-Indexing

In [1]:

```
# make a string
a = "Samosa Pakora"
a
```

Out[1]:

```
'Samosa Pakora'
```

In [2]:

```
a
```

Out[2]:

```
'Samosa Pakora'
```

In [7]:

```
#length of indices
len(a)
```

Out[7]:

```
13
```

In [3]:

```
a[0]
```

Out[3]:

```
'S'
```

In [4]:

```
a[3]
```

Out[4]:

```
'o'
```

In [8]:

```
a[0:5]
```

Out[8]:

```
'Samos'
```

In [10]:

```
#last index is exclusive
a[0:13]
```

Out[10]:
```
'Samosa Pakora'
```

In [19]:
```
a[-6:13]
```

Out[19]:
```
'Pakora'
```

In [21]:
```
food = "Biryani"
food
```

Out[21]:
```
'Biryani'
```

String Methods

In [22]:
```
food
```

Out[22]:
```
'Biryani'
```

In [23]:
```
len(food)
```

Out[23]:
```
7
```

In [24]:
```
#capitalize every letter
food.capitalize()
```

Out[24]:
```
'Biryani'
```

In [25]:
```
#upper case letters
food.upper()
```

Out[25]:
```
'BIRYANI'
```

In [26]:
```
#lower case letters
```

```
food.lower()
```

Out[26]:

```
'biryani'
```

In [29]:

```
#replace
food.replace("b", "sh")
```

Out[29]:

```
'Biryani'
```

In [30]:

```
#counting a specific alphabet in a string
name = "baba_ammar with dr ammar tufail"
name
```

Out[30]:

```
'baba_ammar with dr ammar tufail'
```

In [32]:

```
name.count("ba")
```

Out[32]:

```
2
```

how to find index number in string

In [33]:

```
name = "baba_ammar with dr ammar tufail"
name
```

Out[33]:

```
'baba_ammar with dr ammar tufail'
```

In [35]:

```
name.find("d")
```

Out[35]:

```
16
```

In [36]:

```
#how to split a string
food = "I love Samosa, Pakora, Raita, Biryani and Karahi"
food
```

Out[36]:
```
'I love Samosa, Pakora, Raita, Biryani and Karahi'
```

In [37]:
```
food.split(",")
```

Out[37]:
```
['I love Samosa', ' Pakora', ' Raita', ' Biryani and Karahi']
```

Basic data Structures in Python

1. Tuple
2. List
3. Dictionaries
4. Set

In [ ]:
```
##1-Tuple
-ordered collection of elements
-enclosed in () round braces/paranthesis
-different kind of elements can be stored
-once elements are stored you can not change them (Unmutateable)
```

In [38]:
```
tupe1 = (1, "python", True, 2.5)
tupe1
```

Out[38]:
```
(1, 'python', True, 2.5)
```

In [39]:
```
#type of tuple
type(tupe1)
```

Out[39]:
```
tuple
```

Indexing in tuple

In [44]:
```
#last element is exclusive
tupe1[0:3]
```

```
Out[44]: (1, 'python', True)
```

In [45]:

```
len(tupe1)
```

```
Out[45]: 4
```

In [48]:

```
tupe2 = (2, "baba_ammar", 3.5, "false")
```

In [51]:

```
#adding tuples (Concatinate)
tupe1 + tupe2
```

```
Out[51]: (1, 'python', True, 2.5, 2, 'baba_ammar', 3.5, 'false')
```

In [54]:

```
tupe3 = (20, 50, 30, 60, 70)
tupe3
```

```
Out[54]: (20, 50, 30, 60, 70)
```

In [56]:

```
#minimum
min(tupe3)
```

```
Out[56]: 20
```

In [57]:

```
max(tupe3)
```

```
Out[57]: 70
```

In [58]:

```
tupe3*2
```

```
Out[58]: (20, 50, 30, 60, 70, 20, 50, 30, 60, 70)
```

Lists

- orderededed collection of elements
- enclosed in these [] brackets/braces -you can change the values/mutatable

In [59]:

```
list1 = [2, "baba_ammar", 3.5]
list1
```

Out[59]:

```
[2, 'baba_ammar', 3.5]
```

In [60]:

```
type(list1)
```

Out[60]:

```
list
```

In [61]:

```
len(list1)
```

Out[61]:

```
3
```

In [62]:

```
list1[2]
```

Out[62]:

```
3.5
```

In [63]:

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

Out[63]:

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

In [64]:

```
list1 + list2
```

Out[64]:

```
[2, 'baba_ammar', 3.5, 3, 5, 'Ammar', 'codanics', 478, 53.2, 'False']
```

In [65]:

```
list1*2
```

Out[65]:
```
[2, 'baba_ammar', 3.5, 2, 'baba_ammar', 3.5]
```

In [66]:
```
list1.reverse()
list1
```

Out[66]:
```
[3.5, 'baba_ammar', 2]
```

In [68]:
```
list1.append("codanics_youtube_channel")
list1
```

Out[68]:
```
[3.5, 'baba_ammar', 2, 'codanics_youtube_channel', 'codanics_youtube_channel']
```

In [82]:
```
list3 = [20, 30, 35, 50, 212, 45, 67, 66, 38]
list3
```

Out[82]:
```
[20, 30, 35, 50, 212, 45, 67, 66, 38]
```

In [83]:
```
len(list3)
```

Out[83]:
```
9
```

In [84]:
```
type(list3)
```

Out[84]:
```
list
```

In [85]:
```
#sorting a list
list3.sort()
list3
```

Out[85]:
```
[20, 30, 35, 38, 45, 50, 66, 67, 212]
```

In [86]:
```
list3*3
```

```
[20,
Out[86]:  30,
          35,
          38,
          45,
          50,
          66,
          67,
          212,
          20,
          30,
          35,
          38,
          45,
          50,
          66,
          67,
          212,
          20,
          30,
          35,
          38,
          45,
          50,
          66,
          67,
          212]
```

```
In [88]:  list = list1 + list2
          list
```

```
Out[88]: [3.5,
          'baba_ammar',
          2,
          'codanics_youtube_channel',
          'codanics_youtube_channel',
          3,
          5,
          'Ammar',
          'codanics',
          478,
          53.2,
          'False']
```

Dictionaries

- an unordered collection of elements
- key and value
- curly braces or brackets{}
- Mutataable/change the values

In [91]:

```
#food and their prices
food1 = {"Samosa":30, "Pakora":100, "Raita":20, "Salad":50, "Chicken_role":30}
food1
```

Out[91]:

```
{'Samosa': 30, 'Pakora': 100, 'Raita': 20, 'Salad': 50, 'Chicken_role': 30}
```

In [92]:

```
type(food1)
```

Out[92]:

```
dict
```

In [94]:

```
#extract data
keys1 = food1.keys()
keys1
```

Out[94]:

```
dict_keys(['Samosa', 'Pakora', 'Raita', 'Salad', 'Chicken_role'])
```

In [96]:

```
values1 = food1.values()
values1
```

Out[96]:

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

In [98]:

```
#adding a new element
food1["Tikki"]=10
food1
```

Out[98]:

```
{'Samosa': 30,
 'Pakora': 100,
 'Raita': 20,
 'Salad': 50,
 'Chicken_role': 30,
 'Tikki': 10}
```

In [99]:

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

Out[99]:

```
{'Samosa': 30,
 'Pakora': 100,
 'Raita': 20,
 'Salad': 50,
 'Chicken_role': 30,
 'Tikki': 15}
```

In [100…

```
food2 = {"Dates":150, "Choclates":200, "Sawian":1000}
food2
```

Out[100…

```
{'Dates': 150, 'Choclates': 200, 'Sawian': 1000}
```

In [104…

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

In [105…

```
food1
```

Out[105…

```
{'Samosa': 30,
 'Pakora': 100,
 'Raita': 20,
 'Salad': 50,
 'Chicken_role': 30,
 'Tikki': 15,
 'Dates': 150,
 'Choclates': 200,
 'Sawian': 1000}
```

Sets

- unordered and unindexed
- used with curly braces{}
- No duplicates allowed
- totally unordered

In [106…

```
s1 = {1, 2.1, 5.2, "ammar", "codanics", "fsd",}
s1
```

Out[106…

```
{1, 2.1, 5.2, 'ammar', 'codanics', 'fsd'}
```

In [107…

```
s1.add("Navi")
s1
```

Out[107…

```
{1, 2.1, 5.2, 'Navi', 'ammar', 'codanics', 'fsd'}
```

In [109…

```
s1.remove(1)
s1
```

Out[109…

```
{2.1, 5.2, 'Navi', 'ammar', 'codanics', 'fsd'}
```