-Indexing

In [1]:
```
# make a string
a= "samosa pakora"
a
```

Out[1]: 'samosa pakora'

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

Out[2]: 'samosa pakora'

In [3]:
```
#length of indeces
len(a)
```

Out[3]: 13

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

Out[4]: 's'

In [5]:
```
a[1]
```

Out[5]: 'a'

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

Out[6]: 'a'

In [7]:
```
a[0:6]
```

Out[7]: 'samosa'

In [8]:
```
#latest index is exclusive
a[0:13]
```

Out[8]: 'samosa pakora'

In [9]:
```
a[-6]
```

Out[9]: 'p'

In [10]:
```
a[-8:-1]
```

Out[10]: 'a pakor'

In [11]:
```
a[-6:13]
```

Out[11]: 'pakora'

In [12]:
```
food="biryani"
food
```

Out[12]: 'biryani'

String Methods

In [13]:
```
food
```

Out[13]: 'biryani'

In [14]:
```
len(food)
```

Out[14]: 7

In [15]:
```
#capitalize every element
food.capitalize()
```

Out[15]: 'Biryani'

In [16]:
```
# upper case letters
food.upper()
```

Out[16]: 'BIRYANI'

In [17]:
```
#lower case letters
food.lower()
```

Out[17]: 'biryani'

In [18]:
```
#replace
food.replace("b", "sh")
```

Out[18]: 'shiryani'

In [19]:
```
#counting a specific alphabet in a string
name="baba aammar with dr aammar tufail"
name
```

Out[19]: 'baba aammar with dr aammar tufail'

In [20]:
```
name.count("a")
```

Out[20]: 9

In [21]:
```
name.count("t")
```

Out[21]: 2

Finding an index number in string

In [22]:
```
name="baba aammar with dr aammar tufail"
name
```

Out[22]: 'baba aammar with dr aammar tufail'

In [23]:
```
name.find("mm")
```

Out[23]: 7

In [24]:
```
### - how to splict a string
food="i love samosa,pakora,biryani, raita,karahi"
food
```

Out[24]: 'i love samosa,pakora,biryani, raita,karahi'

In [25]:
```
food.split("a")
```

Out[25]: ['i love s', 'mos', ',p', 'kor', ',biry', 'ni, r', 'it', ',k', 'r', 'hi']

In [ ]:
```

```

Basic Data Structure in Python

1-Tuple

2-List

3-Dictionaries

4-Set

1-Tuple

-

-Ordered collecion of elements

-enclosed in () round braces/paranthesis

-different kind of elements can be stored

-once elements are stored you can not change then(unmutetable)

In [32]:
```
tup1 =(1,"python",True,2.5)
tup1
```

Out[32]: (1, 'python', True, 2.5)

In [33]:
```
#type of a tuple
type(tup1)
```

Out[33]: tuple

-indexing in tuple

In [37]:
```
tup1[1]
```

Out[37]: 'python'

In [38]:
```
tup1[2]
```

Out[38]: True

In [39]:
```
#last element is exclusive
tup1[0:3]
```

Out[39]: (1, 'python', True)

In [40]:
```
#count of elements in tuple
len(tup1)
```

Out[40]: 4

In [44]:
```
tup2=(2,"babaaammar",3.5,False)
tup2
```

Out[44]: (2, 'babaaammar', 3.5, False)

In [46]:
```
#concatinate(to add two tuple or >2)
tup1 + tup2
```

Out[46]: (1, 'python', True, 2.5, 2, 'babaaammar', 3.5, False)

In [47]:
```
#concatinate+repeat
tup1*2+tup2
```

Out[47]:
```
(1, 'python', True, 2.5, 1, 'python', True, 2.5, 2, 'babaaammar', 3.5, False)
```

In [50]:
```
tup3=(20,40,50,60,79,88)
tup3
```

Out[50]:
```
(20, 40, 50, 60, 79, 88)
```

In [51]:
```
#minimum
min(tup3)
```

Out[51]:
```
20
```

In [52]:
```
#maximum
max(tup3)
```

Out[52]:
```
88
```

In [53]:
```
tup3*2
```

Out[53]:
```
(20, 40, 50, 60, 79, 88, 20, 40, 50, 60, 79, 88)
```

2-List

-ordered collection of elements
-enclosed in []square braces/bracket
-Muteable you can change the values

In [68]:
```
list1=[2,"babaaamar",False]
list1
```

Out[68]:
```
[2, 'babaaamar', False]
```

In [57]:
```
type(list1)
```

Out[57]:
```
list
```

In [58]:
```
len(list1)
```

Out[58]:
```
3
```

In [59]:
```
list1[2]
```

Out[59]:
```
False
```

In [63]:
```
list2=[3,5,"aamar","codanics",478,53.2,False]
list2
```

Out[63]:
```
[3, 5, 'aamar', 'codanics', 478, 53.2, False]
```

In [64]:
```
list1+list2
```

Out[64]:
```
[2, 'babaaamar', False, 3, 5, 'aamar', 'codanics', 478, 53.2, False]
```

In [65]:
```
list1*2
```

Out[65]:
```
[2, 'babaaamar', False, 2, 'babaaamar', False]
```

In [69]:
```
list1
```

Out[69]:
```
[2, 'babaaamar', False]
```

In [70]:
```
list1.reverse()
list1
```

Out[70]:
```
[False, 'babaaamar', 2]
```

In [71]:
```
list1.append("codanics youtube channel")
list1
```

Out[71]:
```
[False, 'babaaamar', 2, 'codanics youtube channel']
```

In [74]:
```
#list.count function
list1.count()
list1
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Input In [74], in <cell line: 1>()
----> 1 list1.count()
      2 list1

TypeError: list.count() takes exactly one argument (0 given)
```

In [76]:
```
list3=[20,30,40,50,60,35,11,356,10,886]
list3
```

Out[76]:
```
[20, 30, 40, 50, 60, 35, 11, 356, 10, 886]
```

In [77]:
```
len(list3)
```

Out[77]:
```
10
```

In [78]:
```
#sorting a list
list3.sort()
list3
```

Out[78]:
```
[10, 11, 20, 30, 35, 40, 50, 60, 356, 886]
```

In [79]:
```
list3*2
```

Out[79]:
```
[10,
 11,
 20,
 30,
 35,
 40,
 50,
 60,
 356,
 886,
 10,
 11,
 20,
 30,
 35,
 40,
 50,
 60,
 356,
 886]
```

In [80]:
```
list1+list2
```

Out[80]:
```
[False,
 'babaaamar',
 2,
 'codanics youtube channel',
 3,
 5,
 'aamar',
 'codanics',
 478,
 53.2,
 False]
```

3-Dictionaries

-An unordered collection of elements
-Key and value
-Curly braces or brackets {}
-Mutateable/change the values

In [84]:
```
#Food and their prices
food1={"Samosa":30,"Pakora":100,"Raita":20,"Salad":50,"Chiken rolls":30}
food1
```

Out[84]:
```
{'Samosa': 30, 'Pakora': 100, 'Raita': 20, 'Salad': 50, 'Chiken rolls': 30}
```

In [85]:
```
type(food1)
```

Out[85]:
```
dict
```

In [89]:
```
#extract data
keys1=food1.keys()
keys1
```

Out[89]:
```
dict_keys(['Samosa', 'Pakora', 'Raita', 'Salad', 'Chiken rolls'])
```

In [91]:
```
values1=food1.values()
values1
```

Out[91]:
```
dict_values([30, 100, 20, 50, 30])
```

In [92]:
```
#adding new element
food1["Tikki"]=10
food1
```

Out[92]:
```
{'Samosa': 30,
 'Pakora': 100,
 'Raita': 20,
 'Salad': 50,
 'Chiken rolls': 30,
 'Tikki': 10}
```

In [93]:
```
#update the values
food1["Tikki"]=15
food1
```

Out[93]:
```
{'Samosa': 30,
 'Pakora': 100,
 'Raita': 20,
 'Salad': 50,
 'Chiken rolls': 30,
 'Tikki': 15}
```

In [95]:
```
food2={"Dates":50,"Choclates":200,"Swayyan":1000}
food2
```

Out[95]:
```
{'Dates': 50, 'Choclates': 200, 'Swayyan': 1000}
```

In [96]:
```
#concatinate
food1.update(food2)
```

In [97]:
```
food1
```

Out[97]:
```
{'Samosa': 30,
 'Pakora': 100,
 'Raita': 20,
 'Salad': 50,
 'Chiken rolls': 30,
 'Tikki': 15,
 'Dates': 50,
 'Choclates': 200,
 'Swayyan': 1000}
```

4-Set

-Unordered and unindexed

-Curly braces are used{}

-No duplicates allowed

In [100]:
```
s1={1,2.2,5.2,"Aammar","Codanics","Faisalabad",True}
s1
```

Out[100]:
```
{1, 2.2, 5.2, 'Aammar', 'Codanics', 'Faisalabad'}
```

In [101]:
```
s1.add("Aammar1")
```

In [102]:
```
s1
```

Out[102]:
```
{1, 2.2, 5.2, 'Aammar', 'Aammar1', 'Codanics', 'Faisalabad'}
```

In [103]:
```
s1.remove("Aammar1")
s1
```

Out[103]:
```
{1, 2.2, 5.2, 'Aammar', 'Codanics', 'Faisalabad'}
```