

```
print("Welcome to NumPy-4-Cont")
welcome to NumPy-4-Cont

Agenda
• Array Splitting and Merging
  • Splitting arrays - split(), hsplit(), vsplit(), vsplit( )
  • Merging Arrays - hstack(), vstack()

In [2]:
import numpy as np

In [ ]:

In [5]:
a=np.arange(1,13)

Out[6]:
array([ 1,  2,  3,  4,  5,  6,  7,  8,  9, 10, 11, 12])

In [7]:
np.split(a,3)

Out[7]:
(array([1, 2, 3, 4]), array([5, 6, 7, 8]), array([ 9, 10, 11, 12]))

In [8]:
np.split(a,2)

Out[8]:
(array([1, 2, 3, 4, 5, 6]), array([ 7,  8,  9, 10, 11, 12]))

In [10]:
# np.split(a,5)

In [11]:
b=np.arange(1,14)
b

Out[11]:
array([ 1,  2,  3,  4,  5,  6,  7,  8,  9, 10, 11, 12, 13])

In [15]:
np.split(b,13)

Out[15]:
(array([1]),
 array([2]),
 array([3]),
 array([4]),
 array([5]),
 array([6]),
 array([7]),
 array([8]),
 array([9]),
 array([10]),
 array([11]),
 array([12]),
 array([13]))

In [16]:
a

In [ ]:
array([ 1,  2,  3,  4,  5,  6,  7,  8,  9, 10, 11, 12])

In [ ]:

In [17]:
np.split(a,[3,5,7])

In [17]:
(array([1, 2, 3]), array([4, 5]), array([6, 7]), array([ 8,  9, 10, 11, 12]))

In [ ]:

In [18]:
np.split(a,[2,6,8])

Out[18]:
(array([1, 2]), array([3, 4, 5, 6]), array([7, 8]), array([ 9, 10, 11, 12]))

In [ ]:

In [19]:
np.split(a,[5,3,7])

Out[19]:
(array([1, 2, 3, 4, 5]),
 array([1, dtype=int64]),
 array([4, 5, 6, 7]),
 array([ 8,  9, 10, 11, 12]))

In [20]:
np.split(a,[-7,-9,-5])

Out[20]:
(array([1, 2, 3, 4, 5]),
 array([1, dtype=int64]),
 array([4, 5, 6, 7]),
 array([ 8,  9, 10, 11, 12]))

In [ ]:

In [21]:
# 2d

In [ ]:

In [22]:
a=np.arange(1,49).reshape((6,8))
a

Out[22]:
array([[ 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, 40],
       [41, 42, 43, 44, 45, 46, 47, 48]])

In [25]:
np.split(a,3)

Out[25]:
(array([[ 1,  2,  3,  4,  5,  6,  7,  8],
       [ 9, 10, 11, 12, 13, 14, 15, 16]],
 array([[17, 18, 19, 20, 21, 22, 23, 24],
       [25, 26, 27, 28, 29, 30, 31, 32],
       [33, 34, 35, 36, 37, 38, 39, 40],
       [41, 42, 43, 44, 45, 46, 47, 48]]))

In [26]:
np.split(a,3,axis=0)

Out[26]:
(array([[ 1,  2,  3,  4,  5,  6,  7,  8],
       [ 9, 10, 11, 12, 13, 14, 15, 16]],
 array([[17, 18, 19, 20, 21, 22, 23, 24],
       [25, 26, 27, 28, 29, 30, 31, 32],
       [33, 34, 35, 36, 37, 38, 39, 40],
       [41, 42, 43, 44, 45, 46, 47, 48]]))

In [27]:
a

Out[27]:
array([[ 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, 40],
       [41, 42, 43, 44, 45, 46, 47, 48]])

In [28]:
np.split(a,2,axis=0)

Out[28]:
(array([[ 1,  2,  3,  4,  5,  6,  7,  8],
       [ 9, 10, 11, 12, 13, 14, 15, 16],
       [17, 18, 19, 20, 21, 22, 23, 24]],
 array([[25, 26, 27, 28, 29, 30, 31, 32],
       [33, 34, 35, 36, 37, 38, 39, 40],
       [41, 42, 43, 44, 45, 46, 47, 48]]))

In [29]:
a

Out[29]:
array([[ 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, 40],
       [41, 42, 43, 44, 45, 46, 47, 48]])

In [31]:
# np.split(a,4,axis=0)

In [ ]:

In [ ]:
a

In [32]:
array([[ 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, 40],
       [41, 42, 43, 44, 45, 46, 47, 48]])

In [34]:
np.split(a, 4,axis=1)

Out[34]:
(array([[ 1,  2],
       [ 9, 18],
       [25, 30],
       [33, 34],
       [41, 42]],
 array([[ 3,  4],
       [11, 12],
       [19, 20],
       [27, 28],
       [35, 36],
       [43, 44]]),
 array([[ 5,  6],
       [13, 14],
       [23, 24],
       [29, 30],
       [37, 38],
       [45, 46]]),
 array([[ 7,  8],
       [15, 16],
       [23, 24],
       [31, 32],
       [39, 40],
       [47, 48]]))

In [35]:
a

Out[35]:
array([[ 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, 40],
       [41, 42, 43, 44, 45, 46, 47, 48]])

In [36]:
np.split(a,[2,4],axis=0)

Out[36]:
(array([[ 1,  2,  3,  4,  5,  6,  7,  8],
       [ 9, 10, 11, 12, 13, 14, 15, 16]],
 array([[17, 18, 19, 20, 21, 22, 23, 24],
       [25, 26, 27, 28, 29, 30, 31, 32],
       [33, 34, 35, 36, 37, 38, 39, 40],
       [41, 42, 43, 44, 45, 46, 47, 48]]))

In [37]:
a

Out[37]:
array([[ 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, 40],
       [41, 42, 43, 44, 45, 46, 47, 48]])

In [38]:
np.split(a,[2],axis=0)

Out[38]:
(array([[ 1,  2,  3,  4,  5,  6,  7,  8],
       [ 9, 10, 11, 12, 13, 14, 15, 16]],
 array([[17, 18, 19, 20, 21, 22, 23, 24],
       [25, 26, 27, 28, 29, 30, 31, 32],
       [33, 34, 35, 36, 37, 38, 39, 40],
       [41, 42, 43, 44, 45, 46, 47, 48]]))

In [39]:
a

Out[39]:
array([[ 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, 40],
       [41, 42, 43, 44, 45, 46, 47, 48]])

In [ ]:
# np.split(a,[2],axis=0)

In [41]:
np.split(a,[1],axis=0)

Out[41]:
(array([[ 1,  2,  3,  4,  5,  6,  7,  8]],
 array([[ 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, 40],
       [41, 42, 43, 44, 45, 46, 47, 48]]))

In [42]:
a


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