

## ✓ 1. Claculating Coreelation using Numpy

```
import numpy as np
```

```
x = np.arange(10, 20)
```

```
x
```

```
array([10, 11, 12, 13, 14, 15, 16, 17, 18, 19])
```

```
y= np.array([2, 1, 4, 5, 8, 12, 18, 25, 96, 48])
```

```
y
```

```
array([ 2,  1,  4,  5,  8, 12, 18, 25, 96, 48])
```

```
c = np.corrcoef(x,y)
```

```
c
```

```
array([[1.          , 0.75864029],
       [0.75864029, 1.          ]])
```

## ✓ 2. Claculating Coreelation using Scipy

```
import scipy.stats
```

```
x = np.arange(10, 20)
```

```
y = np.array([2, 1, 4, 5, 8, 12, 18, 25, 96, 48])
```

```
scipy.stats.pearsonr(x, y).correlation
```

```
0.758640289091187
```

```
scipy.stats.spearmanr(x,y)
```

```
SignificanceResult(statistic=0.9757575757575757, pvalue=1.4675461874042197e-06)
```

```
scipy.stats.kendalltau(x,y)
```

```
SignificanceResult(statistic=0.9111111111111111, pvalue=2.9761904761904762e-05)
```

## ✓ 3. Claculating Coreelation using Pandas

```
import pandas as pd
```

```
x = pd.Series(range(10, 20))
```

```
y = pd.Series([2, 1, 4, 5, 8, 12, 18, 25, 96, 48])
```

```
0    2
1    1
2    4
3    5
4    8
5   12
6   18
7   25
8   96
9   48
dtype: int64
```

```
x.corr(y)
```

```
0.7586402890911867
```

```
y.corr(x)

0.7586402890911869

df= pd.read_csv('/content/sample_data/SF Salaries.csv')

<ipython-input-26-04e6cb4073c0>:1: DtypeWarning: Columns (3,4,5,6,12) have mixed types. Specify dtype option on import or set low_m
df= pd.read_csv('/content/sample_data/SF Salaries.csv')
```

df.head()

			Id	EmployeeName	JobTitle	BasePay	OvertimePay	OtherPay	Benefits	TotalPay	TotalPayBenefits	Year	Notes	Agency
0	1			NATHANIEL FORD	GENERAL MANAGER-METROPOLITAN TRANSIT AUTHORITY	167411.18	0.0	400184.25	NaN	567595.43	567595.43	2011	NaN	San Francisco
1	2			GARY JIMENEZ	CAPTAIN III (POLICE DEPARTMENT)	155966.02	245131.88	137811.38	NaN	538909.28	538909.28	2011	NaN	San Francisco

```
k= df.corr()

<ipython-input-31-549932133685>:1: FutureWarning: The default value of numeric_only in DataFrame.corr is deprecated. In a future ver
k= df.corr()
```

```
import seaborn as sns
```



