In [1]:
```
a= "Talha's"
print(a)
```

```
Talha's
```

In [2]:
```
a=999L
print (a)
```

```
  File "<ipython-input-2-3ed3eaf90f45>", line 1
    a=999L
       ^
SyntaxError: invalid syntax
```

In [3]:
```
user=[[Talha,1939597],[Tanvir,1939324]]
print(user)
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-3-ee807bc3bd59> in <module>
----> 1 user=[[Talha,1939597],[Tanvir,1939324]]
      2 print(user)

NameError: name 'Talha' is not defined
```

In [4]:
```
user=[['Talha',1939597],['Tanvir',1939324]]
print(user)
```

```
[['Talha', 1939597], ['Tanvir', 1939324]]
```

In [5]:
```
user = {'Talha': 1939597, 'Tanvir': 1939324}
print (user)
```

```
{'Talha': 1939597, 'Tanvir': 1939324}
```

In [7]:
```
T=(5,'Talha',2)
print(T)
```

```
(5, 'Talha', 2)
```

In [8]:
```
112+5
```

Out[8]:
```
117
```

In [9]:
```
2**8
```

Out[9]:
```
256
```

In [10]:
```
import math
math.pi
```

Out[10]:
```
3.141592653589793
```

In [11]:
```
math.sqrt(49)
```

Out[11]:
```
7.0
```

In [12]:
```
import random
random.random()
```

Out[12]:
```
0.2611457591607008
```

In [13]:
```
random.choice(1,2,3,4,5)
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-13-601dc877add1> in <module>
----> 1 random.choice(1,2,3,4,5)

TypeError: choice() takes 2 positional arguments but 6 were given
```

In [14]:
```
random.choice([1,2,3,4,5])
```

Out[14]:
```
2
```

```
In [16]: P = 'Capricious'
         len(P)
Out[16]: 10

In [17]: P[3]
Out[17]: 'r'

In [18]: P[-1]
Out[18]: 's'

In [19]: P[2:5]
Out[19]: 'pri'

In [20]: P[1:]
Out[20]: 'apricious'

In [21]: P["5"]
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-21-d81a42986aa8> in <module>
----> 1 P["5"]

TypeError: string indices must be integers

In [22]: P[:5]
Out[22]: 'Capri'

In [23]: P[:-1]
Out[23]: 'Capriciou'

In [24]: P+'xyz'
Out[24]: 'Capriciousxyz'

In [25]: P*3
```

Out[25]: 'CapriciousCapriciousCapricious'

In [26]:
```
P='S'+P[1:]
```

In [27]:
```
P
```

Out[27]: 'Sapricious'

In [28]:
```
P.find('ious')
```

Out[28]: 6

In [29]:
```
P.replace('S','P')
P
```

Out[29]: 'Sapricious'

In [30]:
```
P.replace('S','P')
```

Out[30]: 'Papricious'

In [31]:
```
line = 'True,False,Neutral'
line.split(',')
```

Out[31]: ['True', 'False', 'Neutral']

In [32]:
```
p = 'Capricious'
```

In [33]:
```
p.upper()
```

Out[33]: 'CAPRICIOUS'

In [34]:
```
p.isalpha()
```

Out[34]: True

In [35]:
```
line = 'aaa,bbb,ccccc,dd\n'
line = line.rstrip( )
line
```

Out[35]: 'aaa,bbb,ccccc,dd'

In [36]:
```
p.isupper()
```

Out[36]: False

In [37]:
```
a = 'T\nY\TCount'
len(a)
```

Out[37]:
```
10
```

In [38]:
```
msg = """aaaaaaaaaaaaabbb''bbbbbbbbbb""bbbbbbb'bbbbccccccccccccc"""
msg
```

Out[38]:
```
'aaaaaaaaaaaaabbb\'\'\'bbbbbbbbbb""bbbbbbb\'bbbbccccccccccccc'
```

In [39]:
```
import re
match = re.match('Hello[ \t]*(.*)world', 'Hello    Python world')
match.group(1)
```

Out[39]:
```
'Python '
```

In [40]:
```
match = re.match('/(.*)/(.*)/(.*)', '/usr/home/lumberjack')
match.groups( )
```

Out[40]:
```
('usr', 'home', 'lumberjack')
```

In [41]:
```
a=['astro',222,'to']
len(a)
```

Out[41]:
```
3
```

In [42]:
```
a[0]
```

Out[42]:
```
'astro'
```

In [43]:
```
a[:-1]
```

Out[43]:
```
['astro', 222]
```

In [44]:
```
a+[400,'no']
```

Out[44]:
```
['astro', 222, 'to', 400, 'no']
```

In [45]:
```
a.append('yes')
```

In [46]:
```
a
```

Out[46]:
```
['astro', 222, 'to', 'yes']
```

In [47]:
```
a.pop(1)
```

Out[47]:
```
222
```

Out[48]:
```
['astro', 'to', 'yes']
```

In [49]:
```
S=['Summer','Winter','Fall']
S.sort()
```

In [50]:
```
S
```

Out[50]:
```
['Fall', 'Summer', 'Winter']
```

In [51]:
```
S.reverse()
S
```

Out[51]:
```
['Winter', 'Summer', 'Fall']
```

In [52]:
```
M = [[1, 2, 3],
     [4, 5, 6],
     [7, 8, 9]]
M
```

Out[52]:
```
[[1, 2, 3], [4, 5, 6], [7, 8, 9]]
```

In [54]:
```
M[2][3]
```

```
---------------------------------------------------------------------------
IndexError                                Traceback (most recent call last)
<ipython-input-54-14d9db4f37ea> in <module>
----> 1 M[2][3]

IndexError: list index out of range
```

In [55]:
```
M[1][3]
```

```
---------------------------------------------------------------------------
IndexError                                Traceback (most recent call last)
<ipython-input-55-a4946d7064ee> in <module>
----> 1 M[1][3]

IndexError: list index out of range
```

In [56]:
```
M
```

Out[56]:
```
[[1, 2, 3], [4, 5, 6], [7, 8, 9]]
```

In [57]:
```
M[1]
```

Out[57]:
```
[4, 5, 6]
```

In [58]:
```
M[1][2]
```

Out[58]:
```
6
```

In [59]:
```
col2=[row[1] for row in M]
col2
```

Out[59]:
```
[2, 5, 8]
```

In [61]:
```
[row[1] for row in M if row[1]%2==0]
```

Out[61]:
```
[2, 8]
```

In [63]:
```
[row[1] for row in M if row[1]%2!=0]
```

Out[63]:
```
[5]
```

In [64]:
```
c={'BD':1,'IN':2,'UK':3}
```

In [68]:
```
c[BD]
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-68-2249bce858e2> in <module>
----> 1 c[BD]

NameError: name 'BD' is not defined
```

In [70]:
```
c
```

Out[70]:
```
{'BD': 1, 'IN': 2, 'UK': 3}
```

In [71]:
```
c['BD']
```

Out[71]:
```
1
```

In [72]:
```
c['BD']+=3
```

In [73]:
```
c
```

Out[73]:
```
{'BD': 4, 'IN': 2, 'UK': 3}
```

In [74]:
```
user = {}
user['name'] = 'Talha'
user['dept'] = 'CSE'
user['id']= 39597
```

In [75]:
```
user
```

Out[75]:
```
{'name': 'Talha', 'dept': 'CSE', 'id': 39597}
```

In [76]:
```
user['dept']
```

Out[76]:
```
'CSE'
```

In [77]:
```
D = {'a': 1, 'b': 2, 'c': 3}
D
```

Out[77]:
```
{'a': 1, 'b': 2, 'c': 3}
```

In [78]:
```
l= D.keys()
D
```

Out[78]:
```
{'a': 1, 'b': 2, 'c': 3}
```

In [79]:
```
l
```

Out[79]:
```
dict_keys(['a', 'b', 'c'])
```

In [80]:
```
l.sort()
l
```

```
---------------------------------------------------------------------------
AttributeError                            Traceback (most recent call last)
<ipython-input-80-138e63d559fe> in <module>
----> 1 l.sort()
      2 l

AttributeError: 'dict_keys' object has no attribute 'sort'
```

In [81]:
```
l = ["Summer", "for", "Warm"]
for i in l:
    print(i)
```

```
Summer
for
Warm
```

In [82]:
```
t = ("Summer", "for", "Warm")
for i in t:
    print(i)
```

```
Summer
for
Warm
```

In [83]:
```
t.sort()
t
```

```
---------------------------------------------------------------------------
AttributeError                            Traceback (most recent call last)
<ipython-input-83-729359e2afc3> in <module>
----> 1 t.sort()
      2 t

AttributeError: 'tuple' object has no attribute 'sort'
```

In [89]:
```
s = [x ** 2 for x in [2, 4, 8]]
```

In [90]:
```
s
```

Out[90]:
```
[4, 16, 64]
```

In [91]:
```
D
```

Out[91]:
```
{'a': 1, 'b': 2, 'c': 3}
```

In [92]:
```
D['d'] =4
```

In [93]:
```
D
```

Out[93]:
```
{'a': 1, 'b': 2, 'c': 3, 'd': 4}
```

In [99]:
```
f = open('data.txt', 'w')
f.write('Good\n')
f.write('Morning\n')
f.close()
```

In [100]:
```
f = open('data.txt')
```

In [101]:
```
bytes = f.read()
bytes
```

In [102]:
```
print(bytes)
```

```
Good
Morning
```

In [103]:
```
bytes.split()
```

Out[103]:
```
['Good', 'Morning']
```

In [106]:
```
a = 200
b = 33
if b > a:
  print("b is greater than a")
elif a == b:
  print("a and b are equal")
else:
  print("a is greater than b")
```

```
a is greater than b
```