

26/07/2023

```
In [3]: import numpy as np  
import pandas as pd
```

```
In [4]: x=pd.read_csv(r"C:\Users\user\Downloads\5_Instagram data - 5_Instagram data.csv")
x
```

Out[4]:

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

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	F
118	36919	13473	4176	16444	2547	653	5	26	443	611	

119 rows × 13 columns

```
In [5]: x.dtypes
```

```
Out[5]: Impressions      int64
         From Home       int64
         From Hashtags   int64
         From Explore     int64
         From Other       int64
         Saves            int64
         Comments         int64
         Shares           int64
         Likes            int64
         Profile Visits   int64
         Follows          int64
         Caption          object
         Hashtags         object
         dtype: object
```

```
In [6]: x.head()
```

Out[6]:

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

In [7]: `x.tail()`

Out[7]:

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	F
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	
118	36919	13473	4176	16444	2547	653	5	26	443	611	



In [8]: `x.columns`

Out[8]: Index(['Impressions', 'From Home', 'From Hashtags', 'From Explore',
 'From Other', 'Saves', 'Comments', 'Shares', 'Likes', 'Profile Visits',
 'Follows', 'Caption', 'Hashtags'],
 dtype='object')

In [11]: `x.index`

Out[11]: RangeIndex(start=0, stop=119, step=1)

In [10]:

x.describe()

Out[10]:

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comm
count	119.000000	119.000000	119.000000	119.000000	119.000000	119.000000	119.00
mean	5703.991597	2475.789916	1887.512605	1078.100840	171.092437	153.310924	6.66
std	4843.780105	1489.386348	1884.361443	2613.026132	289.431031	156.317731	3.54
min	1941.000000	1133.000000	116.000000	0.000000	9.000000	22.000000	0.00
25%	3467.000000	1945.000000	726.000000	157.500000	38.000000	65.000000	4.00
50%	4289.000000	2207.000000	1278.000000	326.000000	74.000000	109.000000	6.00
75%	6138.000000	2602.500000	2363.500000	689.500000	196.000000	169.000000	8.00
max	36919.000000	13473.000000	11817.000000	17414.000000	2547.000000	1095.000000	19.00

In [12]:

x["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]:

x[0:2]

Out[14]:

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

```
In [15]: x.loc[0:2]
```

Out[15]:

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

```
In [16]: x.iloc[0:2]
```

Out[16]:

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

```
In [17]: x.loc["Comments":"Likes"]
```

Out[17]:

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


```
In [18]: x[x["Follows"]<=2]
```

23	3052	2608	201	121	87	63	5	14	129	14
28	3924	2244	1278	326	34	139	11	3	151	19
29	3015	2034	771	115	41	52	11	4	92	9



```
In [19]: x.fillna(value=5)
```

Out[19]:

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

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	F
118	36919	13473	4176	16444	2547	653	5	26	443	611	

119 rows × 13 columns

In [20]: `x.dropna()`

Out[20]:

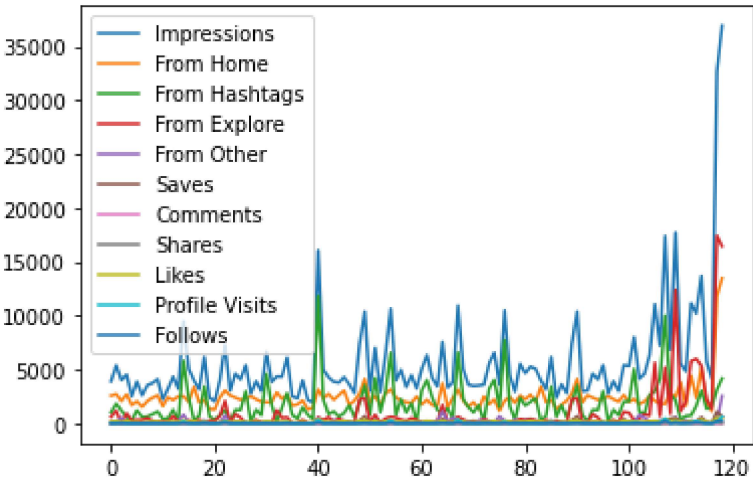
	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	F
0	3920	2586	1028	619	56	98	9	5	162	35	
1	5394	2727	1838	1174	78	194	7	14	224	48	
2	4021	2085	1188	0	533	41	11	1	131	62	
3	4528	2700	621	932	73	172	10	7	213	23	
4	2518	1704	255	279	37	96	5	4	123	8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

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	F
118	36919	13473	4176	16444	2547	653	5	26	443	611	

119 rows × 13 columns

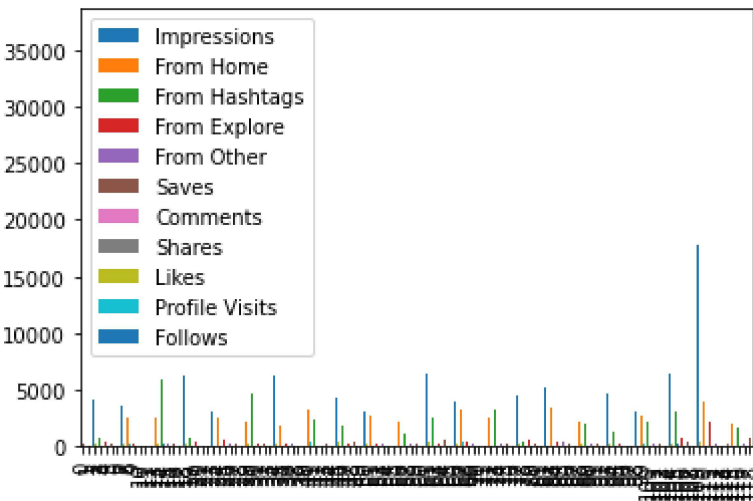
```
In [22]: x.plot.line()
```

Out[22]: <AxesSubplot:>



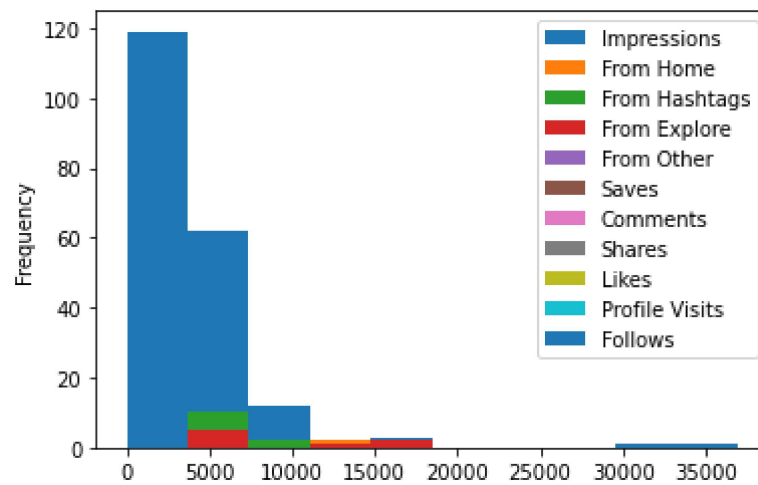
```
In [23]: x.plot.bar()
```

Out[23]: <AxesSubplot:>



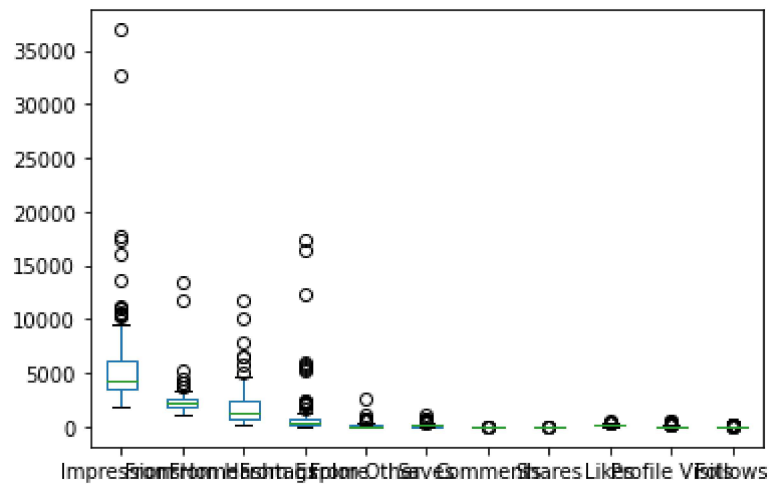
```
In [24]: x.plot.hist()
```

```
Out[24]: <AxesSubplot:ylabel='Frequency'>
```



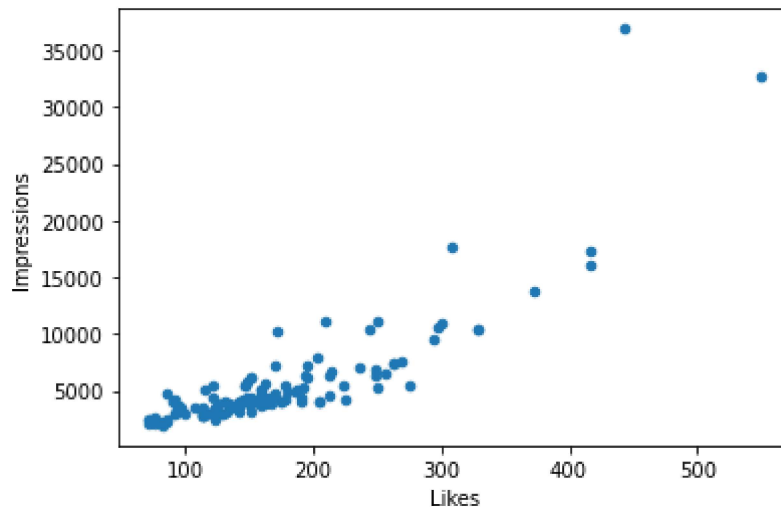
```
In [25]: x.plot.box()
```

```
Out[25]: <AxesSubplot:>
```




```
In [29]: x.plot.scatter(x="Likes",y="Impressions")
```

```
Out[29]: <AxesSubplot:xlabel='Likes', ylabel='Impressions'>
```



```
In [30]: x.mean()
```

```
Out[30]: 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 [31]: x.median()
```

```
Out[31]: 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 [32]:

x.mode()

Out[32]:

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	Follower
0	5394.0	1975.0	116	45.0	34.0	40.0	6.0	3.0	114.0	19.0	1.0
1	NaN	NaN	201	84.0	NaN	135.0	NaN	NaN	151.0	21.0	1.0
2	NaN	NaN	278	NaN	NaN	144.0	NaN	NaN	NaN	NaN	NaN
3	NaN	NaN	362	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
4	NaN	NaN	411	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
5	NaN	NaN	583	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
6	NaN	NaN	655	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
7	NaN	NaN	707	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
8	NaN	NaN	771	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
9	NaN	NaN	794	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
10	NaN	NaN	1248	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
11	NaN	NaN	1260	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
12	NaN	NaN	1278	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
13	NaN	NaN	1693	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
14	NaN	NaN	1938	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
15	NaN	NaN	2351	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
16	NaN	NaN	2975	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
17	NaN	NaN	3450	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
18	NaN	NaN	3551	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN

```
In [33]: x.sum()
```

```
Out[33]: 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 [34]: `x.cumsum()`

Out[34]:

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits
0	3920	2586	1028	619	56	98	9	5	162	35
1	9314	5313	2866	1793	134	292	16	19	386	83
2	13335	7398	4054	1793	667	333	27	20	517	145
3	17863	10098	4675	2725	740	505	37	27	730	168
4	20381	11802	4930	3004	777	601	42	31	853	176
...
114	599291	266275	214385	90803	17545	16325	782	1011	19448	5211
115	605022	268198	215753	93069	17610	16460	786	1012	19596	5231
116	609161	269331	217291	94436	17643	16496	786	1013	19688	5265
117	641856	281146	220438	111850	17813	17591	788	1088	20237	5413

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits
118	678775	294619	224614	128294	20360	18244	793	1114	20680	6024

119 rows × 13 columns

In [35]: `x.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 [36]: `x.min()`

```
Out[36]: 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 [37]: `x.max()`

```
Out[37]: 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 [45]: `from numpy import cov`
`a1=x['Impressions']`
`a2=x['Likes']`
`a1`
`a2`

```
Out[45]: 0      162
         1      224
         2      131
         3      213
         4      123
         ...
         114    373
         115    148
         116     92
         117    549
         118    443
         Name: Likes, Length: 119, dtype: int64
```

In [46]: `cov(a1,a2)`

```
Out[46]: array([[2.34622057e+07, 3.39105973e+05],
                [3.39105973e+05, 6.78629084e+03]])
```

In [47]: `from scipy.stats import pearsonr`
`pearsonr(a1,a2)`

```
Out[47]: (0.8498353377178175, 2.469956699410594e-34)
```

In [48]: `from scipy.stats import spearmanr`
`spearmanr(a1,a2)`

```
Out[48]: SpearmanrResult(correlation=0.8537219492854202, pvalue=5.99576983014271e-35)
```

