Numpy_Pandas_for_Data_science_by_Shawak

February 11, 2019

1 Numpy

```
#shashank Shawak
```

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

```
In [ ]: x=list(range(15))
```

```
In [ ]: print x
        type(x)
```

```
In [ ]: z=[]
        for values in x:
            z.append(values*5)
```

```
In [ ]: z
```

```
In [ ]: y=np.array(range(15))
```

```
In [ ]: type(y)
```

```
In [ ]: y*5
```

```
In [ ]: print y>10
        print y[y>10]
```

1.0.1 2D Array in Numpy

```
In [ ]: x=[list(range(5)),list(range(5,10)),list(range(11,16))]
```

```
In [ ]: x
```

```
In [ ]: array=np.array(x)
```

```
In [ ]: array
```

1.1 indexing

```
In [ ]: array[0][1]
```

```
In [ ]: array[0,1]
```

1.2 slicing

```
In [ ]: array
```

```
In [ ]: #array[row,column]
        array[1:3,2:4]
```

```
In [ ]: array>10
```

```
In [ ]: array[array>6].reshape(2,4)
```

```
In [ ]: array[:,2][array[:,2]>5]
```

1.3 functions in numpy

```
In [ ]: np.arange(1,10,2)
```

```
In [ ]: np.linspace(1,10,15)
```

```
In [ ]: np.logspace(1,1.5,10)
```

```
In [ ]: x=np.logspace(1,1.5,50)
```

```
In [ ]: x.size
```

```
In [ ]: x.shape
```

```
In [ ]: x=x.reshape(5,10)
```

```
In [ ]: x.shape
```

```
In [ ]: x.any()
```

```
In [ ]: x.all()
```

```
In [ ]: x=x.T
```

```
In [ ]: x.shape
```

```
In [ ]: x+x.T.T
```

```
In [ ]: x.sum()
```

```
In [ ]: x.mean()
```

```
In [ ]: x.max()
```

```
In [ ]: x.min()
```

```
In [ ]: x.std()
```

```
In [ ]: x.prod()
```

```
In [ ]: x=x.round()
```

```
In [ ]: x
```

1.4 seeding

```
In [ ]: np.random.seed(10)

In [ ]: np.random.rand(5)

In [ ]: np.random.rand(5,3)

In [ ]: a=10

In [ ]: b=15

In [ ]: (b-a)*np.random.rand(5,3)+a
```

1.4.1 STANDARD NORMAL DISTRIBUTION

MEAN AND VARIANCE

```
In [ ]: x=np.random.randn(5)

In [ ]: #mean and variance
        mu,sigma=5,2

In [ ]: y=mu+sigma*x

In [ ]: y

In [ ]: from matplotlib import pyplot as plt
        import seaborn as sns
        %matplotlib inline

In [ ]: x1=np.random.randn(10000)

In [ ]: x2=mu+sigma*np.random.randn(10000)

In [ ]: plt.figure(figsize=(10,5))

In [ ]: plt.hist(x1,bins=20,alpha=0.8)
        plt.hist(x2,bins=20,alpha=0.8)
```