

In [10]:

```
import numpy as np
dataset = np.genfromtxt('E:/3433/dvba/dataset.csv', delimiter=',')
print(dataset)
```

```
[[ 65.78331 112.9925  345.89    234.23    ]
 [ 71.51521 136.4873  346.89    235.23    ]
 [ 69.39874 153.0269  347.89    236.23    ]
 [ 68.2166  142.3354  348.89    237.23    ]
 [ 67.78781 144.2971  349.89    238.23    ]
 [ 68.69784 123.3024  350.89    239.23    ]
 [ 69.80204 141.4947  351.89    240.23    ]
 [ 70.01472 136.4623  352.89    241.23    ]
 [ 67.90265 112.3723  353.89    242.23    ]
 [ 66.78236 120.6672  354.89    243.23    ]]
```

In [11]:

```
print("The rows & columns on dataset:", dataset.shape)
```

The rows & columns on dataset: (10, 4)

In [5]:

```
print("-----Perform Indexing operation on Dataset----- ")
```

-----Perform Indexing operation on Dataset-----

In [12]:

```
print(dataset[0])
```

```
[ 65.78331 112.9925  345.89    234.23    ]
```

In [13]:

```
print(dataset[-1])
```

```
[ 66.78236 120.6672  354.89    243.23    ]
```

In [15]:

```
print(dataset[1,1])
```

136.4873

In [16]:

```
print(dataset[8,3])
```

242.23

In [17]:

```
print(dataset[[0,7,3,9],[1,-1,2,3]])
```

```
[112.9925 241.23    348.89    243.23    ]
```

In [18]:

```
print(dataset[0,3]+dataset[2,-1])
```

470.46

In [19]:

```
print(dataset[dataset>70])
```

```
[112.9925  345.89    234.23    71.51521 136.4873  346.89    235.23
 153.0269  347.89    236.23    142.3354  348.89    237.23    144.2971
 349.89    238.23    123.3024  350.89    239.23    141.4947  351.89
 240.23    70.01472 136.4623  352.89    241.23    112.3723  353.89
 242.23    120.6672  354.89    243.23    ]
```

In [20]:

```
print("---Perform slicing operations on dataset---")
```

---Perform slicing operations on dataset---

In [21]:

```
print(dataset[1:3])
```

```
[[ 71.51521 136.4873  346.89    235.23    ]
 [ 69.39874 153.0269  347.89    236.23    ]]
```

In [22]:

```
print(dataset[:2,:2])
```

```
[[ 65.78331 112.9925 ]
 [ 71.51521 136.4873 ]]
```

In [26]:

```
print(dataset[-1,::-1])
```

```
[243.23    354.89    120.6672    66.78236]
```

In [27]:

```
print(dataset[-5:-1,:6:2])
```

```
[[ 68.69784 350.89    ]
 [ 69.80204 351.89    ]
 [ 70.01472 352.89    ]
 [ 67.90265 353.89    ]]
```

In [28]:

```
print("---perform splitting operations on dataset---")
```

---perform splitting operations on dataset---

In [29]:

```
print("---Horizontal splitting---")
```

---Horizontal splitting---

In [31]:

```
print(np.hsplit(dataset,2))
```

```
[array([[ 65.78331, 112.9925 ],
        [ 71.51521, 136.4873 ],
        [ 69.39874, 153.0269 ],
        [ 68.2166 , 142.3354 ],
        [ 67.78781, 144.2971 ],
        [ 68.69784, 123.3024 ],
        [ 69.80204, 141.4947 ],
        [ 70.01472, 136.4623 ],
        [ 67.90265, 112.3723 ],
        [ 66.78236, 120.6672 ]]), array([[345.89, 234.23],
        [346.89, 235.23],
        [347.89, 236.23],
        [348.89, 237.23],
        [349.89, 238.23],
        [350.89, 239.23],
        [351.89, 240.23],
        [352.89, 241.23],
        [353.89, 242.23],
        [354.89, 243.23]])]
```

In [32]:

```
print("---vertical splitting---")
```

---vertical splitting---

In [33]:

```
print(np.vsplit(dataset,2))
```

```
[array([[ 65.78331, 112.9925 , 345.89 , 234.23 ],
        [ 71.51521, 136.4873 , 346.89 , 235.23 ],
        [ 69.39874, 153.0269 , 347.89 , 236.23 ],
        [ 68.2166 , 142.3354 , 348.89 , 237.23 ],
        [ 67.78781, 144.2971 , 349.89 , 238.23 ]]), array([[ 68.69784, 12
3.3024 , 350.89 , 239.23 ],
        [ 69.80204, 141.4947 , 351.89 , 240.23 ],
        [ 70.01472, 136.4623 , 352.89 , 241.23 ],
        [ 67.90265, 112.3723 , 353.89 , 242.23 ],
        [ 66.78236, 120.6672 , 354.89 , 243.23 ]]])]
```

In [34]:

```
print("---perform Iterating operation on dataset---")
```

---perform Iterating operation on dataset---

In [35]:

```
print("---using nditer()---")  
  
---using nditer()---
```

In [36]:

```
for x in np.nditer(dataset):  
    print(x)
```

```
65.78331  
112.9925  
345.89  
234.23  
71.51521  
136.4873  
346.89  
235.23  
69.39874  
153.0269  
347.89  
236.23  
68.2166  
142.3354  
348.89  
237.23  
67.78781  
144.2971  
349.89  
238.23  
68.69784  
123.3024  
350.89  
239.23  
69.80204  
141.4947  
351.89  
240.23  
70.01472  
136.4623  
352.89  
241.23  
67.90265  
112.3723  
353.89  
242.23  
66.78236  
120.6672  
354.89  
243.23
```

In [37]:

```
print("---using ndenumerate()---")  
  
---using ndenumerate()---
```

In [38]:

```
for idx,x in np.ndenumerate(dataset):  
    print(idx,x)
```

```
(0, 0) 65.78331  
(0, 1) 112.9925  
(0, 2) 345.89  
(0, 3) 234.23  
(1, 0) 71.51521  
(1, 1) 136.4873  
(1, 2) 346.89  
(1, 3) 235.23  
(2, 0) 69.39874  
(2, 1) 153.0269  
(2, 2) 347.89  
(2, 3) 236.23  
(3, 0) 68.2166  
(3, 1) 142.3354  
(3, 2) 348.89  
(3, 3) 237.23  
(4, 0) 67.78781  
(4, 1) 144.2971  
(4, 2) 349.89  
(4, 3) 238.23  
(5, 0) 68.69784  
(5, 1) 123.3024  
(5, 2) 350.89  
(5, 3) 239.23  
(6, 0) 69.80204  
(6, 1) 141.4947  
(6, 2) 351.89  
(6, 3) 240.23  
(7, 0) 70.01472  
(7, 1) 136.4623  
(7, 2) 352.89  
(7, 3) 241.23  
(8, 0) 67.90265  
(8, 1) 112.3723  
(8, 2) 353.89  
(8, 3) 242.23  
(9, 0) 66.78236  
(9, 1) 120.6672  
(9, 2) 354.89  
(9, 3) 243.23
```

In []: