In [37]:
```
#1.Include a section with your name
#2.Create matrix A with size (3,5) containing random numbers
import numpy as np
A = np.random.randint(0,100, size=(3, 5))
print (A)
```

```
[[93 34 68 86 40]
 [18 28 35 46 44]
 [67 37 37 66 66]]
```

In [38]:
```
#3.Find the size and length of matrix A
A.size
```

Out[38]: 15

In [39]:
```
len(A)
```

Out[39]: 3

In [40]:
```
#4.Resize (crop/slice) matrix A to size (3,4)
A.resize((3,4))
print(A)
```

```
[[93 34 68 86]
 [40 18 28 35]
 [46 44 67 37]]
```

In [42]:
```
#5.Resize (crop/slice) matrix A to size (3,4)
B=A.T
print(B)
```

```
[[93 40 46]
 [34 18 44]
 [68 28 67]
 [86 35 37]]
```

In [110]:
```
#6.Find the minimum value in column 1 of matrix B
print(B[::,1:2:])
print(B[::,0:1:].min())
```

```
[[40]
 [18]
 [28]
 [35]]
34
```

In [54]:
```
#7.Find the minimum and maximum values for the entire matrix A
print(A.min())
```

```
18
```

In [56]:
```
print(A.max())
```

```
93
```

In [63]:
```
#8.Create vector X (an array) with 4 random numbers
X=np.random.randint(0,100,4)
print(X)
```

```
[45 87 74 29]
```

In [78]:
```
#9. Create a function and pass vector X and matrix A in it
def f(X,A):
    return np.dot(A,X.T)
#10.In the new function multiply vector X with matrix A and assign the
D=f(X,A)
print(D)
```

```
[14669  6453 11929]
```

In [87]:
```
#11.Create a complex number Z with absolute and real parts != 0
Z=8+6j
Z
```

Out[87]:
```
(8+6j)
```

In [88]:
```
#12.Show its real and imaginary parts as well as it’s absolute value
Z.real
```

Out[88]:
```
8.0
```

In [89]:
```
Z.imag
```

Out[89]:
```
6.0
```

In [90]:
```
abs(Z)
```

Out[90]:
```
10.0
```

In [92]:
```
#13.Multiply result D with the absolute value of Z and record it to C
C=abs(Z)*D
print(C)
```

```
[146690.  64530. 119290.]
```

In [96]:
```
#14.Convert matrix B from a matrix to a string and overwrite B
b=''
for i in range(0,B.shape[0]):
    for j in range(0,B.shape[1]-1):
        b+=str(B[i,j])+'\t'
    b+=str(B[i,-1])+'\n'
b
```

Out[96]:
```
'93\t40\t46\n34\t18\t44\n68\t28\t67\n86\t35\t37\n'
```

In [98]:
```
str(B)
```

Out[98]:
```
'[[93 40 46]\n [34 18 44]\n [68 28 67]\n [86 35 37]]'
```

In [109]:
```
#15.Display a text on the screen: ‘Name is done with HW2‘, but passs y
s = 'Yirou QIU'
print("%s is done with HW2." % (s))
```

```
Yirou QIU is done with HW2.
```