In [1]:
```
import numpy as np
a=np.random.randint(1,15,12)
#will return any 12 number between 1 to 15. Each time on running ,these values will change.
print(a)
print('----------------------------------------')
```

```
[10 14 11  9  1  1 10  7 14  8 12 14]
----------------------------------------
```

In [2]:
```
b=a.shape #return number of rows and number of columns.
print(b)
```

```
(12,)
```

In [3]:
```
print('----------------------------------------')
a=a.reshape(3,4)
#convert 1D array into 2D array and total num should be equal to total elements in 1D array 3*2=12.
print(a)
print('----------------------------------------')
```

```
----------------------------------------
[[10 14 11  9]
 [ 1  1 10  7]
 [14  8 12 14]]
----------------------------------------
```

In [4]:
```
a=a.reshape(6,2) #6*2=12
print(a)
print('----------------------------------------')
a=a.reshape(2,6) #2*6=12
print(a)
print('----------------------------------------')
a=a.reshape(1,12)
print(a)
print('----------------------------------------')
print(a.ndim)
a=a.reshape(12) #convert 2D INTO 1D
print(a)
print('----------------------------------------')
```

```
[[10 14]
 [11  9]
 [ 1  1]
 [10  7]
 [14  8]
 [12 14]]
----------------------------------------
[[10 14 11  9  1  1]
 [10  7 14  8 12 14]]
----------------------------------------
[[10 14 11  9  1  1 10  7 14  8 12 14]]
----------------------------------------
2
[10 14 11  9  1  1 10  7 14  8 12 14]
----------------------------------------
```

In [5]:
```
a=a.reshape(2,2,3) #3D conversion
print(a)
print('----------------------------------------')
print(a.ndim) #shows dimentions of given array.
print('----------------------------------------')
```

```
[[[10 14 11]
  [ 9  1  1]]

 [[10  7 14]
  [ 8 12 14]]]
----------------------------------------
3
----------------------------------------
```

In [6]:
```
a=a.reshape(4,-1)
# convert into 2D array, row would be 4 and column would be 12/4 =3. so -1 will be replaced by 3.
print(a)
print('----------------------------------------')
a=a.reshape(6,-1)
# convert into 2D array, row would be 6 and column would be 12/6 =2. so -1 will be replaced by 2.
print(a)
print('----------------------------------------')
a=a.reshape(2,-1)
print(a)
print('----------------------------------------')
```

```
[[10 14 11]
 [ 9  1  1]
 [10  7 14]
 [ 8 12 14]]
----------------------------------------
[[10 14]
 [11  9]
 [ 1  1]
 [10  7]
 [14  8]
 [12 14]]
----------------------------------------
[[10 14 11  9  1  1]
 [10  7 14  8 12 14]]
----------------------------------------
```

In [7]:
```
a=a.reshape(-1,4)
# convert into 2D array, column would be 4 and row would be 12/4 =3. so -1 will be replaced by 3.
print(a)
print('----------------------------------------')
a=a.reshape(-1,2)
print(a)
print('----------------------------------------')
a=a.reshape(-1,3)
print(a)
```

```
[[10 14 11  9]
 [ 1  1 10  7]
 [14  8 12 14]]
----------------------------------------
[[10 14]
 [11  9]
 [ 1  1]
 [10  7]
 [14  8]
 [12 14]]
----------------------------------------
[[10 14 11]
 [ 9  1  1]
 [10  7 14]
 [ 8 12 14]]
```