```python
[42] #np.cumsum: cummulative sum
     #used to calculate the cumulative sum of array elements along a specified axis or across all axes
     import numpy as np
     a=np.array([1,2,3,4]) # 1D array
     np.cumsum(a)  #gives cummulative sum
```

```
array([ 1,  3,  6, 10])
```

```python
[47] b=np.arange(10,21) #range of values from 10 to 20
     np.cumsum(b)
```

```
array([ 10,  21,  33,  46,  60,  75,  91, 108, 126, 145, 165])
```

```python
[54] b = np.arange(40).reshape(8,5)
     b
```

```
array([[ 0,  1,  2,  3,  4],
       [ 5,  6,  7,  8,  9],
       [10, 11, 12, 13, 14],
       [15, 16, 17, 18, 19],
       [20, 21, 22, 23, 24],
       [25, 26, 27, 28, 29],
       [30, 31, 32, 33, 34],
       [35, 36, 37, 38, 39]])
```

```python
[55] np.cumsum(b)
```

```
array([  0,   1,   3,   6,  10,  15,  21,  28,  36,  45,  55,  66,  78,
        91, 105, 120, 136, 153, 171, 190, 210, 231, 253, 276, 300, 325,
       351, 378, 406, 435, 465, 496, 528, 561, 595, 630, 666, 703, 741,
       780])
```

```python
[56] np.cumsum(b, axis=0) #along axis 0
```

```
array([[  0,   1,   2,   3,   4],
       [  5,   7,   9,  11,  13],
       [ 15,  18,  21,  24,  27],
       [ 30,  34,  38,  42,  46],
       [ 50,  55,  60,  65,  70],
       [ 75,  81,  87,  93,  99],
       [105, 112, 119, 126, 133],
       [140, 148, 156, 164, 172]])
```

```python
[57] np.cumsum(b, axis=0) #along axis 1
```

```
array([[  0,   1,   2,   3,   4],
       [  5,   7,   9,  11,  13],
       [ 15,  18,  21,  24,  27],
       [ 30,  34,  38,  42,  46],
       [ 50,  55,  60,  65,  70],
       [ 75,  81,  87,  93,  99],
       [105, 112, 119, 126, 133],
       [140, 148, 156, 164, 172]])
```

```python
[60]  a=np.array([[1,2,3,4],[5,6,7,8]]) # 2D array
      a
```

```
array([[1, 2, 3, 4],
       [5, 6, 7, 8]])
```

```python
[61]  np.cumsum(a)
```

```
array([ 1,  3,  6, 10, 15, 21, 28, 36])
```

```python
[62]  np.cumsum(a, axis=0) #along axis =0
```

```
array([[ 1,  2,  3,  4],
       [ 6,  8, 10, 12]])
```

```python
np.cumsum(a, axis=1)  #along axis =1
```

```
array([[ 1,  3,  6, 10],
       [ 5, 11, 18, 26]])
```