Chapter 5 - Basic Math and Statistics

Segment 1 - Using NumPy to perform arithmetic operations on data

```
import numpy as np
from numpy.random import randn


np.set_printoptions(precision=2)
```

Creating arrays

Creating arrays using a list

```
a = np.array([1,2,3,4,5,6])
a
```

```
array([1, 2, 3, 4, 5, 6])
```

```
b = np.array([[10,20,20],[40,50,60]])
b
```

```
array([[10, 20, 20],
       [40, 50, 60]])
```

Creating arrays via assignment

```
np.random.seed(25)
c = 36*np.random.randn(6)
c
```

```
array([  8.22,  36.97, -30.23, -21.28, -34.45,  -8.  ])
```

```
d = np.arange(1, 35)
d
```

```
array([ 1,  2,  3,  4,  5,  6,  7,  8,  9, 10, 11, 12, 13, 14, 15, 16, 17,
       18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34])
```

Performing arthimetic on arrays

```
a*10
```

```
array([10, 20, 30, 40, 50, 60])
```

```
c + a
```

```
array([  9.22,  38.97, -27.23, -17.28, -29.45,  -2.  ])
```

```
c-a
```

```
array([  7.22,  34.97, -33.23, -25.28, -39.45, -14.  ])
```

```
c*a
```

```
array([   8.22,   73.94,  -90.68,  -85.13, -172.24,  -48.02])
```

```
c/a
```

```
array([  8.22,  18.48, -10.08,  -5.32,  -6.89,  -1.33])
```

Multiplying matrices and basic linear algebra

```
aa = np.array([[2.,4.,6.],[1.,3.,5.],[10.,20.,30.]])
aa
```

```
array([[ 2.,  4.,  6.],
       [ 1.,  3.,  5.],
       [10., 20., 30.]])
```

```
bb = np.array([[0.,1.,2.],[3.,4.,5.],[6.,7.,8.]])
bb
```

```
array([[0., 1., 2.],
       [3., 4., 5.],
       [6., 7., 8.]])
```

```
aa*bb
```

```
array([[  0.,   4.,  12.],
       [  3.,  12.,  25.],
       [ 60., 140., 240.]])
```

```
np.dot(aa,bb)
```

```
array([[ 48.,  60.,  72.],
       [ 39.,  48.,  57.],
       [240., 300., 360.]])
```

Colab paid products - Cancel contracts here