

# Importing libraries

In [13]:

```
import pandas as pd
import numpy as np
from numpy import linalg as la
import matplotlib.pyplot as plt
from numpy import cov
```

# Importing dataset

In [3]:

```
data=pd.read_csv(r"C:\Users\user\Downloads\5_Instagram data - 5_Instagram data.csv")
data
```

Out[3]:

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	Follows
0	3920	2586	1028	619	56	98	9	5	162	35	2
1	5394	2727	1838	1174	78	194	7	14	224	48	10
2	4021	2085	1188	0	533	41	11	1	131	62	12
3	4528	2700	621	932	73	172	10	7	213	23	8
4	2518	1704	255	279	37	96	5	4	123	8	0
...	...	...	...	...	...	...	...	...	...	...	...
114	13700	5185	3041	5352	77	573	2	38	373	73	80

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	Follows
115	5731	1923	1368	2266	65	135	4	1	148	20	18
116	4139	1133	1538	1367	33	36	0	1	92	34	10
117	32695	11815	3147	17414	170	1095	2	75	549	148	214
118	36919	13473	4176	16444	2547	653	5	26	443	611	228

119 rows × 13 columns

## a.mean

In [4]:

```
print(data.mean())
```

Impressions	5703.991597
From Home	2475.789916
From Hashtags	1887.512605
From Explore	1078.100840
From Other	171.092437
Saves	153.310924
Comments	6.663866
Shares	9.361345
Likes	173.781513
Profile Visits	50.621849
Follows	20.756303
dtype:	float64

## median

In [5]:

```
print(data.median())
```

```
Impressions      4289.0
From Home       2207.0
From Hashtags   1278.0
From Explore    326.0
From Other      74.0
Saves           109.0
Comments         6.0
Shares           6.0
Likes            151.0
Profile Visits  23.0
Follows          8.0
dtype: float64
```

## mode

In [6]:

```
print(data.mode())
```

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	\
0	5394.0	1975.0	116	45.0	34.0	40.0	
1	NaN	NaN	201	84.0	NaN	135.0	
2	NaN	NaN	278	NaN	NaN	144.0	
3	NaN	NaN	362	NaN	NaN	NaN	
4	NaN	NaN	411	NaN	NaN	NaN	
5	NaN	NaN	583	NaN	NaN	NaN	
6	NaN	NaN	655	NaN	NaN	NaN	
7	NaN	NaN	707	NaN	NaN	NaN	
8	NaN	NaN	771	NaN	NaN	NaN	
9	NaN	NaN	794	NaN	NaN	NaN	
10	NaN	NaN	1248	NaN	NaN	NaN	
11	NaN	NaN	1260	NaN	NaN	NaN	
12	NaN	NaN	1278	NaN	NaN	NaN	
13	NaN	NaN	1693	NaN	NaN	NaN	
14	NaN	NaN	1938	NaN	NaN	NaN	
15	NaN	NaN	2351	NaN	NaN	NaN	
16	NaN	NaN	2975	NaN	NaN	NaN	
17	NaN	NaN	3450	NaN	NaN	NaN	
18	NaN	NaN	3551	NaN	NaN	NaN	

  

	Comments	Shares	Likes	Profile Visits	Follows	\
0	6.0	3.0	114.0	19.0	2.0	
1	NaN	NaN	151.0	21.0	NaN	
2	NaN	NaN	NaN	NaN	NaN	
3	NaN	NaN	NaN	NaN	NaN	
4	NaN	NaN	NaN	NaN	NaN	
5	NaN	NaN	NaN	NaN	NaN	
6	NaN	NaN	NaN	NaN	NaN	
7	NaN	NaN	NaN	NaN	NaN	
8	NaN	NaN	NaN	NaN	NaN	
9	NaN	NaN	NaN	NaN	NaN	
10	NaN	NaN	NaN	NaN	NaN	
11	NaN	NaN	NaN	NaN	NaN	
12	NaN	NaN	NaN	NaN	NaN	
13	NaN	NaN	NaN	NaN	NaN	
14	NaN	NaN	NaN	NaN	NaN	
15	NaN	NaN	NaN	NaN	NaN	
16	NaN	NaN	NaN	NaN	NaN	
17	NaN	NaN	NaN	NaN	NaN	
18	NaN	NaN	NaN	NaN	NaN	

Caption \

```
0 Here are some of the best data science project...
1 Here are some of the best websites that you ca...
```

```

2                               NaN
3                               NaN
4                               NaN
5                               NaN
6                               NaN
7                               NaN
8                               NaN
9                               NaN
10                              NaN
11                              NaN
12                              NaN
13                              NaN
14                              NaN
15                              NaN
16                              NaN
17                              NaN
18                              NaN

```

## Hashtags

```

0 #data #datascience #dataanalysis #dataanalytic...
1                               NaN
2                               NaN
3                               NaN
4                               NaN
5                               NaN
6                               NaN
7                               NaN
8                               NaN
9                               NaN
10                              NaN
11                              NaN
12                              NaN
13                              NaN
14                              NaN
15                              NaN
16                              NaN
17                              NaN
18                              NaN

```

## describe

In [7]:

```
print(data.describe())
```

	Impressions	From Home	From Hashtags	From Explore	From Other	\
count	119.000000	119.000000	119.000000	119.000000	119.000000	
mean	5703.991597	2475.789916	1887.512605	1078.100840	171.092437	
std	4843.780105	1489.386348	1884.361443	2613.026132	289.431031	
min	1941.000000	1133.000000	116.000000	0.000000	9.000000	
25%	3467.000000	1945.000000	726.000000	157.500000	38.000000	
50%	4289.000000	2207.000000	1278.000000	326.000000	74.000000	
75%	6138.000000	2602.500000	2363.500000	689.500000	196.000000	
max	36919.000000	13473.000000	11817.000000	17414.000000	2547.000000	
	Saves	Comments	Shares	Likes	Profile Visits	\
count	119.000000	119.000000	119.000000	119.000000	119.000000	
mean	153.310924	6.663866	9.361345	173.781513	50.621849	
std	156.317731	3.544576	10.089205	82.378947	87.088402	
min	22.000000	0.000000	0.000000	72.000000	4.000000	
25%	65.000000	4.000000	3.000000	121.500000	15.000000	
50%	109.000000	6.000000	6.000000	151.000000	23.000000	
75%	169.000000	8.000000	13.500000	204.000000	42.000000	
max	1095.000000	19.000000	75.000000	549.000000	611.000000	

```
Follows
count    119.000000
mean     20.756303
std      40.921580
min      0.000000
25%     4.000000
50%     8.000000
75%    18.000000
max    260.000000
```

## b.sum()

In [8]:

```
print(data.sum())
```

Impressions		678775
From Home		294619
From Hashtags		224614
From Explore		128294
From Other		20360
Saves		18244
Comments		793
Shares		1114
Likes		20680
Profile Visits		6024
Follows		2470
Caption	Here are some of the most important data visua...	
Hashtags	#finance #money #business #investing #investme...	
dtype:	object	

## cumsum()

In [9]:

```
print(data.cumsum())
```

Impressions	3920	2586	1028	619	56	98	\
From Home	9314	5313	2866	1793	134	292	
From Hashtags	13335	7398	4054	1793	667	333	
From Explore	17863	10098	4675	2725	740	505	
From Other	20381	11802	4930	3004	777	601	
Saves	...	...	...	...	...	...	
Comments	599291	266275	214385	90803	17545	16325	
Shares	605022	268198	215753	93069	17610	16460	
Likes	609161	269331	217291	94436	17643	16496	
Profile Visits	641856	281146	220438	111850	17813	17591	
Follows	678775	294619	224614	128294	20360	18244	
Comments	9	5	162	35	2		
Shares	16	19	386	83	12		
Likes	27	20	517	145	24		
Profile Visits	37	27	730	168	32		
Follows	42	31	853	176	32		
Comments	...	...	...	...	...		
Shares	782	1011	19448	5211	2000		
Likes	786	1012	19596	5231	2018		
Profile Visits	786	1013	19688	5265	2028		
Follows	788	1088	20237	5413	2242		
Comments	793	1114	20680	6024	2470		

```

Caption \
0  Here are some of the most important data visua...
1  Here are some of the most important data visua...
2  Here are some of the most important data visua...
3  Here are some of the most important data visua...
4  Here are some of the most important data visua...
...
114 Here are some of the most important data visua...
115 Here are some of the most important data visua...
116 Here are some of the most important data visua...
117 Here are some of the most important data visua...
118 Here are some of the most important data visua...

Hashtags
0  #finance #money #business #investing #investme...
1  #finance #money #business #investing #investme...
2  #finance #money #business #investing #investme...
3  #finance #money #business #investing #investme...
4  #finance #money #business #investing #investme...
...
114 #finance #money #business #investing #investme...
115 #finance #money #business #investing #investme...
116 #finance #money #business #investing #investme...
117 #finance #money #business #investing #investme...
118 #finance #money #business #investing #investme...

```

[119 rows x 13 columns]

## count

In [10]: `print(data.count())`

Impressions	119
From Home	119
From Hashtags	119
From Explore	119
From Other	119
Saves	119
Comments	119
Shares	119
Likes	119
Profile Visits	119
Follows	119
Caption	119
Hashtags	119
dtype: int64	

## min

In [11]: `print(data.min())`

Impressions	1941
From Home	1133
From Hashtags	116
From Explore	0
From Other	9
Saves	22
Comments	0

```

Shares 0
Likes 72
Profile Visits 4
Follows 0
Caption 170 Python Projects with Source Code solved an...
Hashtags #career #job #jobs #jobsearch #education #busi...
dtype: object

```

## max()

In [12]:

```
print(data.max())
```

```

Impressions 36919
From Home 13473
From Hashtags 11817
From Explore 17414
From Other 2547
Saves 1095
Comments 19
Shares 75
Likes 549
Profile Visits 611
Follows 260
Caption You must have seen the news divided into categ...
Hashtags #timeseries #time #statistics #datascience #bi...
dtype: object

```

## covariance

In [14]:

```
print(data.cov())
```

	Impressions	From Home	From Hashtags	From Explore	\
Impressions	2.346221e+07	6.093874e+06	5.118299e+06	1.131032e+07	
From Home	6.093874e+06	2.218272e+06	4.982052e+05	3.115675e+06	
From Hashtags	5.118299e+06	4.982052e+05	3.550818e+06	9.377699e+05	
From Explore	1.131032e+07	3.115675e+06	9.377699e+05	6.827906e+06	
From Other	8.312952e+05	2.395335e+05	1.252349e+05	3.748818e+05	
Saves	5.900096e+05	1.789940e+05	9.011409e+04	3.054493e+05	
Comments	-4.897317e+02	6.713217e+01	1.078292e+03	-1.468644e+03	
Shares	3.101650e+04	1.014281e+04	4.173288e+03	1.623273e+04	
Likes	3.391060e+05	8.568091e+04	1.027827e+05	1.407142e+05	
Profile Visits	3.210100e+05	6.888498e+04	1.134539e+05	1.210301e+05	
Follows	1.762853e+05	4.099823e+04	4.283407e+04	8.511763e+04	
	From Other	Saves	Comments	Shares	\
Impressions	831295.170275	590009.646703	-489.731662	31016.503062	
From Home	239533.494160	178994.048925	67.132175	10142.813844	
From Hashtags	125234.875944	90114.085031	1078.292408	4173.287780	
From Explore	374881.829583	305449.264991	-1468.643783	16232.734440	
From Other	83770.321891	15016.530338	-111.519513	457.974790	
Saves	15016.530338	24435.233015	-14.911551	1356.835850	
Comments	-111.519513	-14.911551	12.564022	0.605541	
Shares	457.974790	1356.835850	0.605541	101.792052	
Likes	9382.477995	10889.593932	36.086953	588.274534	
Profile Visits	15957.467455	4909.398234	29.854864	215.586953	
Follows	6475.539667	4020.118786	-8.794474	203.571856	
	Likes	Profile Visits	Follows		
Impressions	339105.972725	321009.962897	176285.294545		

From Home	85680.911337	68884.979205	40998.228030
From Hashtags	102782.672269	113453.864976	42834.066657
From Explore	140714.234083	121030.114727	85117.634952
From Other	9382.477995	15957.467455	6475.539667
Saves	10889.593932	4909.398234	4020.118786
Comments	36.086953	29.854864	-8.794474
Shares	588.274534	215.586953	203.571856
Likes	6786.290842	4491.848882	2515.946304
Profile Visits	4491.848882	7584.389688	3040.457912
Follows	2515.946304	3040.457912	1674.575701

## corelation

### pearson corelation

In [22]:

```
from scipy.stats import pearsonr  
print(pearsonr(data["Likes"],data["Saves"]))
```

```
(0.845643293206835, 1.0881186892378918e-33)
```

### spearmen corelation

In [23]:

```
from scipy.stats import spearmanr  
print(spearmanr(data["Saves"],data["Likes"]))
```

```
SpearmanrResult(correlation=0.8497029641436643, pvalue=2.590142269778901e-34)
```