1.IMPORTING LIBRARIES

In [1]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
```

2.Importing dataset

In [2]:
```
data=pd.read_csv(r"C:\Users\user\Downloads\5_Instagram data - 5_Instagram data.csv")
data
```

Out[2]:

	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

3.head

In [3]:
```
data.head(8)
```

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

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	Follows	
3	4528	2700	621	932	73	172	10	7	213	23	8	c pr
4	2518	1704	255	279	37	96	5	4	123	8	0	an v
5	3884	2046	1214	329	43	74	7	10	144	9	2	i
6	2621	1543	599	333	25	22	5	1	76	26	0	L t ca ch
7	3541	2071	628	500	60	135	4	9	124	12	6	b y

4.tail

In [4]:
```
data.tail(7)
```

Out[4]:

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	Follows
112	11149	4439	747	5762	53	273	4	13	210	61	58
113	10206	2371	1624	6000	117	182	10	17	172	237	100
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

5.describe()

In [5]:
```
data.describe()
```

Out[5]:

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	
count	119.000000	119.000000	119.000000	119.000000	119.000000	119.000000	119.000000	1
mean	5703.991597	2475.789916	1887.512605	1078.100840	171.092437	153.310924	6.663866	
std	4843.780105	1489.386348	1884.361443	2613.026132	289.431031	156.317731	3.544576	
min	1941.000000	1133.000000	116.000000	0.000000	9.000000	22.000000	0.000000	
25%	3467.000000	1945.000000	726.000000	157.500000	38.000000	65.000000	4.000000	
50%	4289.000000	2207.000000	1278.000000	326.000000	74.000000	109.000000	6.000000	
75%	6138.000000	2602.500000	2363.500000	689.500000	196.000000	169.000000	8.000000	
max	36919.000000	13473.000000	11817.000000	17414.000000	2547.000000	1095.000000	19.000000	

6.shape()

In [6]:
```
np.shape(data)
```

Out[6]:
```
(119, 13)
```

7.size()

In [7]:
```
np.size(data)
```

Out[7]: 1547

8.isna()

In [8]:
```
data.isna()
```

Out[8]:

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	Follows
0	False	False	False	False	False	False	False	False	False	False	False
1	False	False	False	False	False	False	False	False	False	False	False
2	False	False	False	False	False	False	False	False	False	False	False
3	False	False	False	False	False	False	False	False	False	False	False
4	False	False	False	False	False	False	False	False	False	False	False
...	...	...	...	...	...	...	...	...	...	...	...
114	False	False	False	False	False	False	False	False	False	False	False
115	False	False	False	False	False	False	False	False	False	False	False
116	False	False	False	False	False	False	False	False	False	False	False
117	False	False	False	False	False	False	False	False	False	False	False
118	False	False	False	False	False	False	False	False	False	False	False

119 rows × 13 columns

9.dropna

In [9]:
```
data.dropna()
```

Out[9]:

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	Follow
0	3920	2586	1028	619	56	98	9	5	162	35	
1	5394	2727	1838	1174	78	194	7	14	224	48	1

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	Follow
2	4021	2085	1188	0	533	41	11	1	131	62	1
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	8
115	5731	1923	1368	2266	65	135	4	1	148	20	1
116	4139	1133	1538	1367	33	36	0	1	92	34	1
117	32695	11815	3147	17414	170	1095	2	75	549	148	21
118	36919	13473	4176	16444	2547	653	5	26	443	611	22

119 rows × 13 columns

10.selecting specific column

In [10]:
```
da=data[["Saves","Comments"]]
da
```

Out[10]:

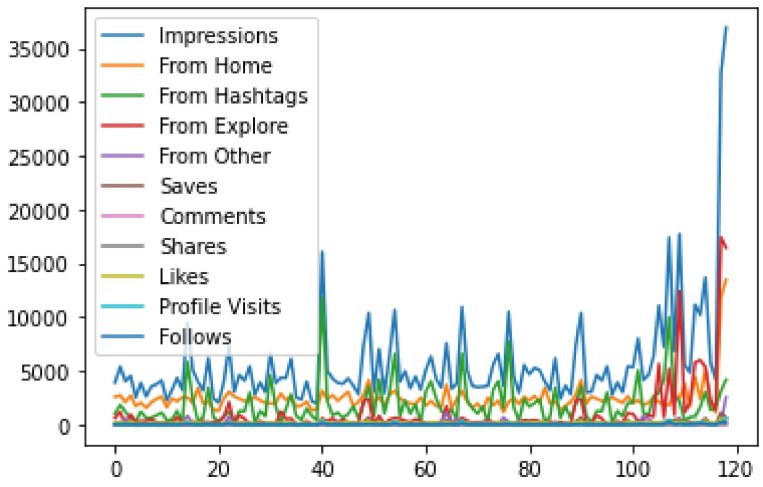
	Saves	Comments
0	98	9
1	194	7
2	41	11
3	172	10
4	96	5
...	...	...
114	573	2
115	135	4
116	36	0
117	1095	2
118	653	5

119 rows × 2 columns

11.line plot

In [11]:
```
data.plot.line()
```

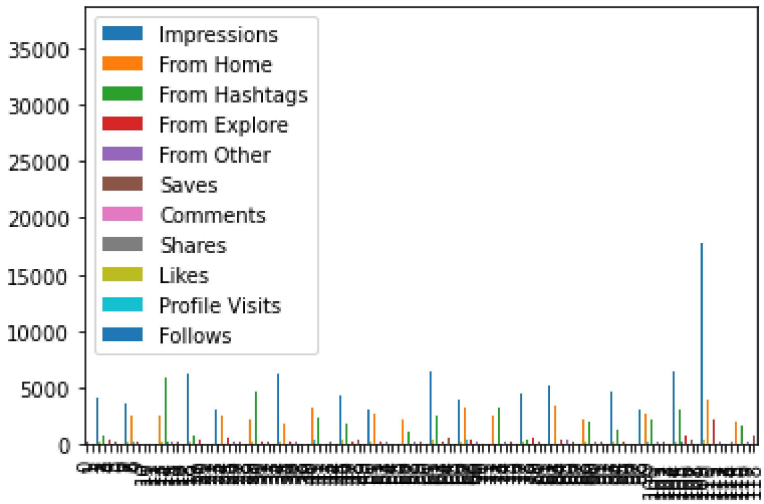
Out[11]: <AxesSubplot:>



12.bar plot

In [12]:
```
data.plot.bar()
```

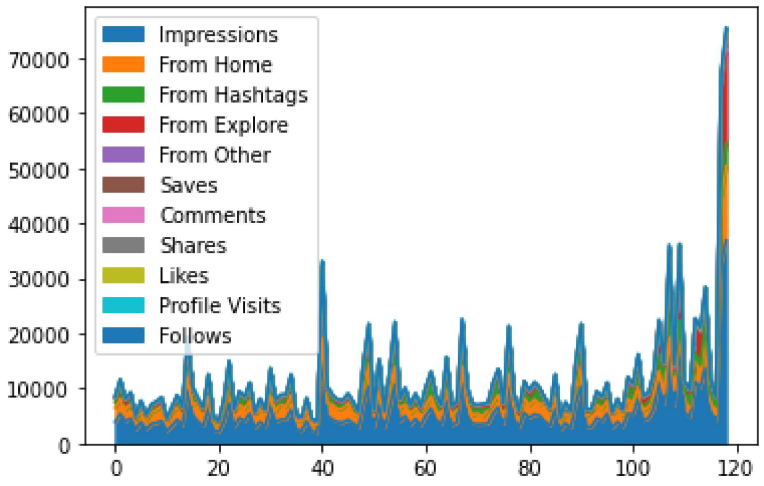
Out[12]: <AxesSubplot:>



13.area plot

In [13]:
```
data.plot.area()
```

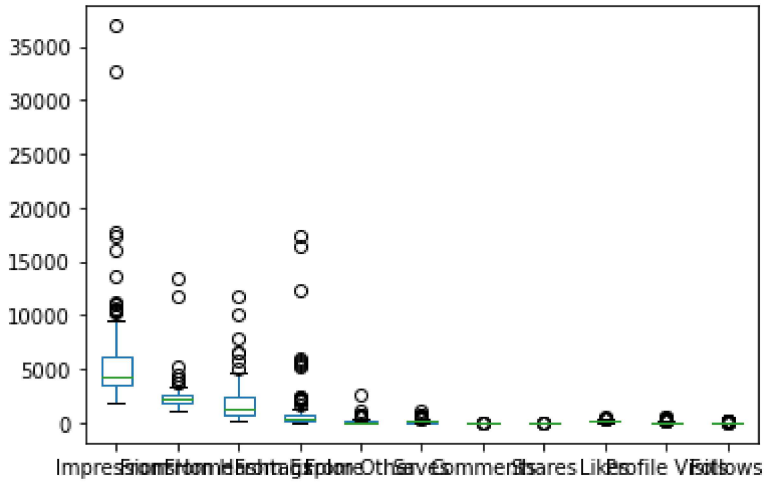
Out[13]: <AxesSubplot:>



14.box plot

In [14]:
```
data.plot.box()
```

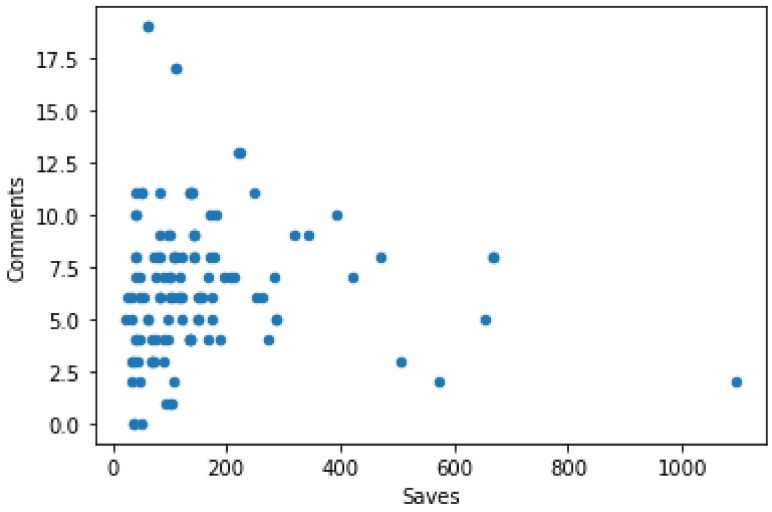
Out[14]: <AxesSubplot:>



15.scatter plot

In [15]:
```
data.plot.scatter("Saves","Comments")
```

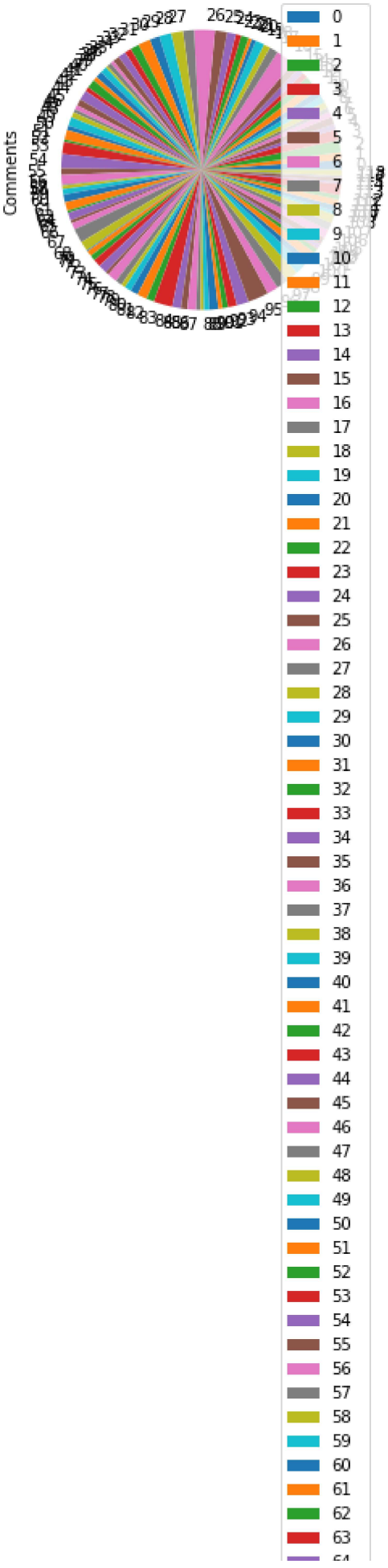
Out[15]: <AxesSubplot:xlabel='Saves', ylabel='Comments'>

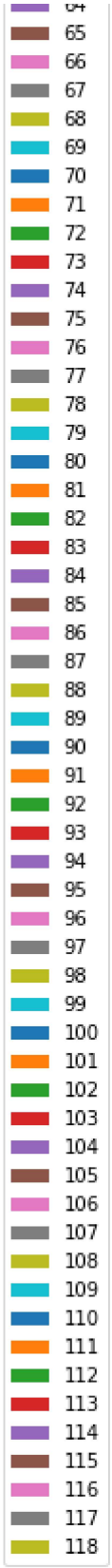


16.pie plot

In [16]:
```
data.plot.pie(x="Saves",y="Comments")
```

Out[16]: <AxesSubplot:ylabel='Comments'>

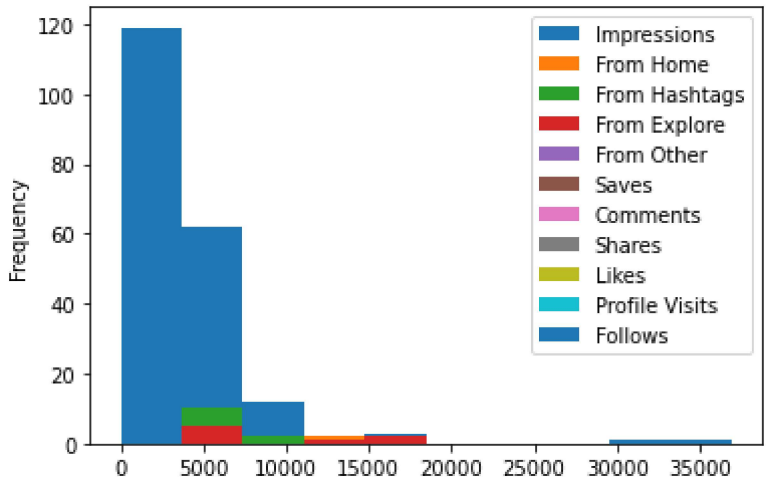

Comments
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63



17.histogram

In [17]:
```
data.plot.hist()
```

Out[17]: <AxesSubplot:ylabel='Frequency'>



sum

In [18]:
```
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
```

mean

In [19]:
```
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 [20]:
```
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 [21]:
```
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
```

min

In [22]:
```
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 [23]:
```
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
```

count

In [24]:
```
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
```

cumsum

In [25]:
```
print(data.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]
```

standard deviation

In [26]:

```
print(data.std())
```

```
Impressions       4843.780105
From Home         1489.386348
From Hashtags     1884.361443
From Explore      2613.026132
From Other         289.431031
Saves              156.317731
Comments             3.544576
Shares              10.089205
Likes               82.378947
Profile Visits      87.088402
Follows             40.921580
dtype: float64
```

describe

In [27]:
```
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
```

variance

In [28]:
```
print(data.var())
```

```
Impressions       2.346221e+07
From Home         2.218272e+06
From Hashtags     3.550818e+06
From Explore      6.827906e+06
From Other        8.377032e+04
Saves             2.443523e+04
Comments          1.256402e+01
Shares            1.017921e+02
Likes             6.786291e+03
Profile Visits    7.584390e+03
Follows           1.674576e+03
dtype: float64
```

covariance

In [29]:
```
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
```

correlation

In [30]:

```
from scipy.stats import spearmanr
from scipy.stats import pearsonr
```

pearson correlation

In [31]:

```
print(pearsonr(data["Saves"],data["Comments"]))
```

```
(-0.02691226370756101, 0.7714093067398262)
```

spearman correlation

In [32]:

```
print(spearmanr(data["Saves"],data["Comments"]))
```

```
SpearmanrResult(correlation=0.18289066665208123, pvalue=0.04649539344941905)
```