its Items are indexed (like first item has index 0, second has 1 etc.)
It can be of any data type (string, int , Boolean).

```
In:   t=('blue','green',10,20,True)
      t
Out:  ('blue','green',10,20,True)
```

Tuples are similar to list, only we cannot modify it.

Creating a Tuple

we can create tuples using

- **Parenthesis**

```
In:    t= ()
       t

Out:   ()
```

- **By passing a list to tuple**

```
In:   t1=tuple([1,2,3,2,3,"a",True])
      t1
Out:  (1,2,3,2,3,"a",True)
```

We can create a tuple with single element

while creating a Tuple with one value, we have to include a final comma (,) ,otherwise the data type will be changed

```
In:    var=(2,)
       var

Out:   (2,)
```

Methods

Tuple has only two methods

- **Count**

Searches the given element in a tuple and returns how many times the element has occurred in it .

```
In:    tuple=(1,2,3,3,4,5)
       tuple.count(3)
Out:   2
```

- **Index**

Searches the tuple for specified value and returns the position of where it was found .

```
In:    tup=('a',2,3,'d)
       tup[2]

Out:   3
```

We can access tuple items by,

- **Indexing**

By referring to index number ,inside square bracket .

```
In:    t=(1,4,5,7,3)
       t[3]

Out:   7
```

- **Slicing**

By referring its start and end postion , inside square bracket with the step size we want.

```
In:    tup=('lily','rose','lotus')
       tup[0:2]

Out:   ('lily','rose')
```

Removing Duplicates or finding unique element in tuple

We will use set for this (because set has property of removing duplicates)
we will pass tuple into set and then we will again convert set into tuples to get the unique elements .

```
In:    tup= (1,4,6,6,7,7)
       tup=set(t)
       tup

Out:   {1,4,6,7}

In:    tup=tuple(tup)
       tup
Out:   (1,4,6,7)
```

OPERATIONS IN TUPLE

- **Concatenate :-** We can add two tuples

```
In:    t1=('blue','red')
       t2=('white')
       t1+t2
Out:   ('blue','red','white')
```

- **Multiplication with scalar**

It will print tuple for the number of times we want.

```
In:    t1=('rose','lotus','lily')
       t2=t1*2
       t2
Out:   ('rose',
        'lotus',
        'lily',
        'rose',
        'lotus',
        'lily')
```

- **Length of tuple**

It will provide the length of tuple

```
In:    len(t2)
Out:   6
```

- **Max**

Will give max value

```
In:    t=(1,2,3,4,5,6)
       max(t)
Out:   6
```

- **Min**

Will give min value

```
In:    t=(1,2,3,4,5,6)
       min(t)
Out:   1
```

- **Sum of elements**

will add the inside elements of the tuple

```
In:    t=(1,2,3,4,5,6)
       sum(t)
Out:   21
```

- **Comparison**

will do comparison

```
In:    t1=(8,4,2,3)
       t2=(2,6,8,9)
       t1>t2
Out:   True
```

Iterate a tuple Using For loop

```
In:    t=(1,2,3,4)
       for i in t :
       print (i)

Out:   1
       2
       3
       4
```

To print them in spaces

```
In:    print (i,end=' ')

Out:   1 2 3 4
```

We can Change values in tuple

Although tuple is immutable but we can change values in tuple through this operation

Convert tuple into list ,change the list ,convert the list back into the tuple.

```
In:    x=('apple','banana','cherry')
       y=list(x)
       y[1]='kiwi'
       x=tuple(y)
       x

Out:   ('apple','kiwi','cherry')
```