Covarience And Correlation with Python

In [1]:
```
import seaborn as sns
```

In [2]:
```
df = sns.load_dataset('healthexp')
df.head()
```

Out[2]:

	Year	Country	Spending_USD	Life_Expectancy
0	1970	Germany	252.311	70.6
1	1970	France	192.143	72.2
2	1970	Great Britain	123.993	71.9
3	1970	Japan	150.437	72.0
4	1970	USA	326.961	70.9

In [3]:
```
## Covarience
import numpy as np
```

In [4]:
```
df.cov()
```

```
/tmp/ipykernel_84/1545644723.py:1: FutureWarning: The default value of numeric_
only in DataFrame.cov is deprecated. In a future version, it will default to Fa
lse. Select only valid columns or specify the value of numeric_only to silence
this warning.
  df.cov()
```

Out[4]:

	Year	Spending_USD	Life_Expectancy
Year	201.098848	2.571883e+04	41.915454
Spending_USD	25718.827373	4.817761e+06	4166.800912
Life_Expectancy	41.915454	4.166801e+03	10.733902

In [5]:
```
## Spearman Correlation
df.corr(method='spearman')
```

```
/tmp/ipykernel_84/743478822.py:2: FutureWarning: The default value of numeric_o
nly in DataFrame.corr is deprecated. In a future version, it will default to Fa
lse. Select only valid columns or specify the value of numeric_only to silence
this warning.
  df.corr(method='spearman')
```

Out[5]:

	Year	Spending_USD	Life_Expectancy
Year	1.000000	0.931598	0.896117
Spending_USD	0.931598	1.000000	0.747407
Life_Expectancy	0.896117	0.747407	1.000000

In [6]:
```
## Pearson Correlation
df.corr(method='pearson')
```

```
/tmp/ipykernel_84/546256669.py:2: FutureWarning: The default value of numeric_o
nly in DataFrame.corr is deprecated. In a future version, it will default to Fa
lse. Select only valid columns or specify the value of numeric_only to silence
this warning.
  df.corr(method='pearson')
```

Out[6]:

	Year	Spending_USD	Life_Expectancy
Year	1.000000	0.826273	0.902175
Spending_USD	0.826273	1.000000	0.579430
Life_Expectancy	0.902175	0.579430	1.000000

In [7]:
```
df=sns.load_dataset('penguins')
df.corr()
```

```
/tmp/ipykernel_84/2316250030.py:2: FutureWarning: The default value of numeric_
only in DataFrame.corr is deprecated. In a future version, it will default to F
alse. Select only valid columns or specify the value of numeric_only to silence
this warning.
  df.corr()
```

Out[7]:

	bill_length_mm	bill_depth_mm	flipper_length_mm	body_mass_g
bill_length_mm	1.000000	-0.235053	0.656181	0.595110
bill_depth_mm	-0.235053	1.000000	-0.583851	-0.471916
flipper_length_mm	0.656181	-0.583851	1.000000	0.871202
body_mass_g	0.595110	-0.471916	0.871202	1.000000