1) Create 3X2 and 2X3 array.

```
In [5]:  arr1=np.array([[1,2],[3,4],[8,6]])
         arr2=np.array([[1,5,3],[4,5,11]])
```

2) Initialize the array with random values.

```
In [6]:  arr1 = np.random.randint(6, size=(3,2))
         arr2=np.random.randint(6, size=(2,3))
         print(arr1)
         print(arr2)
```

```
[[2 1]
 [4 5]
 [4 1]]
[[0 2 5]
 [0 2 1]]
```

3) Matrix multiplication of above 2 array.

```
In [7]:  ans=arr1.dot(arr2)
         print(ans)
```

```
[[ 0  6 11]
 [ 0 18 25]
 [ 0 10 21]]
```

4) elementwise multiplication.

```
In [8]: arr3=np.array([[7,8],[9,10],[11,12]])
        np.multiply(arr1,arr3)
```

```
Out[8]: array([[14,  8],
               [36, 50],
               [44, 12]])
```

5) Find mean of a matrix.

```
In [9]: arr1.mean()
```

```
Out[9]: 2.8333333333333335
```

6) Convert Numeric entries(columns) of mtcars.csv to Mean Centered Version.

```
In [12]: from numpy import genfromtxt
         data = genfromtxt('D:\Mywork\ML\mtcars.csv', delimiter=',')
```

```
In [13]: data = np.delete(data,0, axis=0)
         data = np.delete(data,0, axis=1)
         data_mean_centric = data - np.mean(data, axis=0)
         np.around(data_mean_centric, decimals=2)
```

```
Out[13]: array([[ 0.5],
               [-0.5]])
```

```
In [14]: np.around(np.mean(data_mean_centric,axis=0),decimals=2)
```

```
Out[14]: array([0.])
```

```
In [ ]:
```