In [1]:
```
a= "samosa pakora"
a
```

Out[1]: 'samosa pakora'

In [2]:
```
a[1]
```

Out[2]: 'a'

In [3]:
```
len(a)
```

Out[3]: 13

In [4]:
```
a[0:6]
```

Out[4]: 'samosa'

In [5]:
```
a[-6:13]
```

Out[5]: 'pakora'

In [6]:
```
food="baryani"
food
```

Out[6]: 'baryani'

In [7]:
```
food
```

Out[7]: 'baryani'

In [8]:
```
len(food)
```

Out[8]: 7

In [9]:
```
food.capitalize()
```

Out[9]: 'Baryani'

In [10]:
```
food.upper()
```

Out[10]: 'BARYANI'

In [11]:
```
food.replace("b","sh")
```

Out[11]: 'sharyani'

In [12]:

In [12]:
```
name="Baba_Ammar_with ibrar shah baba"
name
```

Out[12]:
```
'Baba_Ammar_with ibrar shah baba'
```

In [13]:
```
name.find("Ba")
```

Out[13]:
```
0
```

In [14]:
```
food="i like samosa, pakora, baryani and khari"
food
```

Out[14]:
```
'i like samosa, pakora, baryani and khari'
```

In [15]:
```
food.split(",")
```

Out[15]:
```
['i like samosa', ' pakora', ' baryani and khari']
```

Basic Data Structure in Python

1-Tuple

2-List

3-Dictionaries

4-Sort

01-Tuple

- Order collection of elements
- Inclosed in () braces
- Diffferent kinds of elements can be stored
- Once elements are stored can not be changed

In [16]:
```
tup1=(1,"python", True , 2.3)
tup1
```

Out[16]:
```
(1, 'python', True, 2.3)
```

In [17]:
```
#type of a tuple
type(tup1)
```

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

indexing in tuple

In [18]:
```
tup1[1]
```

Out[18]:
```
'python'
```

In [19]:
```
tup1[0]
```

Out[19]:
```
1
```

In [20]:
```
tup1[2]
```

Out[20]:
```
True
```

In [21]:
```
tup1[3]
```

Out[21]:
```
2.3
```

In [22]:
```
len(tup1)
```

Out[22]:
```
4
```

In [23]:
```
#concitination of two tuples
tup2=(2,"ibrar", False ,3.5)
tup2
```

Out[23]:
```
(2, 'ibrar', False, 3.5)
```

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

Out[24]:
```
(1, 'python', True, 2.3, 2, 'ibrar', False, 3.5)
```

In [25]:
```
tup1*2+tup2
```

Out[25]:
```
(1, 'python', True, 2.3, 1, 'python', True, 2.3, 2, 'ibrar', False, 3.5)
```

In [26]:
```
tup3=(20,30,40,50,79,80)
tup3
```

Out[26]:
```
(20, 30, 40, 50, 79, 80)
```

In [27]:
```
min(tup3)
```

Out[27]:
```
20
```

In [28]:
```
max(tup3)
```

Out[28]:
```
80
```

In [29]:
```
tup3*2
```

Out[29]:
```
(20, 30, 40, 50, 79, 80, 20, 30, 40, 50, 79, 80)
```

In [30]:
```
len(tup3)
```

Out[30]:
```
6
```

List

- Order collection of elements
- Enclosed in [] in squre brakets
- Mutatable can change elements

In [31]:
```
list1=[2,"Ammarbaba",False]
list1
```

Out[31]:
```
[2, 'Ammarbaba', False]
```

In [32]:
```
type(list1)
```

Out[32]:
```
list
```

In [33]:
```
len(list1)
```

Out[33]:
```
3
```

In [34]:
```
list1[2]
```

Out[34]:
```
False
```

In [35]:
```
list2=[20,"ibrar","shah",4.5,True]
list2
```

Out[35]:
```
[20, 'ibrar', 'shah', 4.5, True]
```

In [36]:
```
list1 + list2
```

Out[36]:
```
[2, 'Ammarbaba', False, 20, 'ibrar', 'shah', 4.5, True]
```

In [37]:
```
list1 * 2
```

Out[37]:
```
[2, 'Ammarbaba', False, 2, 'Ammarbaba', False]
```

In [38]:
```
list1
```

Out[38]:
```
[2, 'Ammarbaba', False]
```

Dictionaries

- Unordered collection of elements
- Keys and values
- with curly braces
- mutateable / can change the values

In [39]:
```
food1= {"Samosa":30,"Pakora":20,"Raita":20, "Chicken Rools":60,"Salad":10,}
food1
```

Out[39]:
```
{'Samosa': 30, 'Pakora': 20, 'Raita': 20, 'Chicken Rools': 60, 'Salad': 10}
```

In [40]:
```
food1.keys()
```

Out[40]:
```
dict_keys(['Samosa', 'Pakora', 'Raita', 'Chicken Rools', 'Salad'])
```

In [41]:
```
food1.values()
```

Out[41]:
```
dict_values([30, 20, 20, 60, 10])
```

In [42]:
```
food1["Tikki"]=40
food1
```

Out[42]:
```
{'Samosa': 30,
 'Pakora': 20,
 'Raita': 20,
 'Chicken Rools': 60,
 'Salad': 10,
 'Tikki': 40}
```

In [43]:
```
food1["Tikki"]=50
food1
```

Out[43]:
```
{'Samosa': 30,
 'Pakora': 20,
 'Raita': 20,
 'Chicken Rools': 60,
 'Salad': 10,
 'Tikki': 50}
```

In [44]:
```
food2={"coca cola":100, "swyaan":200,"Tusepaper":70, "Bakaries":300, "Dates": 150}
food2
```

Out[44]:
```
{'coca cola': 100,
 'swyaan': 200,
 'Tusepaper': 70,
 'Bakaries': 300,
 'Dates': 150}
```

In [48]:
```
food2
```

Out[48]:
```
{'coca cola': 100,
 'swyaan': 200,
```

```
 'Tusepaper': 70,
 'Bakaries': 300,
 'Dates': 150}
```

In [55]:
```
food1.update(food2)
```

In [56]:
```
food1
```

Out[56]:
```
{'Samosa': 30,
 'Pakora': 20,
 'Raita': 20,
 'Chicken Rools': 60,
 'Salad': 10,
 'Tikki': 50,
 'coca cola': 100,
 'swyaan': 200,
 'Tusepaper': 70,
 'Bakaries': 300,
 'Dates': 150}
```

Sets

- Un ordered and Un indexed
- curly Braces are used {}
- No duplicates allowed can not add boelns

In [58]:
```
s1 = {1, 3.2, 5.4, "Aammar", "Codanics", "Faisalabad"}
s1
```

Out[58]:
```
{1, 3.2, 5.4, 'Aammar', 'Codanics', 'Faisalabad'}
```

In [59]:
```
s1.add("Ibrar")
s1
```

Out[59]:
```
{1, 3.2, 5.4, 'Aammar', 'Codanics', 'Faisalabad', 'Ibrar'}
```

In [61]:
```
s1.remove(3.2)
s1
```

Out[61]:
```
{1, 5.4, 'Aammar', 'Codanics', 'Faisalabad', 'Ibrar'}
```

In [62]:
```
s2 = {1,5.4,"Aammar" , "Codanics", "Faisalabad"}
s2
```

Out[62]:
```
{1, 5.4, 'Aammar', 'Codanics', 'Faisalabad'}
```

In [63]:
```
s1.union(s2)
s1
```

Out[63]:
```
{1, 5.4, 'Aammar', 'Codanics', 'Faisalabad', 'Ibrar'}
```