In [1]:
```
import numpy as np
import pandas as pd
from numpy import linalg as lg
from numpy import cov
```

5 Data Sets

In [2]:
```
a=pd.read_csv("insta.csv")
a
```

Out[2]:

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	Follo
0	3920	2586	1028	619	56	98	9	5	162	35	
1	5394	2727	1838	1174	78	194	7	14	224	48	
2	4021	2085	1188	0	533	41	11	1	131	62	
3	4528	2700	621	932	73	172	10	7	213	23	
4	2518	1704	255	279	37	96	5	4	123	8	
...	...	...	...	...	...	...	...	...	...	...	
114	13700	5185	3041	5352	77	573	2	38	373	73	
115	5731	1923	1368	2266	65	135	4	1	148	20	

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	Follo
116	4139	1133	1538	1367	33	36	0	1	92	34	
117	32695	11815	3147	17414	170	1095	2	75	549	148	2
118	36919	13473	4176	16444	2547	653	5	26	443	611	2

119 rows × 13 columns

a) Find mean, median, mode and describe

In [3]:
```
print(a.mean)
print("Median:")
print(a.median)
print("Mode:")
print(a.mode)
print("Describe")
print(a.describe())
```

```
<bound method NDFrame._add_numeric_operations.<locals>.mean of      Impressions  Fro
m Home  From Hashtags  From Explore  From Other  Saves  \
0           3920       2586           1028          619          56     98
1           5394       2727           1838         1174          78    194
2           4021       2085           1188            0         533     41
3           4528       2700            621          932          73    172
4           2518       1704            255          279          37     96
..           ...        ...            ...          ...         ...    ...
114        13700       5185           3041         5352          77    573
115         5731       1923           1368         2266          65    135
116         4139       1133           1538         1367          33     36
117        32695      11815           3147        17414         170   1095
118        36919      13473           4176        16444        2547    653

     Comments  Shares  Likes  Profile Visits  Follows  \
0           9       5    162              35        2
1           7      14    224              48       10
2          11       1    131              62       12
3          10       7    213              23        8
4           5       4    123               8        0
..        ...     ...    ...             ...      ...
114         2      38    373              73       80
115         4       1    148              20       18
116         0       1     92              34       10
117         2      75    549             148      214
118         5      26    443             611      228

                                              Caption  \
0    Here are some of the most important data visua...
```

```
1    Here are some of the best data science project...
2    Learn how to train a machine learning model an...
3    Here's how you can write a Python program to d...
4    Plotting annotations while visualizing your da...
..                                                 ...
114  Here are some of the best data science certifi...
115  Clustering is a machine learning technique use...
116  Clustering music genres is a task of grouping ...
117  Here are some of the best data science certifi...
118  175 Python Projects with Source Code solved an...

                                             Hashtags
0    #finance #money #business #investing #investme...
1    #healthcare #health #covid #data #datascience ...
2    #data #datascience #dataanalysis #dataanalytic...
3    #python #pythonprogramming #pythonprojects #py...
4    #datavisualization #datascience #data #dataana...
..                                                 ...
114  #datascience #datasciencejobs #datasciencetrai...
115  #machinelearning #machinelearningalgorithms #d...
116  #machinelearning #machinelearningalgorithms #d...
117  #datascience #datasciencejobs #datasciencetrai...
118  #python #pythonprogramming #pythonprojects #py...

[119 rows x 13 columns]>
Median:
<bound method NDFrame._add_numeric_operations.<locals>.median of      Impressions  F
rom Home  From Hashtags  From Explore  From Other  Saves  \
0           3920       2586           1028          619          56     98
1           5394       2727           1838         1174          78    194
2           4021       2085           1188            0         533     41
3           4528       2700            621          932          73    172
4           2518       1704            255          279          37     96
..           ...        ...            ...          ...         ...    ...
114        13700       5185           3041         5352          77    573
115         5731       1923           1368         2266          65    135
116         4139       1133           1538         1367          33     36
117        32695      11815           3147        17414         170   1095
118        36919      13473           4176        16444        2547    653

     Comments  Shares  Likes  Profile Visits  Follows  \
0           9       5    162              35        2
1           7      14    224              48       10
2          11       1    131              62       12
3          10       7    213              23        8
4           5       4    123               8        0
..        ...     ...    ...             ...      ...
114         2      38    373              73       80
115         4       1    148              20       18
116         0       1     92              34       10
117         2      75    549             148      214
118         5      26    443             611      228

                                             Caption  \
0    Here are some of the most important data visua...
1    Here are some of the best data science project...
2    Learn how to train a machine learning model an...
3    Here's how you can write a Python program to d...
4    Plotting annotations while visualizing your da...
..                                                 ...
114  Here are some of the best data science certifi...
115  Clustering is a machine learning technique use...
116  Clustering music genres is a task of grouping ...
117  Here are some of the best data science certifi...
118  175 Python Projects with Source Code solved an...

                                             Hashtags
0    #finance #money #business #investing #investme...
1    #healthcare #health #covid #data #datascience ...
```

```
2    #data #datascience #dataanalysis #dataanalytic...
3    #python #pythonprogramming #pythonprojects #py...
4    #datavisualization #datascience #data #dataana...
..                                                 ...
114  #datascience #datasciencejobs #datasciencetrai...
115  #machinelearning #machinelearningalgorithms #d...
116  #machinelearning #machinelearningalgorithms #d...
117  #datascience #datasciencejobs #datasciencetrai...
118  #python #pythonprogramming #pythonprojects #py...

[119 rows x 13 columns]>
Mode:
<bound method DataFrame.mode of      Impressions  From Home  From Hashtags  From Exp
lore  From Other  Saves  \
0           3920       2586           1028           619           56     98
1           5394       2727           1838          1174           78    194
2           4021       2085           1188             0          533     41
3           4528       2700            621           932           73    172
4           2518       1704            255           279           37     96
..           ...        ...            ...           ...          ...    ...
114        13700       5185           3041          5352           77    573
115         5731       1923           1368          2266           65    135
116         4139       1133           1538          1367           33     36
117        32695      11815           3147         17414          170   1095
118        36919      13473           4176         16444         2547    653

     Comments  Shares  Likes  Profile Visits  Follows  \
0           9       5    162              35        2
1           7      14    224              48       10
2          11       1    131              62       12
3          10       7    213              23        8
4           5       4    123               8        0
..        ...     ...    ...             ...      ...
114         2      38    373              73       80
115         4       1    148              20       18
116         0       1     92              34       10
117         2      75    549             148      214
118         5      26    443             611      228

                                              Caption  \
0    Here are some of the most important data visua...
1    Here are some of the best data science project...
2    Learn how to train a machine learning model an...
3    Here's how you can write a Python program to d...
4    Plotting annotations while visualizing your da...
..                                                 ...
114  Here are some of the best data science certifi...
115  Clustering is a machine learning technique use...
116  Clustering music genres is a task of grouping ...
117  Here are some of the best data science certifi...
118  175 Python Projects with Source Code solved an...

                                             Hashtags
0    #finance #money #business #investing #investme...
1    #healthcare #health #covid #data #datascience ...
2    #data #datascience #dataanalysis #dataanalytic...
3    #python #pythonprogramming #pythonprojects #py...
4    #datavisualization #datascience #data #dataana...
..                                                 ...
114  #datascience #datasciencejobs #datasciencetrai...
115  #machinelearning #machinelearningalgorithms #d...
116  #machinelearning #machinelearningalgorithms #d...
117  #datascience #datasciencejobs #datasciencetrai...
118  #python #pythonprogramming #pythonprojects #py...

[119 rows x 13 columns]>
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) Find sum(), cumsum(), count, min and max values

In [4]:
```
print(a.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
```

In [5]:
```
print(a.cumsum())
```

```
     Impressions  From Home  From Hashtags  From Explore  From Other  Saves  \
0           3920       2586           1028           619          56     98
1           9314       5313           2866          1793         134    292
2          13335       7398           4054          1793         667    333
3          17863      10098           4675          2725         740    505
4          20381      11802           4930          3004         777    601
..           ...        ...            ...           ...         ...    ...
114       599291     266275         214385         90803       17545  16325
115       605022     268198         215753         93069       17610  16460
116       609161     269331         217291         94436       17643  16496
117       641856     281146         220438        111850       17813  17591
118       678775     294619         224614        128294       20360  18244

     Comments  Shares  Likes  Profile Visits  Follows  \
0           9       5    162              35        2
```

```
1          16      19    386             83       12
2          27      20    517            145       24
3          37      27    730            168       32
4          42      31    853            176       32
..        ...     ...    ...            ...      ...
114       782    1011  19448           5211     2000
115       786    1012  19596           5231     2018
116       786    1013  19688           5265     2028
117       788    1088  20237           5413     2242
118       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]
```

In [6]:

```
print(a.count())
print(a.min())
print(a.max())
```

```
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
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
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
```

c) Find covariance and correlation (spearman and pearsons)

In [7]:
```
print(a.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
```

In [8]:
```
b=a.dropna(axis=1,how='any')
b
```

Out[8]:

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	Follo
0	3920	2586	1028	619	56	98	9	5	162	35	
1	5394	2727	1838	1174	78	194	7	14	224	48	
2	4021	2085	1188	0	533	41	11	1	131	62	
3	4528	2700	621	932	73	172	10	7	213	23	
4	2518	1704	255	279	37	96	5	4	123	8	
...	...	...	...	...	...	...	...	...	...	...	
114	13700	5185	3041	5352	77	573	2	38	373	73	
115	5731	1923	1368	2266	65	135	4	1	148	20	
116	4139	1133	1538	1367	33	36	0	1	92	34	
117	32695	11815	3147	17414	170	1095	2	75	549	148	2
118	36919	13473	4176	16444	2547	653	5	26	443	611	2

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	Follo

119 rows × 13 columns

In [10]:
```
from scipy.stats import pearsonr
print(pearsonr(a['Impressions'],a['Saves']))
```

```
(0.7792314114268593, 1.7054972210225007e-25)
```

In [11]:
```
from scipy.stats import spearmanr
print(spearmanr(a['Impressions'],a['Saves']))
```

```
SpearmanrResult(correlation=0.6878311983258842, pvalue=5.5717923331654616e-18)
```

In [ ]: