1 # Tuple\ 2 # List\ 3 # Dictionaries\ 4 # Sets

1-Tuple

- **these are ordered collection of elements**
- **enclosed in round braces()**
- **different kind of elements can be stored**
- **one element can store and you cannot change**
- **once elements are stored you cannot change them(unmutatable)**

In [80]:

```
tup1 = (1,"python",True, 2.5)
tup1
```

Out[80]:

```
(1, 'python', True, 2.5)
```

roundbrakets difrent elements (int,float,string,boolean operators true false)

In [64]:

```
#type of tuplejust like table...dont compair it with excil table ...category tuple.. caus
e dif categories and round brackets
type(tup1)
```

Out[64]:

```
tuple
```

- indexing in tuple

In [65]:

```
tup1[1]
```

Out[65]:

```
'python'
```

In [66]:

```
tup1[0]
```

Out[66]:

```
1
```

In [67]:

```
tup1[2]
```

Out[67]:

```
True
```

In [68]:

```
tup1[0:5]
```

Out[68]:

```
(1, 'python', True, 2.5)
```

In [69]:

In [69]:

```
tup1[0:3] # in pythone last element is exclusive
```

Out[69]:

```
(1, 'python', True)
```

In [70]:

```
#count of elements in tuple
len(tup1)
```

Out[70]:

```
4
```

In [84]:

```
#concatenate (intersect or plus of two or more tuples)
tup2 = (2, "babaAaammar",3.5, False)
tup2
```

Out[84]:

```
(2, 'babaAaammar', 3.5, False)
```

In [85]:

```
#concatenate+repeate
tup1 + tup2
```

Out[85]:

```
(1, 'python', True, 2.5, 2, 'babaAaammar', 3.5, False)
```

In [86]:

```
tup1*2 + tup2 #we can multiply,substract & add tuples
```

Out[86]:

```
(1, 'python', True, 2.5, 1, 'python', True, 2.5, 2, 'babaAaammar', 3.5, False)
```

In [2]:

```
tup3 = (20,50,30,60,79,85)
min(tup3)
```

Out[2]:

```
20
```

In [4]:

```
max(tup3)
```

Out[4]:

```
85
```

In [5]:

```
tup3*2 # here *2 means repetition
```

Out[5]:

```
(20, 50, 30, 60, 79, 85, 20, 50, 30, 60, 79, 85)
```

- Assignment

In [6]:

```
#Index
```

```
#index
tup3.index(30)
```

Out[6]:

```
2
```

In [7]:

```
#count frequency
tup3.count(85)
```

Out[7]:

```
1
```

2- list

- **these are ordered collection of elements**
- **enclosed in square braces[]**
- **different kind of elements can be stored**
- **you can change values -(mutatable)**

In [92]:

```
list1 =[2, "babaAaammar", False]
list1
```

Out[92]:

```
[2, 'babaAaammar', False]
```

In [93]:

```
type(list1)
```

Out[93]:

```
list
```

In [94]:

```
len(list1)
```

Out[94]:

```
3
```

In [95]:

```
list2 = [3,5, "aammar", "codanics", 478,53.2, False]
list2
```

Out[95]:

```
[3, 5, 'aammar', 'codanics', 478, 53.2, False]
```

In [96]:

```
list1*2
```

Out[96]:

```
[2, 'babaAaammar', False, 2, 'babaAaammar', False]
```

In [99]:

```
list1.reverse()
```

```
list1
```

Out[99]:

```
[False, 'babaAaammar', 2]
```

In [102]:

```
list1.append("codanics youtube channel") #append means add like we added here "codanics y
outube channel"
list1
```

Out[102]:

```
[False,
 'babaAaammar',
 2,
 'codanics youtube channel',
 'codanics youtube channel',
 'codanics youtube channel']
```

In [ ]:

```
list1.count() #how it works
```

In [8]:

```
list1 = [1,2,3,3]
list1
```

Out[8]:

```
[1, 2, 3, 3]
```

In [ ]:

```
#assignment for comments in youtube
list1.count() # function how it works?
list1 = [1,2,3,3]
list1
list1.count(3) #count the occurance in a list
#output was 2

list3 = [1,2,3,"hello", ["flower"], {1:4}, "hello"] # we can count numbers,strings,list
etc
list3
list3.count("hello")
#output was 2
```

In [110]:

```
list3 = [1,2,3,"hello", ["flower"], {1:4}, "hello"] # we can count numbers,strings,list
list3
```

Out[110]:

```
[1, 2, 3, 'hello', ['flower'], {1: 4}, 'hello']
```

In [111]:

```
list3.count("hello")
```

Out[111]:

```
2
```

In [112]:

```
list4 = [20,30,35,50,40,12,15,11,10,356,56,886]
list4
```

Out[112]:

```
[20, 30, 35, 50, 40, 12, 15, 11, 10, 356, 56, 886]
```

In [113]:

```
len(list4)
```

Out[113]:

```
12
```

In [115]:

```
#assorting in desend and asend
list4.sort()
list4
```

Out[115]:

```
[10, 11, 12, 15, 20, 30, 35, 40, 50, 56, 356, 886]
```

In [116]:

```
list4*3 #list print 3times (*means)
```

Out[116]:

```
[10,
 11,
 12,
 15,
 20,
 30,
 35,
 40,
 50,
 56,
 356,
 886,
 10,
 11,
 12,
 15,
 20,
 30,
 35,
 40,
 50,
 56,
 356,
 886,
 10,
 11,
 12,
 15,
 20,
 30,
 35,
 40,
 50,
 56,
 356,
 886]
```

In [117]:

```
#concatenate or append
list1+list2
```

Out[117]:

```
[1, 2, 3, 3, 3, 5, 'aammar', 'codanics', 478, 53.2, False]
```

In [118]:

```
lists = list1+list2
lists
```

Out[118]:

```
[1, 2, 3, 3, 3, 5, 'aammar', 'codanics', 478, 53.2, False]
```

Dictionaries(data set or data type)

- **these are unordered collection of elements**
- **it will consist key and value**
- **enclosed in curly braces{}**
- **you can change values -(mutatable)**

In [123]:

```
#food and their prices
food1 = {"samosa":30, "pakora":100, "raita":20, "salad":50, "chicken rolls":30}  # samos
a is key and 30 is its value
food1
```

Out[123]:

```
{'samosa': 30, 'pakora': 100, 'raita': 20, 'salad': 50, 'chicken rolls': 30}
```

In [124]:

```
type(food1)
```

Out[124]:

```
dict
```

In [125]:

```
#extract data
#keys extrack
keys = food1.keys()
keys
```

Out[125]:

```
dict_keys(['samosa', 'pakora', 'raita', 'salad', 'chicken rolls'])
```

In [126]:

```
#values extract
values = food1.values()
values
```

Out[126]:

```
dict_values([30, 100, 20, 50, 30])
```

In [ ]:

```
#adding a new element
food1.update()
```

In [127]:

```
food1["tikki"]=30
food1
```

Out[127]:

```
{'samosa': 30,
 'pakora': 100,
 'raita': 20,
 'salad': 50,
 'chicken rolls': 30,
```

```
 'tikki': 30}
```

In [129]:

```
#update the value
food1["tikki"]=35
food1
```

Out[129]:

```
{'samosa': 30,
 'pakora': 100,
 'raita': 20,
 'salad': 50,
 'chicken rolls': 30,
 'tikki': 35}
```

In [134]:

```
food2 = {"dates":50, "choclates":200, "swayyun":1000}
food2
```

Out[134]:

```
{'dates': 50, 'choclates': 200, 'swayyun': 1000}
```

In [135]:

```
#concatenate
food1.update(food2)
```

In [136]:

```
food1
```

Out[136]:

```
{'samosa': 30,
 'pakora': 100,
 'raita': 20,
 'salad': 50,
 'chicken rolls': 30,
 'tikki': 35,
 'dates': 50,
 'choclates': 200,
 'swayyun': 1000}
```

4- Set

- **these are unordered and unindexed**
- **enclosed in curly braces{}**
- **no duplicates allowed**

In [138]:

```
s1 ={1,2,2,5.2,"Aammar","codanics", "faisalabad",True} # boolean operators not print don
ot add. element will be str,int,float
s1
```

Out[138]:

```
{1, 2, 5.2, 'Aammar', 'codanics', 'faisalabad'}
```

In [139]:

```
s1.add("Aammar") #it willnot print duplicate
```

In [140]:

```
s1
```

Out[140]:

```
{1, 2, 5.2, 'Aammar', 'codanics', 'faisalabad'}
```

In [141]:

```
s1.add("Aammar1")#it willnot printduplicate
s1
```

Out[141]:

```
{1, 2, 5.2, 'Aammar', 'Aammar1', 'codanics', 'faisalabad'}
```

In [143]:

```
s1.remove("Aammar1")
s1
```

Out[143]:

```
{1, 2, 5.2, 'Aammar', 'codanics', 'faisalabad'}
```