- tuples are a type of data structure that is very similar to lists.
- The main difference between the two is that tuples are immutable, meaning they cannot be changed once they are created.
- This makes them ideal for storing data that should not be modified, such as database records.
- A tuple can have any number of items, which may be of different types, such as a string, integer, float, list, etc.

CreatingaPythonTuple

In [5]:
```
mytuple = ("a", "b", "c")
mytuple
```

Out[5]:
```
('a', 'b', 'c')
```

In [11]:
```
mytuple = ("a")
mytuple
```

Out[11]:
```
'a'
```

In [12]:
```
type(mytuple)
```

Out[12]:
```
str
```

In [14]:
```
mytuple = ("a",)
mytuple
```

Out[14]:
```
('a',)
```

In [15]:
```
type(mytuple)
#To create a tuple with only one item, you have to add a comma after the item, otherwise Python will not recognize it as a tuple
```

Out[15]:
```
tuple
```

In [8]:
```
mytuple =1,2,3
mytuple
```

Out[8]:
```
(1, 2, 3)
```

In [6]:
```
mytuple = ("a", "b", "c","d","a")
mytuple
# it allows duplicate values
```

Out[6]:
```
('a', 'b', 'c', 'd', 'a')
```

Tuple Items

- Tuple items are ordered, unchangeable, and allow duplicate values.
- Tuple items are indexed, the first item has index [0], the second item has index [1] etc.

In [16]:
```
mytuple = ("a", "b", "c")
print(mytuple[0])
```

```
a
```

type

In [17]:
```
type(mytuple)
```

Out[17]:
```
tuple
```

In [20]:
```
mytuple =1,2,3
mytuple
```

Out[20]:
```
(1, 2, 3)
```

In [21]:
```
type(mytuple)
```

Out[21]:
```
tuple
```

In [22]:
```
mytuple = ("a")
mytuple
```

Out[22]: 'a'

In [23]:
```
type(mytuple)
```

Out[23]: str

In [26]:
```
tuple1 = (True)
tuple1
```

Out[26]: True

In [27]:
```
type(tuple1)
```

Out[27]: bool

In [30]:
```
tuple3 = (True, False, False)
type(tuple3)
```

Out[30]: tuple

In [31]:
```
tuple1 = ("abc", 21, True, 40, "female")
type(tuple1)
```

Out[31]: tuple

index

In [32]:
```
tuple1 = ("a", "b", "c")
print(tuple1[1])
```

```
b
```

In [33]:
```
tuple1 = ("a", "b", "c")
print(tuple1[-1])
#negative indexing
```

```
c
```

In [34]:
```
tuple1 = ("a", "b", "c","d","e","f","g","h")
print(tuple1[2:5])
#range index
```

```
('c', 'd', 'e')
```

In [35]:
```
tuple1 = ("a", "b", "c","d","e","f","g","h")
print(tuple1[:2])
```

```
('a', 'b')
```

In [36]:
```
tuple1 = ("a", "b", "c","d","e","f","g","h")
print(tuple1[6:])
```

```
('g', 'h')
```

In [39]:
```
tuple1 = ("a", "b", "c","d","e","f","g","h")
print(tuple1[-4:-1])
```

```
('e', 'f', 'g')
```

In [52]:
```
tuple2=('virat kohli')
if 'b' in tuple2:
    print('correct')
else:
    print('wrong')
```

```
wrong
```

In [54]:
```

t1= ("a", "b", "c")
l = list(t1)  #converted into list
l[1] = "d"
t1 = tuple(l)

print(t1)

```

```
('a', 'd', 'c')
```

In [57]:
```
t = ("a", "b", "c")
y = list(t)
y.append("o")
t = tuple(y)
t
# adding one more item
```

Out[57]:
```
('a', 'b', 'c', 'o')
```

In [60]:
```
t = ("a", "b", "c")
y = list(t)
y.remove("a")
t = tuple(y)
t
#removing an item
```

Out[60]:
```
('b', 'c')
```

In [61]:
```
dir(tuple)
```

Out[61]:
```
['__add__',
 '__class__',
 '__class_getitem__',
 '__contains__',
 '__delattr__',
 '__dir__',
 '__doc__',
 '__eq__',
 '__format__',
 '__ge__',
 '__getattribute__',
 '__getitem__',
 '__getnewargs__',
 '__gt__',
 '__hash__',
 '__init__',
 '__init_subclass__',
 '__iter__',
 '__le__',
 '__len__',
 '__lt__',
 '__mul__',
 '__ne__',
 '__new__',
 '__reduce__',
 '__reduce_ex__',
 '__repr__',
 '__rmul__',
 '__setattr__',
 '__sizeof__',
 '__str__',
 '__subclasshook__',
 'count',
 'index']
```

tuple methods

- count

  Returns the number of times a specified value occurs in a tuple
- index

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

In [65]:
```
t = (1, 3, 7, 8, 7, 5, 4, 6, 8, 5)
v = t.count(5)
print(v)
```

```
2
```

In [66]:
```
vowels = ('a', 'e', 'i', 'o', 'i', 'u')
count = vowels.count('i')
print(count)
```

```
2
```

In [ ]: