In [1]:
```
import numpy as np
```

In [2]:
```
matrix_A = np.array([[1,0,0,3,1], [3,6,6,2,9],[4,5,3,8,0]])
matrix_A
```

Out[2]:
```
array([[1, 0, 0, 3, 1],
       [3, 6, 6, 2, 9],
       [4, 5, 3, 8, 0]])
```

In [4]:
```
np.min(matrix_A[1])
```

Out[4]:
```
2
```

In [5]:
```
np.amin(matrix_A)
```

Out[5]:
```
0
```

In [6]:
```
np.minimum(matrix_A[0], matrix_A[2])
```

Out[6]:
```
array([1, 0, 0, 3, 0])
```

In [7]:
```
np.minimum.reduce(matrix_A)
```

Out[7]:
```
array([1, 0, 0, 2, 0])
```

In [8]:
```
np.min(matrix_A, axis = 0)
```

Out[8]:
```
array([1, 0, 0, 2, 0])
```

In [10]:
```
np.max(matrix_A)
```

Out[10]:
```
9
```

In [11]:
```
np.amax(matrix_A)
```

Out[11]:
```
9
```

In [12]:
```
np.maximum.reduce(matrix_A)
```

Out[12]:
```
array([4, 6, 6, 8, 9])
```

In [14]:
```
np.max(matrix_A, axis = 0)
```

Out[14]:
```
array([4, 6, 6, 8, 9])
```

In [15]:
```
np.ptp(matrix_A, axis = 0)
```

Out[15]:
```
array([3, 6, 6, 6, 9])
```

In [16]:
```
np.sort(matrix_A, axis = None)
```

Out[16]:
```
array([0, 0, 0, 1, 1, 2, 3, 3, 3, 4, 5, 6, 6, 8, 9])
```

In [21]:
```
type(np.percentile(matrix_A, 70))
```

Out[21]:
```
numpy.float64
```

In [22]:
```
np.percentile(matrix_A, 100)
```

Out[22]:
```
9.0
```

In [24]:
```
np.quantile(matrix_A, 0.70, intenprpolation = "nearest")
```

Out[24]:
```
5
```

In [25]:
```
np.median(matrix_A)
```

Out[25]:
```
3.0
```

In [26]:
```
np.sort(matrix_A, axis = None)
```

Out[26]:
```
array([0, 0, 0, 1, 1, 2, 3, 3, 3, 4, 5, 6, 6, 8, 9])
```

In [27]:
```
np.mean(matrix_A)
```

Out[27]:
```
3.4
```

In [28]:
```
np.var(matrix_A)
```

Out[28]:
```
7.84
```

In [29]:
```
np.std(matrix_A)
```

Out[29]:
```
2.8
```

In [30]:
```
2.8**2
```

Out[30]:
```
7.839999999999999
```

In [31]:
```
np.cov(matrix_A)
```

Out[31]:
```
array([[ 1.5, -2. ,  2. ],
       [-2. ,  7.7, -7. ],
       [ 2. , -7. ,  8.5]])
```

In [32]:
```
np.corrcoef(matrix_A)
```

Out[32]:
```
array([[ 1.        , -0.58848989,  0.56011203],
       [-0.58848989,  1.        , -0.8652532 ],
       [ 0.56011203, -0.8652532 ,  1.        ]])
```

In [ ]:
```

```