

In [1]:

```
import numpy as np
import pandas as pd
from numpy import cov
from scipy.stats import pearsonr
from scipy.stats import spearmanr
import matplotlib.pyplot as pp
```

In [2]:

```
a = pd.read_csv("instagram.csv")
a
```

Out[2]:

	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
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

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

In [3]:

`a.head()`

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

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	Follows
In [4]: a.head(10)											
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
5	3884	2046	1214	329	43	74	7	10	144	9	2
6	2621	1543	599	333	25	22	5	1	76	26	0
7	3541	2071	628	500	60	135	4	9	124	12	6
8	3749	2384	857	248	49	155	6	8	159	36	4

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	Follows
<b>9</b>	4115	2609	1104	178	46	122	6	3	191	31	6

In [5]:

```
a.tail()
```

Out[5]:

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	Follow
<b>114</b>	13700	5185	3041	5352	77	573	2	38	373	73	8
<b>115</b>	5731	1923	1368	2266	65	135	4	1	148	20	1
<b>116</b>	4139	1133	1538	1367	33	36	0	1	92	34	1
<b>117</b>	32695	11815	3147	17414	170	1095	2	75	549	148	21
<b>118</b>	36919	13473	4176	16444	2547	653	5	26	443	611	22

In [6]:

```
a.tail(10)
```

Out[6]:

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

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	Follow
109	17713	2449	2141	12389	561	504	3	23	308	70	9
110	5563	3813	362	1135	76	149	5	8	163	22	2
111	4842	1658	694	2036	310	55	6	4	86	46	3
112	11149	4439	747	5762	53	273	4	13	210	61	5
113	10206	2371	1624	6000	117	182	10	17	172	237	10
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	26010	12472	4176	16444	2547	652	5	26	442	611	22

In [7]:

a.columns

```
Out[7]: Index(['Impressions', 'From Home', 'From Hashtags', 'From Explore',
   'From Other', 'Saves', 'Comments', 'Shares', 'Likes', 'Profile Visits',
   'Follows', 'Caption', 'Hashtags'],
              dtype='object')
```

```
dtypes='object')
```

```
In [8]: a.index
```

```
Out[8]: RangeIndex(start=0, stop=119, step=1)
```

```
In [9]: a.describe()
```

```
Out[9]:
```

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

```
In [10]: a[0:2]
```

```
Out[10]:
```

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	Follows
<b>0</b>	3920	2586	1028	619	56	98	9	5	162	35	2
<b>1</b>	5394	2727	1838	1174	78	194	7	14	224	48	10

```
In [12]: a["Saves"]
```

```
Out[12]: 0      98
1      194
2      41
3      172
4      96
...
114     573
115     135
```

```
116      36
117    1095
118     653
Name: Saves, Length: 119, dtype: int64
```

In [14]:  
a.iloc[0:5]

	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

In [13]:  
a.loc["Saves":"From Hashtags"]

	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

	<b>Impressions</b>	<b>From Home</b>	<b>From Hashtags</b>	<b>From Explore</b>	<b>From Other</b>	<b>Saves</b>	<b>Comments</b>	<b>Shares</b>	<b>Likes</b>	<b>Profile Visits</b>	<b>Follow</b>
<b>2</b>	False	False	False	False	False	False	False	False	False	False	False
<b>3</b>	False	False	False	False	False	False	False	False	False	False	False
<b>4</b>	False	False	False	False	False	False	False	False	False	False	False
...	...	...	...	...	...	...	...	...	...	...	...
<b>114</b>	False	False	False	False	False	False	False	False	False	False	False
<b>115</b>	False	False	False	False	False	False	False	False	False	False	False
<b>116</b>	False	False	False	False	False	False	False	False	False	False	False
<b>117</b>	False	False	False	False	False	False	False	False	False	False	False

In [16]:

`a.fillna(5)`

Out[16]:

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

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

In [17]:

a.dropna()

Out[17]:

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	Follow
<b>0</b>	3920	2586	1028	619	56	98	9	5	162	35	
<b>1</b>	5394	2727	1838	1174	78	194	7	14	224	48	1
<b>2</b>	4021	2085	1188	0	533	41	11	1	131	62	1
<b>3</b>	4528	2700	621	932	73	172	10	7	213	23	

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

In [18]:

`a.drop(1)`

Out[18]:

	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	

<b>Impressions</b>	<b>From Home</b>	<b>From Hashtags</b>	<b>From Explore</b>	<b>From Other</b>	<b>Saves</b>	<b>Comments</b>	<b>Shares</b>	<b>Likes</b>	<b>Profile Visits</b>	<b>Follow</b>
<b>2</b>	4021	2085	1188	0	533	41	11	1	131	62
<b>3</b>	4528	2700	621	932	73	172	10	7	213	23
<b>4</b>	2518	1704	255	279	37	96	5	4	123	8
<b>5</b>	3884	2046	1214	329	43	74	7	10	144	9
...	...	...	...	...	...	...	...	...	...	...
<b>114</b>	13700	5185	3041	5352	77	573	2	38	373	73
<b>115</b>	5731	1923	1368	2266	65	135	4	1	148	20
<b>116</b>	4139	1133	1538	1367	33	36	0	1	92	34
<b>117</b>	32695	11815	3147	17414	170	1095	2	75	549	148
<b>118</b>	36919	13473	4176	16444	2547	653	5	26	442	611
										22

```
In [19]: a.shape
```

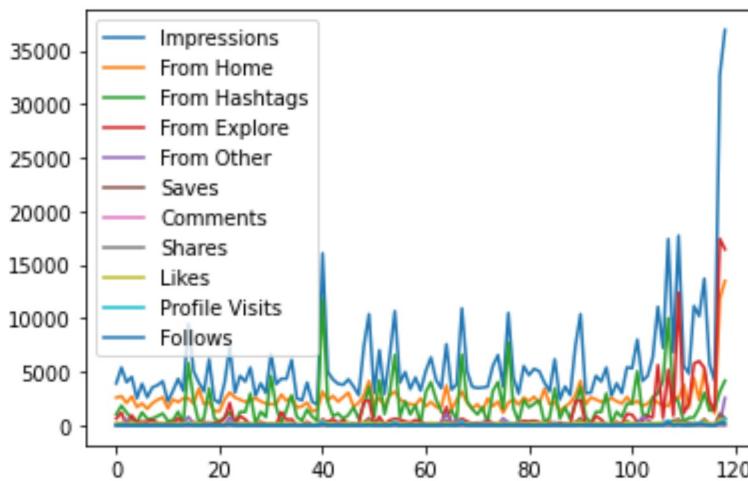
```
Out[19]: (119, 13)
```

```
In [20]: a.size
```

```
Out[20]: 1547
```

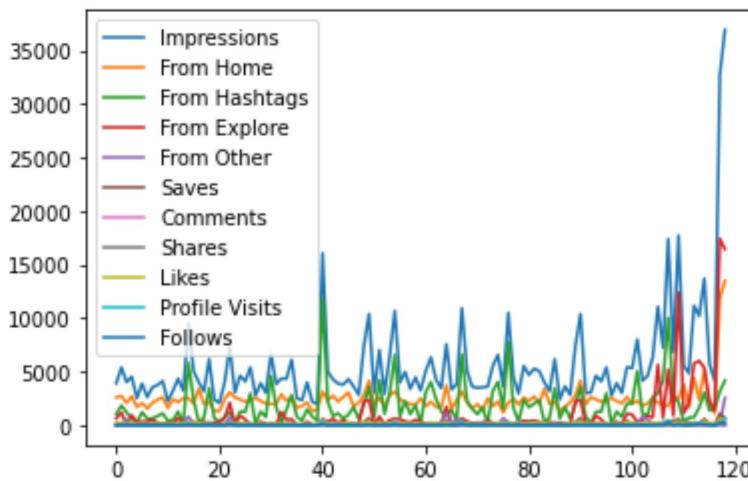
```
In [21]: a.plot()
```

```
Out[21]: <AxesSubplot:>
```



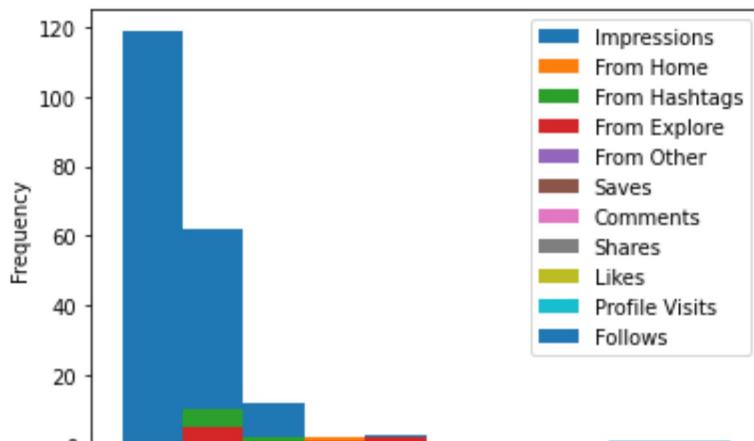
```
In [22]: a.plot.line()
```

```
Out[22]: <AxesSubplot:>
```



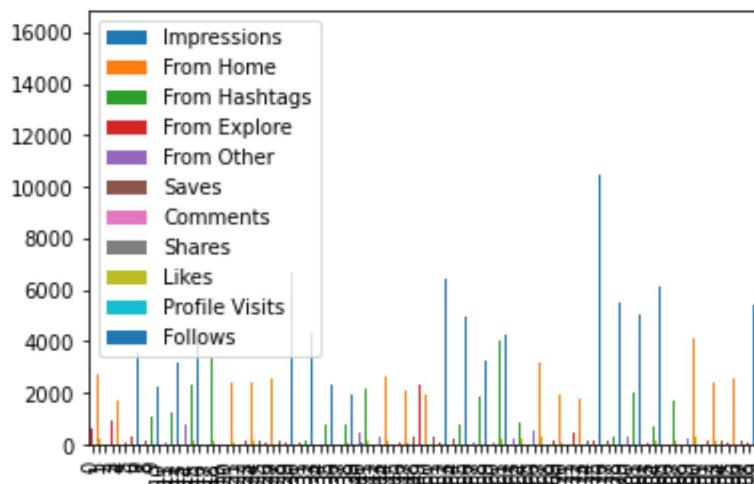
```
In [23]: a.plot.hist()
```

```
Out[23]: <AxesSubplot:ylabel='Frequency'>
```



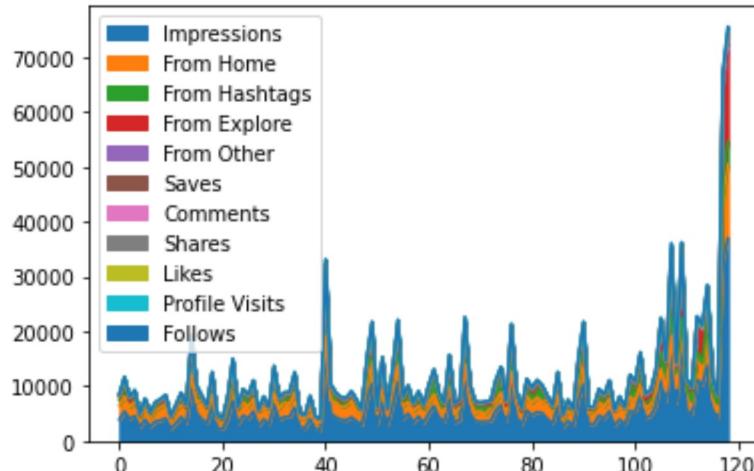
```
In [24]: b = a.head(100)  
b.plot.bar()
```

Out[24]: <AxesSubplot:>



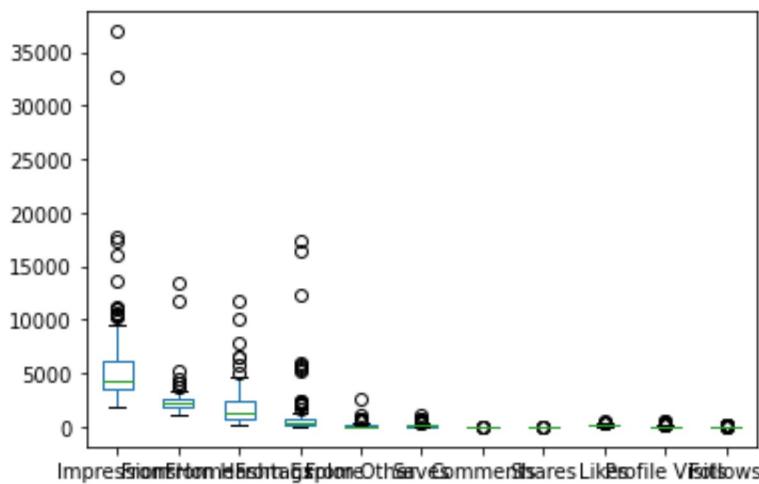
```
In [25]: a.plot.area()
```

Out[25]: <AxesSubplot:>



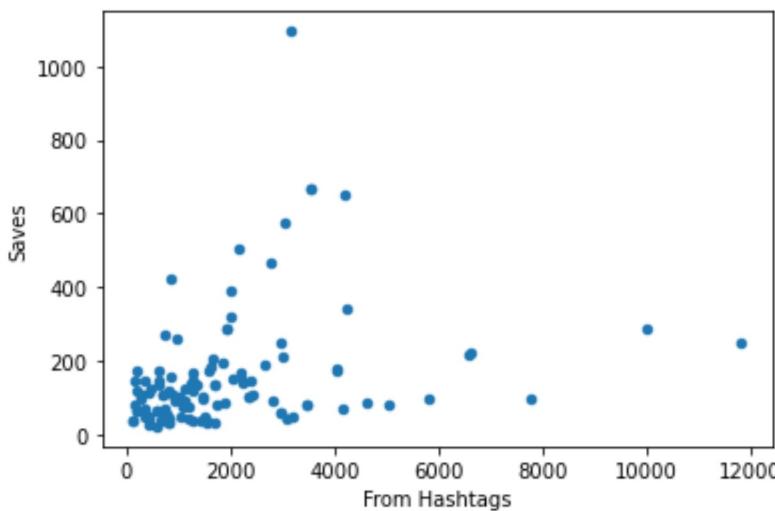
```
In [26]: a.plot.box()
```

```
Out[26]: <AxesSubplot:>
```



```
In [27]: a.plot.scatter(x = "From Hashtags", y = "Saves" )
```

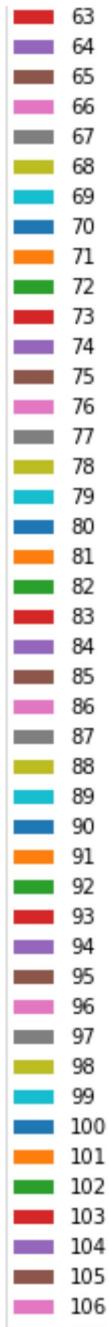
```
Out[27]: <AxesSubplot:xlabel='From Hashtags', ylabel='Saves'>
```



```
In [28]: a.plot.pie(y = "From Hashtags")
```

```
Out[28]: <AxesSubplot:ylabel='From Hashtags'>
```





In [29]:

```
a.cov()
```

Out[29]:

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves
<b>Impressions</b>	2.346221e+07	6.093874e+06	5.118299e+06	1.131032e+07	831295.170275	590009.646703
<b>From Home</b>	6.093874e+06	2.218272e+06	4.982052e+05	3.115675e+06	239533.494160	178994.048925
<b>From Hashtags</b>	5.118299e+06	4.982052e+05	3.550818e+06	9.377699e+05	125234.875944	90114.085031
<b>From Explore</b>	1.131032e+07	3.115675e+06	9.377699e+05	6.827906e+06	374881.829583	305449.264991
<b>From Other</b>	8.312952e+05	2.395335e+05	1.252349e+05	3.748818e+05	83770.321891	15016.530338

	<b>Impressions</b>	<b>From Home</b>	<b>From Hashtags</b>	<b>From Explore</b>	<b>From Other</b>	<b>Saves</b>
<b>Saves</b>	5.900096e+05	1.789940e+05	9.011409e+04	3.054493e+05	15016.530338	24435.233015
<b>Comments</b>	-4.897317e+02	6.713217e+01	1.078292e+03	-1.468644e+03	-111.519513	-14.911551
<b>Shares</b>	3.101650e+04	1.014281e+04	4.173288e+03	1.623273e+04	457.974790	1356.835850
<b>Likes</b>	3.391060e+05	8.568091e+04	1.027827e+05	1.407142e+05	9382.477995	10889.593932

**Profile**

In [30]:

a.sum()

Out[30]:

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 [31]:

a.mean()

Out[31]:

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	

In [32]:

a.median()

Out[32]:

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	

In [33]: `a.min()`

```
Out[33]: 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
```

In [34]: `a.max()`

```
Out[34]: 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
```

In [35]: `a.count()`

```
Out[35]: 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
```

In [37]: `print(pearsonr(a['From Hashtags'], a['Saves']))`

```
(0.3059287031465749, 0.0007155117537284559)
```

In [38]: `print(spearmanr(a['From Hashtags'], a['Saves']))`

```
SpearmanResult(correlation=0.39464139235974627, pvalue=8.944869530432347e-06)
```