
DATA SCIENCE WITH PYTHON

Shortcuts Jupyter Lab

- Create a new Cell - Esc+B
 - Deleting a Cell - Esc+X
 - Markdown - Esc+M
 - running a Cell - Shift+Enter , Alt+Enter , Ctrl+Enter (Executing the code)
-

In [56]:

```
print("HELLO PYTHON !")
```

HELLO PYTHON !

In [4]:

```
2+2
```

Out[4]:

4

FINDING DATA TYPE

In [5]:

```
a=1;
```

In [6]:

```
type(a)
```

Out[6]:

int

In [7]:

```
b="RAZA"
```

In [8]:

```
type(b)
```

Out[8]:

str

In [9]:

```
c="1234"
```

In [10]:

```
type(c)
```

Out[10]:

str

LIST IN PYTHON

- **### LIST ARE MUTABLE** i.e can be change

In [55]:

```
lis=[]
```

In [56]:

```
print(type(lis))
```

<class 'list'>

In [11]:

```
list_1=["a","b","c","d"]
```

In [12]:

```
print(list_1)
```

['a', 'b', 'c', 'd']

In [14]:

```
print(list_1[2])
```

c

In [5]:

```
num=[1,2,3,4,5,6]
```

In [6]:

```
print(num)
```

```
[1, 2, 3, 4, 5, 6]
```

In [8]:

```
num.sort()  
num.reverse() # reverse the given number
```

In [9]:

```
print(num)
```

```
[6, 5, 4, 3, 2, 1]
```

In [10]:

```
print(num[2])
```

```
4
```

In [11]:

```
print(len(num)) # find the length
```

```
6
```

In [12]:

```
print(max(num)) # find the maximum number
```

```
6
```

In [13]:

```
print(min(num)) # find the minimum number
```

```
1
```

In [17]:

```
num.append(7) # attach at the last of the list
```

In [18]:

```
print(num)
```

```
[6, 5, 4, 3, 2, 1, 7]
```

In [19]:

```
num.insert(1,0) # eg. insert 1 is position of the 0.
```

In [20]:

```
print(num)
```

```
[6, 0, 5, 4, 3, 2, 1, 7]
```

In [25]:

```
num.remove(0) # remove function using remove particular number eg. 0.
```

In [26]:

```
print(num)
```

```
[6, 5, 4, 3, 2, 7]
```

In [27]:

```
num.pop() # remove the last element from the list.
```

Out[27]:

```
7
```

In [28]:

```
print(num)
```

```
[6, 5, 4, 3, 2]
```

In [30]:

```
num[0]=9 # it can be change in list but not tuple.
```

In [31]:

```
print(num)
```

```
[9, 5, 4, 3, 2]
```

- **## Using index Function**

In [39]:

```
# vowels list
vowels = ['a', 'e', 'i', 'o', 'i', 'u']

# index of 'e' in vowels
index = vowels.index('e')
print('The index of e:', index)

# element 'i' is searched
# index of the first 'i' is returned
index = vowels.index('i')

print('The index of i:', index)
```

```
The index of e: 1
The index of i: 2
```

- **## Using extend Function**

In [46]:

```
# language list
language = ['French', 'English']

# another list of language
language1 = ['Spanish', 'Portuguese']

# appending language1 elements to language
language.extend(language1)

print('Language List:', language)
```

Language List: ['French', 'English', 'Spanish', 'Portuguese']

SLICING

In [40]:

```
print(num[0:3])
```

[6, 5, 4]

In [39]:

```
print(num[0:2:1])
```

[6, 5]

EXTEND SLICING

In [52]:

```
print(num[0:6:2])
```

[6, 4, 2]

TUPLE IN PYTHON

- **### TUPLE ARE UNMUTABLE** i.e cannot be change

In [57]:

```
tp=()
```

In [58]:

```
print(type(tp))
```

```
<class 'tuple'>
```

In [32]:

```
num1=(1,2,3,4,5,6)
```

In [33]:

```
print(num1)
```

```
(1, 2, 3, 4, 5, 6)
```

commet **in** python

Example :

```
num1[1]=9
```

at the place of 2 add 9 but its **not** possible **in** tuple

In [51]:

```
a=2
```

```
b=4
```

In [52]:

```
a,b=b,a # Swapping two number using in built function in pythoin
```

In [53]:

```
print(a,b)
```

```
4 2
```

- **## Add Elements of Tuple and Set to List**

In [47]:

```
# language list
language = ['French']

# language tuple
language_tuple = ('Spanish', 'Portuguese')

# language set
language_set = {'Chinese', 'Japanese'}

# appending language_tuple elements to language
language.extend(language_tuple)

print('New Language List:', language)

# appending language_set elements to language
language.extend(language_set)

print('Newer Language List:', language)
```

New Language List: ['French', 'Spanish', 'Portuguese']
Newer Language List: ['French', 'Spanish', 'Portuguese', 'Chinese', 'Japanese']

SET IN PYTHON

- **## Set are Unmutable** i.e it cannot be change

In [105]:

```
st=set()
```

In [109]:

```
print(type(st))
```

```
<class 'set'>
```

In [110]:

```
my_set = {1, 2, 3}
print(my_set)

# set of mixed datatypes
my_set = {1.0, "Hello", (1, 2, 3)}
print(my_set)
```

```
{1, 2, 3}
{1.0, 'Hello', (1, 2, 3)}
```

In [119]:

```
myset={11,2,3}
```

In [120]:

```
print(myset)
```

```
{3, 2, 11}
```

In [121]:

```
myset.add(4) # adding the value.
```

In [122]:

```
print(myset)
```

```
{3, 2, 11, 4}
```

In [123]:

```
# add multiple elements  
myset.update([5,0,7,9])
```

In [124]:

```
print(myset)
```

```
{0, 2, 3, 4, 5, 7, 9, 11}
```

In [125]:

```
myset.update([4, 5], {1, 6, 8})  
print(myset)
```

```
{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 11}
```

DICTIONARY IN PYTHON

- **## Dictionary are Mutable** i.e it can be change

In [59]:

```
dic={}
```

In [60]:

```
print(type(dic))
```

```
<class 'dict'>
```


In [64]:

```
raza={"Name":"Abdul Raza Shaikh","Roll No.":37,"College Name":"Rizvi College "}
```

In [62]:

```
print(raza)
```

```
{'Name': 'Abdul Raza Shaikh', 'Roll No.': 37, 'College Name': 'Rizvi College '}
```

In [66]:

```
print(raza["Name"])
```

```
Abdul Raza Shaikh
```

In [76]:

```
# Nested Dictionary  
a={"Raza":"Student","Roll No.":37,"Rizvi College":{"Branch 1": "Computer","Branch 2":"Electronics","Branch 3":"Civil"}}
```

In [78]:

```
print(a["Rizvi College"])
```

```
{'Branch 1': 'Computer', 'Branch 2': 'Electronics', 'Branch 3': 'Civil'}
```

In [79]:

```
a["Rizvi College"]["Branch 4"]="Artificial Intelligence" # adding value inside the dictionary or nested dictionary.
```

In [80]:

```
print(a)
```

```
{'Raza': 'Student', 'Roll No.': 37, 'Rizvi College': {'Branch 1': 'Computer', 'Branch 2': 'Electronics', 'Branch 3': 'Civil', 'Branch 4': 'Artificial Intelligence'}}
```

In [81]:

```
del a["Roll No."] # Delete the value inside the dictionary.
```

In [83]:

```
print(a)
```

```
{'Raza': 'Student', 'Rizvi College': {'Branch 1': 'Computer', 'Branch 2': 'Electronics', 'Branch 3': 'Civil', 'Branch 4': 'Artificial Intelligence'}}
```

In [85]:

```
print(a.get("Raza")) # get function gives the value of a particular index .
```

Student

In [100]:

```
a.update({" Student Surname":"Shaikh"}) # add the value using update function
```

In [101]:

```
print(a)
```

```
{'Raza': 'Student', 'Rizvi College': {'Branch 1': 'Computer', 'Branch 2': 'Electronics', 'Branch 3': 'Civil', 'Branch 4': 'Artificial Intelligence'}, 'Surname': 'Shaikh', ' Student Surname': 'Shaikh'}
```

STRING IN PYTHON

In [126]:

```
mystr="Abdul Raza"
```

In [127]:

```
print(mystr)
```

Abdul Raza

In [128]:

```
print(mystr[3])
```

u

- **## String Slicing**

In [129]:

```
print(mystr[0:4])
```

Abdu

In [130]:

```
print(len(mystr))
```

10

In [140]:

```
print(mystr[0:10:2]) # 0 is starting ,10 is end of the string and 2 is difference
```

AdlRz

In [171]:

```
mystr1="Search the world's information, including webpages, images, videos and more. Google has many special features to help you find exactly what you're looking ... visited this page 3 times."
```

In [145]:

```
print(mystr1)
```

Search the world's information, including webpages, images, videos and more. Google has many special features to help you find exactly what you're looking ... visited this page 3 times.

In [173]:

```
print(mystr1[-99:-3])
```

s many special features to help you find exactly what you're looking ... visited this page 3 times

In [174]:

```
print(mystr1[-99:-3:4])
```

snpaerteyf c tu k i sg

In [181]:

```
print(mystr1.endswith("Google"))
```

False