Number

In [1]:

```
x = 12
y = 3
```

'My first number is {} and second number is {} '.format(x,y)

In [2]:

```
print('My first number is {} and second number is {} '.format(x,y))
```

```
My first number is 12 and second number is 3
```

In [3]:

```
print('My first number is {one} and second number is {two} '.format(one=x,two=y))
```

```
My first number is 12 and second number is 3
```

String

In [4]:

```
s = 'abcdefghig'
```

In [5]:

```
s[0]
```

Out[5]:

```
'a'
```

In [6]:

```
s[0:]
```

Out[6]:

```
'abcdefghig'
```

In [7]:

```
s[0:3]
```

Out[7]:

```
'abc'
```

In [8]:

```
s[0::2]
```

Out[8]:

```
'acegi'
```

List

In [9]:

```
[1,1,2,3,4,54]
```

Out[9]:

```
[1, 1, 2, 3, 4, 54]
```

In [10]:

```
['e','d','d']
```

Out[10]:

```
['e', 'd', 'd']
```

In [11]:

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

Out[11]:

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

Add element on list

In [12]:

```
my_list.append(7)
my_list
```

Out[12]:

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

In [13]:

```
my_list[4]
```

Out[13]:

```
5
```

In [14]:

```
my_list[0:3]
```

Out[14]:

```
[1, 2, 3]
```

In [15]:

```
my_list[0] = 'First'
my_list
```

Out[15]:

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

In [16]:

```
nest = [1,2,[3,4]]
nest
```

Out[16]:

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

In [17]:

```
nest[2]
```

Out[17]:

```
[3, 4]
```

In [18]:

```
nest[2][1]
```

Out[18]:

```
4
```

In [19]:

```
nest1 = [1,1,2,[3,4,['a','s']]]
nest1
```

Out[19]:

```
[1, 1, 2, [3, 4, ['a', 's']]]
```

In [20]:

```
nest1[3]
```

Out[20]:

```
[3, 4, ['a', 's']]
```

In [21]:

```
nest1[3][2]
```

Out[21]:

```
['a', 's']
```

In [22]:

```
nest1[3][2][1]
```

Out[22]:

```
's'
```

Dictionary

In [23]:

```
d1 = {'name':'Raza','Roll No':'37'}
d1
```

Out[23]:

```
{'name': 'Raza', 'Roll No': '37'}
```

In [24]:

```
d1['name']
```

Out[24]:

```
'Raza'
```

In [25]:

```
d2 = {'Students':['Raza','Rahul','shaikh']}
d2
```

Out[25]:

```
{'Students': ['Raza', 'Rahul', 'shaikh']}
```

In [26]:

```
d2['Students']
```

Out[26]:

```
['Raza', 'Rahul', 'shaikh']
```

In [27]:

```
print(d2)
```

```
{'Students': ['Raza', 'Rahul', 'shaikh']}
```

In [28]:

```
d2['Students'][1]
```

Out[28]:

```
'Rahul'
```

In [29]:

```
my_list1 = d2['Students']
my_list1
```

Out[29]:

```
['Raza', 'Rahul', 'shaikh']
```

In [30]:

```
my_list1[1]
```

Out[30]:

```
'Rahul'
```

Nested Dictionary

In [31]:

```
d3 = {'name':{'raza':[1,2,3]}}
d3
```

Out[31]:

```
{'name': {'raza': [1, 2, 3]}}
```

In [32]:

```
d3['name']['raza']
```

Out[32]:

```
[1, 2, 3]
```

Boolean

In [33]:

```
True ,False
```

Out[33]:

```
(True, False)
```

Tuple

In [34]:

```
t = (1,2,3,4)
t
```

Out[34]:

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

- Add Element in List

In [35]:

```
lst = [1,2,3,45,5,5]
lst
```

Out[35]:

```
[1, 2, 3, 45, 5, 5]
```

In [36]:

```
lst[2] = 'NEW'
lst
```

Out[36]:

```
[1, 2, 'NEW', 45, 5, 5]
```

Set

- remove the same number and print only one

In [37]:

```
{1,2,3,4,3,23,4,4,1,3,3,3,3,2,2,1,1,1,22,23}
```

Out[37]:

```
{1, 2, 3, 4, 22, 23}
```

In [38]:

```
s = set([1,2,2,2,22,2,2,1,1,1,1,1,6,6,6,6,6])
s
```

Out[38]:

```
{1, 2, 6, 22}
```

- Add element in Set

In [39]:

```
s.add(5)
s
```

Out[39]:

```
{1, 2, 5, 6, 22}
```

operator

In [40]:

```
1>2
```

Out[40]:

```
False
```

In [41]:

```
1<2
```

Out[41]:

```
True
```

In [42]:

```
1 == 1
```

Out[42]:

```
True
```

In [43]:

```
1 == 2
```

Out[43]:

```
False
```

In [44]:

```
1 != 3
```

Out[44]:

```
True
```

In [45]:

```
'hi' == 'bye'
```

Out[45]:

```
False
```

In [46]:

```
1 > 2 and 2 < 3
```

Out[46]:

```
False
```

In [47]:

```
1 > 2 or 2 < 3
```

Out[47]:

```
True
```

Condition

In [48]:

```
if 1 == 1:
    print("Hello Raza")
```

```
Hello Raza
```

In [49]:

```
if 1 == 2:
    print("Not Eqaul")
else:
    print("Raza")
```

```
Raza
```

In [50]:

```
if 1 == 2:
    print("Not Eqaul")
elif 2 == 2:
    print("Right")
else:
    print("Raza")
```

```
Right
```

For Loop

In [51]:

```
seq = [1,2,3,4,5,6]
for num in seq:
    print(num)
```

```
1
2
3
4
5
6
```

While Loop

In [52]:

```
i = 1
while i < 5:
    print('i is :{}'.format(i))
    i = i + 1
```

```
i is :1
i is :2
i is :3
i is :4
```

- Range Function

In [53]:

```
for x in range(0,6):
    print(x)
```

```
0
1
2
3
4
5
```

- Also used in list

In [54]:

```
list(range(0,6))
```

Out[54]:

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

list comprehension in python

without list comprehension in python

In [55]:

```
x = [1,2,3,4]
```

In [56]:

```
out = []
for num in x:
    out.append(num**2)
print(out)
```

```
[1, 4, 9, 16]
```

`using list comprehension in python

In [57]:

```
[num**2 for num in x]
```

Out[57]:

```
[1, 4, 9, 16]
```

Function

In [58]:

```
# def keyword
def my_func(paramiter):
    print(paramiter)
my_func("hello")
```

```
hello
```

In [62]:

```
def my_func(name):
    print("Hello " +name)
my_func("Raza")
```

```
Hello Raza
```

In [63]:

```
def my_func(name = 'Default name'):
    print("Hello " +name)
my_func()
```

```
Hello Default name
```

- using return

In [64]:

```
def square(num):
    return num**2
```

In [65]:

```
square(4)
```

Out[65]:

```
16
```

map function

In [66]:

```
def times2(var):
    return var**2
```

In [68]:

```
times2(3)
```

Out[68]:

```
9
```

In [69]:

```
seq = [1,2,3,4,5]
```

In [71]:

```
map(times2,seq)
```

Out[71]:

```
<map at 0x138a19f3eb0>
```

In [72]:

```
list(map(times2,seq))
```

Out[72]:

```
[1, 4, 9, 16, 25]
```

SAME PROGRAM USING LAMBDA

In [73]:

```
list(map(lambda num : num**2,seq))
```

Out[73]:

```
[1, 4, 9, 16, 25]
```

Using filter function

In [78]:

```
list(filter(lambda num : num%2 == 0,seq))
```

Out[78]:

```
[2, 4]
```

Method

In [91]:

```
s = 'Hello my name is Raza'
```

In [92]:

```
s
```

Out[92]:

```
'Hello my name is Raza'
```

In [93]:

```
s.lower()
```

Out[93]:

```
'hello my name is raza'
```

In [94]:

```
s.swapcase()
```

Out[94]:

```
'hELLO MY NAME IS rAZA'
```

In [95]:

```
s.upper()
```

Out[95]:

```
'HELLO MY NAME IS RAZA'
```

In [96]:

```
s.split()
```

Out[96]:

```
['Hello', 'my', 'name', 'is', 'Raza']
```

In [97]:

```
dic = {'k1':1,'k2':2}
dic
```

Out[97]:

```
{'k1': 1, 'k2': 2}
```

In [98]:

```
dic.keys()
```

Out[98]:

```
dict_keys(['k1', 'k2'])
```

In [99]:

```
dic.items()
```

Out[99]:

```
dict_items([('k1', 1), ('k2', 2)])
```

In [100]:

```
dic.values()
```

Out[100]:

```
dict_values([1, 2])
```

In [101]:

```
lst1 = [1,2,3,4,4,5]
lst1
```

Out[101]:

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

In [102]:

```
lst1.pop()
```

Out[102]:

```
5
```

In [103]:

```
first = lst1.pop(0)
```

In [104]:

```
lst1
```

Out[104]:

```
[2, 3, 4, 4]
```

In [105]:

```
first
```

Out[105]:

```
1
```

In [106]:

```
x = [(1,2),(3,4),(5,6)]
```

In [107]:

```
for items in x:
    print(items)
```

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

In [108]:

```
for (a,b) in x:
    print(a)`
```

```
1
3
5
```

In [109]:

```
for (a,b) in x:
    print(b)
```

```
2
4
6
```

In [ ]:

```

```