

Tuples in Python

Tuples in Python

- A tuple is another sequence data type that is similar to the list.
- A tuple consists of a number of values separated by commas.
- Tuples are enclosed within **parentheses**.
- List vs. tuples: Elements and size of list can be changed, tuples cannot be updated. Tuples are **read-only** lists.
- A tuple is a collection of objects which is ordered and immutable.

```
tuple1 = (10, 20, 30, 40, 50)
```

```
tuple2 = ('RCCIIT', 'Kolkata', 700015)
```

```
tuple1[1]=2021      # Error
```

The tuples cannot be changed unlike lists and tuples use parentheses, whereas lists use square brackets.

Tuples in Python

Accessing Values in Tuples

```
tuple1 = (10, 20, 30, 40, 50)
```

```
tuple2 = ('RCCIIT', 'Kolkata', 700015, 2020)
```

```
print(tuple1)           # (10, 20, 30, 40, 50)
```

```
print(tuple2[1])       # Kolkata
```

```
print(tuple2[1:3])     # ('Kolkata', 700015)
```

Tuples in Python

Updating Tuples

- Tuples are immutable, update or change the values are not possible.
- But, we can create new tuples using a portions of existing tuples.

```
tuple1 = ('RCCIIT', 117, 'MAKAUT', 100)
```

```
tuple2 = ('Kolkata', 700015)
```

```
tuple1[1]=150          # Error
```

```
tuple3= tuple1[0:1]+tuple1[2:4]
```

```
print(tuple3)          # output ('RCCIIT', 'MAKAUT', 100)
```

Tuples in Python

Delete Tuple Elements

- Removing individual tuple elements is not possible
- To explicitly remove an entire tuple, the **del** statement is used.

```
tuple1 = ('RCCIIT', 117, 'MAKAUT', 100)
```

```
del tuple1[2]
```

```
#Error: 'tuple' object doesn't support item deletion
```

```
del tuple1
```

```
print(tuple1)      # NameError: name 'tuple1' is not defined
```

Tuples in Python

Basic Tuple Operations

```
tuple1=(10,20,30,40)
```

```
tuple2=(50,60)
```

```
len(tuple1)          # return the length of the tuple1
```

```
print(len(tuple1))  # output 4
```

```
tuple3=tuple1+tuple2 #concatenation of tuple1 and tuple2
```

```
print(tuple3)        # output (10,20,30,40,50,60)
```

```
tuple3=tuple1*2      # repetition of tuple1
```

```
print(tuple3)        # output (10, 20, 30, 40, 10, 20, 30, 40)
```

```
member= x in tuple1  # check membership
```

```
for x in tuple1:     # iteration
```

```
    print(x)         # output 10 20 30 40 in separate line
```

Tuples in Python

Built-in Tuple Functions

```
tuple1=(10,20,30,40)
```

```
len(tuple1)          # return the length of the tuple1
```

```
print(len(tuple1))  # output 4
```

```
list1 = ['RCCIIT', 'Kolkata', 700015]
```

```
tuple1=tuple(list1)  # a list to be converted into tuple
```

```
print(tuple1)        # output ('RCCIIT', 'Kolkata', 700015)
```

```
tuple1=(10,30,25,20)
```

```
maxvalue=max(tuple1)  # return max value
```

```
print(maxvalue)       # output 30
```

```
tuple1=(10,30,25,20)
```

```
minvalue=min(tuple1)  # return min value
```

```
print(minvalue)       # output 10
```

Tuples in Python

Built-in Tuple Methods

```
tuple1 = ('Chennai', 'Kolkata', 'Delhi', 'Mumbai')
```

```
print(tuple1.index('Delhi'))      # output 2
```

```
tuple1 = (10, 20, 30, 20, 40, 50, 20)
```

```
print(tuple1.count(20))          # output 3
```


THANK YOU