```python
In [55]: import numpy as np
         import pandas as pd
```

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

In [94]:

```
         Impressions  From 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]
```

In [95]: `x.mean()`

Out[95]:
```
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 [96]: `x.median()`

Out[96]:
```
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 [97]: `x.mode()`

Out[97]:

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

In [98]: `x.describe()`

Out[98]:

|  | 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 [99]: `x.sum()`

Out[99]:
```
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 [100]: `x.cumsum()`

Out[100]:

| | 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 [101]: `x.count()`

Out[101]:
```
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 [102]: `x.min()`

Out[102]:
```
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 [103]: x.max()
```

```
Out[103]: 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 [104]: from numpy import cov
          from scipy.stats import pearsonr
          from scipy.stats import spearmanr
```

```
In [105]: d1=x["Comments"]
          d2=x["Shares"]
          cov(d1,d2)
```

```
Out[105]: array([[ 12.56402222,    0.60554052],
                 [  0.60554052, 101.79205241]])
```

```
In [106]: print(pearsonr(d1,d2))
```

```
(0.01693253285536043, 0.8549741517785899)
```

```
In [107]: print(spearmanr(d1,d2))
```

```
SpearmanrResult(correlation=0.133945613439032, pvalue=0.14641707980058413)
```

```
In [ ]:
```