Basic_Data_structure_in_python

1-Tuple

2-List

3-Dictionaries

4-Set

1-Tuple

- ordered collection of elements
- enclosed in round brasis ()
- different kind of elements can be stored : like string,float,int,booleon operator
- onece elements are stored you can not be changed(unmutatable)

```
In [9]: tup1 = (1, "python" ,True, 2.5)
        tup1
```

```
Out[9]: (1, 'python', True, 2.5)
```

```
In [2]: # type of tuple
        type(tup1)
```

```
Out[2]: tuple
```

indexing in tuple

```
In [10]: tup1[0]
```

```
Out[10]: 1
```

```
In [11]: tup1[1]
```

```
Out[11]: 'python'
```

```
In [12]: tup1[2]
```

```
Out[12]: True
```

```
In [13]: tup1[3]
```

```
Out[13]: 2.5
```

```
In [14]: tup1[0:3]
```

Out[14]: (1, 'python', True)

```
In [15]: tup1[0:4]
```

Out[15]: (1, 'python', True, 2.5)

```
In [19]: tup2=("Abul Hassan","Ali","Abbas")
         tup2
```

Out[19]: ('Abul Hassan', 'Ali', 'Abbas')

```
In [20]: #concatenate
         tup1+ tup2
```

Out[20]: (1, 'python', True, 2.5, 'Abul Hassan', 'Ali', 'Abbas')

```
In [24]: tup1*2 + tup2
```

Out[24]: (1, 'python', True, 2.5, 1, 'python', True, 2.5, 'Abul Hassan', 'Ali', 'Abbas')

```
In [50]: a=(21,12,2,45,45,77,65,54,78,32)
         a
```

Out[50]: (21, 12, 2, 45, 45, 77, 65, 54, 78, 32)

```
In [52]: a[0:2]
```

Out[52]: (21, 12)

```
In [53]: a[2:8]
```

Out[53]: (2, 45, 45, 77, 65, 54)

```
In [56]: a[0:9]
```

Out[56]: (21, 12, 2, 45, 45, 77, 65, 54, 78)

```
In [55]: len(a)
```

Out[55]: 10

2-List

- ordered collection of element
- enclosed in [] square brackets
- mutatable,we can change the values

```
In [26]: a=["ali",2,2.3]
         a
```

Out[26]:
```
['ali', 2, 2.3]
```

In [27]:
```python
type(a)
```

Out[27]:
```
list
```

In [28]:
```python
b=(1,"ali","abbas")
b
```

Out[28]:
```
(1, 'ali', 'abbas')
```

In [29]:
```python
type(b)
```

Out[29]:
```
tuple
```

In [30]:
```python
list1=["Hassan",1004,"Adam",1027]
list1
```

Out[30]:
```
['Hassan', 1004, 'Adam', 1027]
```

In [31]:
```python
list2=[1,"Hussain",3.4,"Atif",1002]
list2
```

Out[31]:
```
[1, 'Hussain', 3.4, 'Atif', 1002]
```

In [32]:
```python
#concatenate a list
list1 + list2
```

Out[32]:
```
['Hassan', 1004, 'Adam', 1027, 1, 'Hussain', 3.4, 'Atif', 1002]
```

In [37]:
```python
list1.reverse()
list1
```

Out[37]:
```
[1027, 'Adam', 1004, 'Hassan']
```

In [43]:
```python
list1*2 + list2
```

Out[43]:
```
[1027,
 'Adam',
 1004,
 'Hassan',
 1027,
 'Adam',
 1004,
 'Hassan',
 1,
 'Hussain',
 3.4,
 'Atif',
 1002]
```

In [44]:
```python
list3=[20,120,203,233,202,400,10,139]
list3
```

Out[44]:
```
[20, 120, 203, 233, 202, 400, 10, 139]
```

```
In [45]:  len(list3)
```

```
Out[45]:  8
```

```
In [49]:  list3.sort()
          list3
```

```
Out[49]:  [10, 20, 120, 139, 202, 203, 233, 400]
```

```
In [62]:  list3.reverse()
          list3
```

```
Out[62]:  [400, 233, 203, 202, 139, 120, 20, 10]
```

```
In [63]:  list3*2
```

```
Out[63]:  [400, 233, 203, 202, 139, 120, 20, 10, 400, 233, 203, 202, 139, 120, 20, 10]
```

Dictionaeries

- unordered collection of elements
- key and values
- curley braces or brakets{}
- Mutateable/changeable

```
In [67]:  #food and their prices
          food1= {"samosa":30,"Pakora":50,"Raita":20,"Salad":40,"chicken":300}
          food1
```

```
Out[67]:  {'samosa': 30, 'Pakora': 50, 'Raita': 20, 'Salad': 40, 'chicken': 300}
```

```
In [68]:  type(food1)
```

```
Out[68]:  dict
```

```
In [7]:   #food and their prices
          food1= {"samosa":30,"Pakora":50,"Raita":20,"Salad":40,"chicken":300}
          food1
```

```
Out[7]:   {'samosa': 30, 'Pakora': 50, 'Raita': 20, 'Salad': 40, 'chicken': 300}
```

```
In [8]:   extract dara
          food1.keys()
```

```
Out[8]:   dict_keys(['samosa', 'Pakora', 'Raita', 'Salad', 'chicken'])
```

```
In [9]:   food1.values()
```

```
Out[9]:   dict_values([30, 50, 20, 40, 300])
```

```
In [10]:  # update data
          food1["Tikki"]=10
          food1
```

```
Out[10]:  {'samosa': 30,
           'Pakora': 50,
           'Raita': 20,
           'Salad': 40,
           'chicken': 300,
           'Tikki': 10}
```

```
In [11]:  # update values
          food1["Tikki"]=20
          food1
```

```
Out[11]:  {'samosa': 30,
           'Pakora': 50,
           'Raita': 20,
           'Salad': 40,
           'chicken': 300,
           'Tikki': 20}
```

```
In [12]:  food2 ={"dates":200,"chocolates":300,"jam":500}
          food2
```

```
Out[12]:  {'dates': 200, 'chocolates': 300, 'jam': 500}
```

```
In [13]:  food2.values()
```

```
Out[13]:  dict_values([200, 300, 500])
```

```
In [14]:  #concatenate
          food1.update(food2)
```

```
In [15]:  food1
```

```
Out[15]:  {'samosa': 30,
           'Pakora': 50,
           'Raita': 20,
           'Salad': 40,
           'chicken': 300,
           'Tikki': 20,
           'dates': 200,
           'chocolates': 300,
           'jam': 500}
```

4-Set

- unordered and unindexed
- curly braces are used
- no duplicates are allowed

```
In [18]:  s1 = {1,2.3,4.5,"Hassan","Wordpress developer","Wah Cantt",True}
          s1
```

Out[18]: {1, 2.3, 4.5, 'Hassan', 'Wah Cantt', 'Wordpress developer'}

In [20]: s1.add("Abulhassan")

In [21]: s1

Out[21]: {1, 2.3, 4.5, 'Abulhassan', 'Hassan', 'Wah Cantt', 'Wordpress developer'}

In [22]: s1.add("Hassan")

In [23]: s1

Out[23]: {1, 2.3, 4.5, 'Abulhassan', 'Hassan', 'Wah Cantt', 'Wordpress developer'}

In [24]: s1.add("hassan")

In [25]: s1

Out[25]: {1,
 2.3,
 4.5,
 'Abulhassan',
 'Hassan',
 'Wah Cantt',
 'Wordpress developer',
 'hassan'}

In [26]: s1.remove("hassan")

In [27]: s1

Out[27]: {1, 2.3, 4.5, 'Abulhassan', 'Hassan', 'Wah Cantt', 'Wordpress developer'}