In [1]:
```
#1. Finding lenth of a tuple:
```

In [2]:
```
#Example-01:
```

In [3]:
```
t1 = (1,20.4,'Tiger is a wild animal.','Q',"King","QUEEN",'h',"@",'#',
"*","+",-9-8j)
t1
```

Out[3]:
```
(1,
 20.4,
 'Tiger is a wild animal.',
 'Q',
 'King',
 'QUEEN',
 'h',
 '@',
 '#',
 '*',
 '+',
 (-9-8j))
```

In [4]:
```
len(t1)
```

Out[4]:
```
12
```

In [5]:
```
#Example-02:
```

In [6]:
```
t2 = (9,-19,20.09,-30.78,"Book",-10+1j)
```

In [7]:
```
t2
```

Out[7]:
```
(9, -19, 20.09, -30.78, 'Book', (-10+1j))
```

In [8]:
```
len(t2)
```

Out[8]: 6

In [9]:
```
#Example-03:
```

In [10]:
```
t3 = (100,20,300,400,500)
```

In [11]:
```
len(t3)
```

Out[11]: 5

In [12]:
```
#2. Concatenating tuples:-
```

In [13]:
```
#Example-01:
```

In [14]:
```
tup1 = (20,35,46)
tup2 = ('a','b','c','d')
```

In [15]:
```
tup1,tup2
```

Out[15]: ((20, 35, 46), ('a', 'b', 'c', 'd'))

In [16]:
```
tup3 = tup1 + tup2
tup3
```

Out[16]: (20, 35, 46, 'a', 'b', 'c', 'd')

In [17]:
```
tup1 + tup2
```

Out[17]: (20, 35, 46, 'a', 'b', 'c', 'd')

In [18]:
```
tup2,tup1
```

Out[18]: (('a', 'b', 'c', 'd'), (20, 35, 46))

In [19]:
```
tup4 = tup2 + tup1
```

```
In [19]: tup4
Out[19]: ('a', 'b', 'c', 'd', 20, 35, 46)

In [20]: tup2 + tup1
Out[20]: ('a', 'b', 'c', 'd', 20, 35, 46)

In [21]: #Example-02:

In [22]: tupp1 = ('x','y','zebra',29)
         tupp2 = ('p','Apple',36)
         tupp3 = (-19,3.98,78-9j,"GOD")

In [23]: tupp1,tupp2,tupp3
Out[23]: (('x', 'y', 'zebra', 29), ('p', 'Apple', 36), (-19, 3.98, (78-9j), 'GO
         D'))

In [24]: tupp1 + tupp2 + tupp3
Out[24]: ('x', 'y', 'zebra', 29, 'p', 'Apple', 36, -19, 3.98, (78-9j), 'GOD')

In [25]: tupp1 + tupp3 + tupp2
Out[25]: ('x', 'y', 'zebra', 29, -19, 3.98, (78-9j), 'GOD', 'p', 'Apple', 36)

In [26]: tupp1 + tupp1 +tupp2
Out[26]: ('x', 'y', 'zebra', 29, 'x', 'y', 'zebra', 29, 'p', 'Apple', 36)

In [27]: tupp2 + tupp3 +tupp3
Out[27]: ('p', 'Apple', 36, -19, 3.98, (78-9j), 'GOD', -19, 3.98, (78-9j), 'GO
         D')

In [28]: #Example-03:
```

In [29]:
```
tt1 = (10,20,30)
tt2 = (30,45,55,60)
tt3 = (20,30,60,78,85)
tt1,tt2,tt3
```

Out[29]:
```
((10, 20, 30), (30, 45, 55, 60), (20, 30, 60, 78, 85))
```

In [30]:
```
tt1 + tt2 + tt3
```

Out[30]:
```
(10, 20, 30, 30, 45, 55, 60, 20, 30, 60, 78, 85)
```

In [31]:
```
tt1 + tt2 + tt3 + tt1 +tt1 +tt3
```

Out[31]:
```
(10,
 20,
 30,
 30,
 45,
 55,
 60,
 20,
 30,
 60,
 78,
 85,
 10,
 20,
 30,
 10,
 20,
 30,
 20,
 30,
 60,
 78,
 85)
```

In [32]:
```
#3. Repeating elements of tuple:-
```

In [33]:
```
#Example-01:
```

In [34]:
```
x1 = (1,2,3,4)
x1
```

Out[34]:
```
(1, 2, 3, 4)
```

In [35]:
```
x1*2
```

Out[35]:
```
(1, 2, 3, 4, 1, 2, 3, 4)
```

In [36]:
```
x1*5
```

Out[36]:
```
(1, 2, 3, 4, 1, 2, 3, 4, 1, 2, 3, 4, 1, 2, 3, 4, 1, 2, 3, 4)
```

In [37]:
```
#Example-02:-
```

In [38]:
```
x2 = ('a',"b",'c',"d")
x2
```

Out[38]:
```
('a', 'b', 'c', 'd')
```

In [39]:
```
x2*3
```

Out[39]:
```
('a', 'b', 'c', 'd', 'a', 'b', 'c', 'd', 'a', 'b', 'c', 'd')
```

In [40]:
```
x2*6
```

Out[40]:
```
('a',
 'b',
 'c',
 'd',
 'a',
 'b',
 'c',
```

```
 'd',
 'a',
 'b',
 'c',
 'd',
 'a',
 'b',
 'c',
 'd',
 'a',
 'b',
 'c',
 'd',
 'a',
 'b',
 'c',
 'd')
```

In [41]:
```
#Example-03:-
```

In [42]:
```
x3 = ("Ram","Shyam")
x3
```

Out[42]:
```
('Ram', 'Shyam')
```

In [43]:
```
x3*4
```

Out[43]:
```
('Ram', 'Shyam', 'Ram', 'Shyam', 'Ram', 'Shyam', 'Ram', 'Shyam')
```

In [44]:
```
x3*7
```

Out[44]:
```
('Ram',
 'Shyam',
 'Ram',
 'Shyam',
 'Ram',
 'Shyam',
 'Ram',
```

```
'Shyam',
'Ram',
'Shyam',
'Ram',
'Shyam',
'Ram',
'Shyam')
```

In [45]:
```
#4.Repeating and cancatenating tuples:-
```

In [46]:
```
#Example-01:
```

In [47]:
```
z1 = (11,22,33)
z1
```

Out[47]:
```
(11, 22, 33)
```

In [48]:
```
z1*2+z1
```

Out[48]:
```
(11, 22, 33, 11, 22, 33, 11, 22, 33)
```

In [49]:
```
z1+z1+z1*3
```

Out[49]:
```
(11, 22, 33, 11, 22, 33, 11, 22, 33, 11, 22, 33, 11, 22, 33)
```

In [50]:
```
#Example-02:-
```

In [51]:
```
z2 = (14,25,36)
z3 = ('P','Q')
z2,z3
```

Out[51]:
```
((14, 25, 36), ('P', 'Q'))
```

In [52]:
```
z2+z3*3
```

Out[52]:
```
(14, 25, 36, 'P', 'Q', 'P', 'Q', 'P', 'Q')
```

In [53]:
```
z2*2+z3
```

Out[53]:
```
(14, 25, 36, 14, 25, 36, 'P', 'Q')
```

In [54]:
```
z2*3+z3*4
```

Out[54]:
```
(14, 25, 36, 14, 25, 36, 14, 25, 36, 'P', 'Q', 'P', 'Q', 'P', 'Q', 'P',
'Q')
```

In [55]:
```
(z2+z3)*2
```

Out[55]:
```
(14, 25, 36, 'P', 'Q', 14, 25, 36, 'P', 'Q')
```

In [56]:
```
(z3*2+z2)*2
```

Out[56]:
```
('P', 'Q', 'P', 'Q', 14, 25, 36, 'P', 'Q', 'P', 'Q', 14, 25, 36)
```

In [57]:
```
#Example-03:-
```

In [58]:
```
z4 = (2,1)
z5 = ('t','n')
z6 = ("L","R")
z7 = ("@",'+')
z8 = ("Mike",'Adele')
z9 = (11.02,3.8)
z10 = (9-4j,-8+2j)
z11 = ("I like it.",'It is nice.')
z4,z5,z6,z7,z8,z9,z10,z11
```

Out[58]:
```
((2, 1),
 ('t', 'n'),
 ('L', 'R'),
 ('@', '+'),
 ('Mike', 'Adele'),
 (11.02, 3.8),
 ((9-4j), (-8+2j)),
 ('I like it.', 'It is nice.'))
```

In [59]:
```
z5*2+z8*3
```

Out[59]:
```
('t', 'n', 't', 'n', 'Mike', 'Adele', 'Mike', 'Adele', 'Mike', 'Adele')
```

In [60]:
```
z4*2+z5*3
```

Out[60]:
```
(2, 1, 2, 1, 't', 'n', 't', 'n', 't', 'n')
```

In [61]:
```
z5+z6*2+z7+z8+z11*3
```

Out[61]:
```
('t',
 'n',
 'L',
 'R',
 'L',
 'R',
 '@',
 '+',
 'Mike',
 'Adele',
 'I like it.',
 'It is nice.',
 'I like it.',
 'It is nice.',
 'I like it.',
 'It is nice.')
```

In [62]:
```
z4*2+z5+z6*3+z7+z8*2+z9*2+z10+z11*3
```

Out[62]:
```
(2,
 1,
 2,
 1,
 't',
 'n',
 'L',
 'R',
 'L',
 'R',
```

```
'L',
'R',
'@',
'+',
'Mike',
'Adele',
'Mike',
'Adele',
11.02,
3.8,
11.02,
3.8,
(9-4j),
(-8+2j),
'I like it.',
'It is nice.',
'I like it.',
'It is nice.',
'I like it.',
'It is nice.')
```

In [63]:
```
#5. Finding minimum numerical value of a tuple:-
```

In [64]:
```
#Example-01:
```

In [65]:
```
ttt1 = (-10,-20,-30,1,-10)
```

In [66]:
```
ttt1
```

Out[66]:
```
(-10, -20, -30, 1, -10)
```

In [67]:
```
min(ttt1)
```

Out[67]:
```
-30
```

In [68]:
```
#Example-02:
```

In [69]:
```
ttt2 = (900.350,1900,400,290,13,200)
ttt2
```

Out[69]: (900.35, 1900, 400, 290, 13, 200)

In [70]:
```
min(ttt2)
```

Out[70]: 13

In [71]:
```
#Example-03:
```

In [72]:
```
ttt3 = (-1700,-1600,12,-901,289,4567)
ttt3
```

Out[72]: (-1700, -1600, 12, -901, 289, 4567)

In [73]:
```
min(ttt3)
```

Out[73]: -1700

In [74]:
```
#6.Finding maximum numerical value of a tuple:-
```

In [75]:
```
#Example-01:
```

In [76]:
```
tuup1 = (12,10,15,13,19,8,6,9,17)
tuup1
```

Out[76]: (12, 10, 15, 13, 19, 8, 6, 9, 17)

In [77]:
```
max(tuup1)
```

Out[77]: 19

In [78]:
```
#Example-02:
```

In [79]:
```
tuup2 = (-12,-19,-3,-8)
```

```
In [80]: tuup2
Out[80]: (-12, -19, -3, -8)

In [81]: max(tuup2)
Out[81]: -3

In [82]: #Example-03:

In [83]: tuup3 = (10000,19000,23000,4980,3451,7639,1092,2319,3419,4532)

In [84]: tuup3
Out[84]: (10000, 19000, 23000, 4980, 3451, 7639, 1092, 2319, 3419, 4532)

In [85]: max(tuup3)
Out[85]: 23000
```