In [447]:
```
import numpy as np
```

In [448]:
```
from numpy import matrix,random
from numpy import array
```

In [449]:
```
A=random.random(15)
```

In [450]:
```
A=A.reshape(3,5)
```

In [451]:
```
A=matrix(A)
```

In [452]:
```
A
```

Out[452]:
```
matrix([[0.4267833 , 0.76699785, 0.62742671, 0.20609999, 0.6619843 ],
        [0.92915141, 0.32611133, 0.41941529, 0.41420746, 0.94367768],
        [0.50130365, 0.64877874, 0.54945149, 0.57304191, 0.18078021]])
```

In [453]:
```
A.size
```

Out[453]:
```
15
```

In [454]:
```
A.shape
```

Out[454]:
```
(3, 5)
```

In [455]:
```
A=np.resize(A,(3,4))
```

In [456]:
```
B=np.transpose(A)
```

In [457]:
```
B
```

Out[457]:
```
array([[0.4267833 , 0.6619843 , 0.41420746],
       [0.76699785, 0.92915141, 0.94367768],
       [0.62742671, 0.32611133, 0.50130365],
       [0.20609999, 0.41941529, 0.64877874]])
```

In [458]:
```
min(min(B[:,:1]))
```

Out[458]:
```
0.20609998721010847
```

In [459]:
```
np.min(A)
```

Out[459]:
```
0.20609998721010847
```

In [460]:
```
np.max(A)
```

Out[460]:
```
0.9436776845646708
```

In [461]:
```
X=random.randint(1,45,4)
```

In [462]:
```
A
```

Out[462]:
```
array([[0.4267833 , 0.76699785, 0.62742671, 0.20609999],
       [0.6619843 , 0.92915141, 0.32611133, 0.41941529],
       [0.41420746, 0.94367768, 0.50130365, 0.64877874]])
```

In [469]:
```
ABS=np.absolute(Z)
```

In [470]:
```
D
```

Out[470]:
```
array([[17.92489846, 29.14591817, 26.97934867,  0.61829996],
       [27.80334073, 35.30775345, 14.02278721,  1.25824586],
       [17.3967135 , 35.85975201, 21.55605707,  1.94633622]])
```

In [471]:
```
C=ABS*D
```

In [472]:
```
C
```

Out[472]:
```
array([[165.25939826, 268.71208835, 248.73730447,   5.70044398],
       [256.33413588, 325.5214026 , 129.28371009,  11.60045366],
       [160.38977356, 330.61057792, 198.7370265 ,  17.94433333]])
```

In [473]:
```
B
```

Out[473]:
```
array([[0.4267833 , 0.6619843 , 0.41420746],
       [0.76699785, 0.92915141, 0.94367768],
       [0.62742671, 0.32611133, 0.50130365],
       [0.20609999, 0.41941529, 0.64877874]])
```

In [474]:
```
print(B.tostring())
```

```
b'\xf0&v\xe3jP\xdb?\x99\xebz\xb4\xf9.\xe5?\x1c\x8aR\x06`\x82\xda?ZZq\x11?\x8b\xe8?\xd7\\\x00\xbb\x9b\xbb\xed?\xd0r%\x
8b\x9b2\xee?^\x0f\xb9/\xe1\x13\xe4?\xb8/\xc4\x0e\x02\xdf\xd4?L8J\xf5\xad\n\xe0?\xe4\xffb\x00|a\xca?\xca\x11\xa77\xb3
\xd7\xda?\x0f3.\xa2\xcb\xc2\xe4?'
```

In [475]:
```
B=B.tostring()
```