

PYTHON TUPLE

1. A tuple in Python is an immutable sequence of elements enclosed in parentheses ().
2. It shares similarities with a list but cannot be modified once created, offering benefits like data integrity and performance optimization.
3. Tuple is an ordered collection.
4. Tuple allows duplicate members.

1.Tuple Creation:

A. Tuple is created by enclosing comma-separated values in parentheses ().

Example:

```
my_tuple = (1,2,3,4,5,6,7)

print(type(my_tuple))
```

Output:

```
<class 'tuple'>
```

B. Tuple can be creating using tuple inbuilt method. Let's see how....

```
my_list = ["RexGalaxy","Python","Data science","Machine Learning"]

my_tuple = tuple(my_list)

print(type(my_tuple))
```

Output:

```
<class 'tuple'>
```

C. Create a tuple with single item. Let's see how....

If we want to create a tuple with single item, we cannot just put the item inside parenthesis. To create a tuple with single item we need to put comma after element. Let's understand this with example.....

```
my_tuple1 = (1)
print("Type of my_tuple is : ",type(my_tuple))
```

Output:

```
Type of my_tuple is :  <class 'int'>
```

As you see above when we try to create tuple with single item it says int. Now we will check by adding comma.

```
my_tuple2 = (1,)
print("Type of my_tuple2 is : ",type(my_tuple2))
```

Output: A

```
Type of my_tuple2 is :  <class 'tuple'>
```

2.len () Method:

Just like list we check the length of tuple by len() Method. Let's see how.....

```
my_tuple = ["RexGalaxy","Python","Data science","Machine Learning"]
print(len(my_tuple))
```

Output:

```
4
```



3.Access Tuple Items:

We can access tuple items using index numbers. Let's see how....

```
my_tuple = ("Python","Mysql",12,True,45.6)
print(my_tuple[1])
```

output:

```
Mysql
```

As we know that tuples are iterable items we can access all items using for loop.

```
my_tuple = ("Python","Mysql",12,True,45.6)
for item in my_tuple:
    print(item)
```

output:

```
Python
Mysql
12
True
45.6
```

4.Negative Indexing:

We can access element using negative indexing. Lets see how.....

```
my_tuple = ("Python","Mysql",12,True,45.6)

print(my_tuple[-1]) # print last item of tuple
print(my_tuple[-2]) # print second last item of tuple
```

output:

```
45.6
True
```

Slicing of a Tuple

Slicing is a way to extract a portion of a list in Python. It creates a new list that contains a portion of the original list. In other words, we can say that we can get a sub list from an original list. In Python, you can slice a list using the following syntax:

My_Tuple [start:stop:step]

1. **Start:** is the index of the first element you want to include in the slice. It is optional and defaults to 0 if not specified.
2. **Stop:** is the index of the first element you want to exclude from the slice. It is also optional and defaults to the length of the list if not specified.
3. **Step:** is the number of elements to skip between each included element. It is optional and defaults to 1 if not specified.

```
my_tuple = ("Python","Mysql","DataScience","Machinelearning")

print(my_tuple[:])# access all elemnets of tuple
print(my_tuple[1:]) # strat from index 1 till end
print(my_tuple[1:3:1]) # start from index 1 and till index(3-1) and take one step
```

Output:

```
('Python', 'Mysql', 'DataScience', 'Machinelearning')
('Mysql', 'DataScience', 'Machinelearning')
('Mysql', 'DataScience')
```



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