# Tuple

A tuple is an immutable sequence of Python objects. Tuples are sequences, just like lists. The differences between tuples and lists are, the tuples cannot be changed unlike lists and tuples use parentheses, whereas lists use square brackets.

## Tuple creation and initialization

In [ ]:

```
t=()
```

In [ ]:

```
type(t)
```

Out[2]:

```
tuple
```

In [ ]:

```
x=(31,24,49)
x
```

Out[3]:

```
(31, 24, 49)
```

In [ ]:

```
x=(3.1,2.4,4.9)
x
```

Out[4]:

```
(3.1, 2.4, 4.9)
```

In [ ]:

```
countries=("South Africa","India","Nigeria")
countries
```

Out[1]:

```
('South Africa', 'India', 'Nigeria')
```

In [ ]:

```
sa_country=(60,1.2,"South Africa")
sa_country
```

Out[4]:

```
(60, 1.2, 'South Africa')
```

In [ ]:

```
nig_country=(200,2.5,"Nigeria")
```

In [ ]:

```
sa_country=(60,1.2,"South Africa",[10,22,33,44])
sa_country
```

Out[5]:

```
(60, 1.2, 'South Africa', [10, 22, 33, 44])
```

In [ ]:

```
sa_country=(60,
            1.2,
            "South Africa",
            [10,22,33,44],
            ("Zulu","Xhosa","Afrikaans","English"))
sa_country
```

Out[6]:

```
(60,
 1.2,
 'South Africa',
 [10, 22, 33, 44],
 ('Zulu', 'Xhosa', 'Afrikaans', 'English'))
```

In [ ]:

```
x=(22,)
x
```

Out[9]:

```
(22,)
```

In [ ]:

```
type(x)
```

Out[10]:

```
tuple
```

In [ ]:

```
y=(22)#y=22
y
```

Out[11]:

```
22
```

In [ ]:

```
type(y)
```

Out[12]:

```
int
```

## Tuple indexing

In [ ]:

```
x=(1,3,5,7,9)
x[1]
```

Out[7]:

```
3
```

In [ ]:

```
x[-1]
```

Out[8]:

```
9
```

In [ ]:

```
x[0]=11
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-12-fa6617a15cc9> in <module>()
----> 1 x[0]=11

TypeError: 'tuple' object does not support item assignment
```

In [ ]:

```
y=((1,3,5,7,9),(2,4,6,8,10))
```

In [ ]:

```
y[0]
```

Out[10]:

```
(1, 3, 5, 7, 9)
```

In [ ]:

```
y[0][2]
```

Out[11]:

```
5
```

In [ ]:

```
x[3]
```

Out[20]:

```
[22, 4, 6, 8]
```

In [ ]:

```
x[3][1]
```

Out[21]:

```
4
```

In [ ]:

```
#brics countries tuple - country name and their capital city

brics_countries=(
    ("","","","","",""),
    ("","","","")
)
```

In [ ]:

```
brics_countries[0]
```

In [ ]:

```
brics_countries[1]
```

In [ ]:

```
brics_countries[0][4]
```

In [ ]:

```
brics_countries[1][4]
```

In [ ]:

```
print("capital of ",x[][], "is ",x[][])
```

## INDEX Slicing in tuple

In [ ]:

```
x=(2,4,6,8,10,12,14)
```

In [ ]:

```
x[3:7]
```

Out[29]:

```
(8, 10, 12, 14)
```

In [ ]:

```
x[:4]
```

Out[30]:

```
(2, 4, 6, 8)
```

In [ ]:

```
x
```

Out[31]:

```
(2, 4, 6, 8, 10, 12, 14)
```

In [ ]:

```
x[1:6]
```

Out[32]:

```
(4, 6, 8, 10, 12)
```

In [ ]:

```
x[1:6:2]
```

Out[33]:

```
(4, 8, 12)
```

In [ ]:

```
y=(1,2,3,4,5,6,7,8,9)
```

In [ ]:

```
y[0:7]
```

Out[35]:

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

In [ ]:

```
y[0:7:3]
```

Out[36]:

```
(1, 4, 7)
```

In [ ]:

```
x=(1,2,[3,4])
x[2]
```

Out[13]:

```
[3, 4]
```

In [ ]:

```
x[2].append(22)
```

In [ ]:

```
x
```

Out[15]:

```
(1, 2, [3, 4, 22])
```

In [ ]:

```
x[2].insert(1,222)
x
```

Out[12]:

```
(1, 2, [3, 222, 4, 22])
```

In [ ]:

```
len(x)
```

Out[13]:

```
3
```

In [ ]:

```

```