

```
In [1]: import pandas as pd
import numpy as np
```

```
In [2]: df = pd.read_csv('./dataset_Facebook.csv',sep=';')
```

```
In [3]: df
```

Out[3]:

|     |        | Page total likes | Type | Category | Post Month | Post Weekday | Post Hour | Paid | Lifetime Post Total Reach | Lifetime Post Total Impressions | Lifetime Engaged Users | Lifetime Post Consumers | Lifetime Post Consumptions | Lifetime Post Impressions by people who have liked your Page | Lifetime Post reach by people who like your Page | Lifetime People who have liked your Page and engaged with your post | comment | like | share  | Total Interactions |      |
|-----|--------|------------------|------|----------|------------|--------------|-----------|------|---------------------------|---------------------------------|------------------------|-------------------------|----------------------------|--|--|---|---------|------|--------|--------------------|------|
| 0   | 139441 | Photo            | 2    | 12       | 4          | 3            | 0.0       |      | 2752                      | 5091                            | 178                    | 109                     | 159                        |  | 3078   | 1640  | 119     | 4    | 79.0   | 17.0               | 100  |
| 1   | 139441 | Status           | 2    | 12       | 3          | 10           | 0.0       |      | 10460                     | 19057                           | 1457                   | 1361                    | 1674                       |  | 11710  | 6112  | 1108    | 5    | 130.0  | 29.0               | 164  |
| 2   | 139441 | Photo            | 3    | 12       | 3          | 3            | 0.0       |      | 2413                      | 4373                            | 177                    | 113                     | 154                        |  | 2812   | 1503  | 132     | 0    | 66.0   | 14.0               | 80   |
| 3   | 139441 | Photo            | 2    | 12       | 2          | 10           | 1.0       |      | 50128                     | 87991                           | 2211                   | 790                     | 1119                       |  | 61027  | 32048   | 1386    | 58   | 1572.0 | 147.0              | 1777 |
| 4   | 139441 | Photo            | 2    | 12       | 2          | 3            | 0.0       |      | 7244                      | 13594                           | 671                    | 410                     | 580                        |  | 6228   | 3200  | 396     | 19   | 325.0  | 49.0               | 393  |
| ... | ...    | ...              | ...  | ...      | ...        | ...          | ...       | ...  | ...                       | ...                             | ...                    | ...                     | ...                        | ...  | ...  | ...   | ...     | ...  | ...    | ...                | ...  |
| 495 | 85093  | Photo            | 3    | 1        | 7          | 2            | 0.0       |      | 4684                      | 7536                            | 733                    | 708                     | 985                        |  | 4750   | 2876  | 392     | 5    | 53.0   | 26.0               | 84   |
| 496 | 81370  | Photo            | 2    | 1        | 5          | 8            | 0.0       |      | 3480                      | 6229                            | 537                    | 508                     | 687                        |  | 3961   | 2104  | 301     | 0    | 53.0   | 22.0               | 75   |
| 497 | 81370  | Photo            | 1    | 1        | 5          | 2            | 0.0       |      | 3778                      | 7216                            | 625                    | 572                     | 795                        |  | 4742   | 2388  | 363     | 4    | 93.0   | 18.0               | 115  |
| 498 | 81370  | Photo            | 3    | 1        | 4          | 11           | 0.0       |      | 4156                      | 7564                            | 626                    | 574                     | 832                        |  | 4534   | 2452  | 370     | 7    | 91.0   | 38.0               | 136  |
| 499 | 81370  | Photo            | 2    | 1        | 4          | 4            | NaN       |      | 4188                      | 7292                            | 564                    | 524                     | 743                        |  | 3861   | 2200  | 316     | 0    | 91.0   | 28.0               | 119  |

500 rows × 19 columns

```
In [4]: df.describe()
```

Out[4]:

|       | Page total likes | Category   | Post Month | Post Weekday | Post Hour  | Paid       | Lifetime Post Total Reach | Lifetime Post Total Impressions | Lifetime Engaged Users | Lifetime Post Consumers | Lifetime Post Consumptions | Lifetime Post Impressions by people who have liked your Page | Lifetime Post reach by people who like your Page | Lifetime People who have liked your Page and engaged with your post | comment    | like        |       |
|-------|------------------|------------|------------|--------------|------------|------------|---------------------------|---------------------------------|------------------------|-------------------------|----------------------------|--|--|---|------------|-------------|-------|
| count | 500.000000       | 500.000000 | 500.000000 | 500.000000   | 500.000000 | 500.000000 | 499.000000                | 500.000000                      | 5.000000e+02           | 500.000000              | 500.000000                 | 500.000000   | 5.000000e+02                                     | 500.000000  | 500.000000 | 499.000000  | 496.0 |
| mean  | 123194.176000    | 1.880000   | 7.038000   | 4.150000     | 7.840000   | 0.278557   | 13903.36000               | 2.958595e+04                    | 920.344000             | 798.772000              | 1415.130000                | 1.676638e+04   | 6585.488000                                      | 609.986000  | 7.48200    | 177.945892  | 27.2  |
| std   | 16272.813214     | 0.852675   | 3.307936   | 2.030701     | 4.368589   | 0.448739   | 22740.78789               | 7.680325e+04                    | 985.016636             | 882.505013              | 2000.594118                | 5.979102e+04   | 7682.009405                                      | 612.725618  | 21.18091   | 323.398742  | 42.6  |
| min   | 81370.000000     | 1.000000   | 1.000000   | 1.000000     | 1.000000   | 0.000000   | 238.00000                 | 5.700000e+02                    | 9.000000               | 9.000000                |                            |  |  |   |            |             | 0.0   |
| 25%   | 112676.000000    | 1.000000   | 4.000000   | 2.000000     | 3.000000   | 0.000000   | 3315.00000                | 5.694750e+03                    | 393.750000             | 332.500000              | 509.250000                 | 3.969750e+03   | 2181.500000                                      | 291.000000  | 1.00000    | 56.500000   | 10.0  |
| 50%   | 129600.000000    | 2.000000   | 7.000000   | 4.000000     | 9.000000   | 0.000000   | 5281.00000                | 9.051000e+03                    | 625.500000             | 551.500000              | 851.000000                 | 6.255500e+03   | 3417.000000                                      | 412.000000  | 3.00000    | 101.000000  | 19.0  |
| 75%   | 136393.000000    | 3.000000   | 10.000000  | 6.000000     | 11.000000  | 1.000000   | 13168.00000               | 2.208550e+04                    | 1062.000000            | 955.500000              | 1463.000000                | 1.486050e+04   | 7989.000000                                      | 656.250000  | 7.00000    | 187.500000  | 32.2  |
| max   | 139441.000000    | 3.000000   | 12.000000  | 7.000000     | 23.000000  | 1.000000   | 180480.00000              | 1.110282e+06                    | 11452.000000           | 11328.000000            | 19779.000000               | 1.107833e+06   | 51456.000000                                     | 4376.000000   | 372.00000  | 5172.000000 | 790.0 |

```
In [5]: df.shape
```

```
Out[5]: (500, 19)
```

```
In [6]: #creating subsets
df1 = df[['Page total likes','comment','like']].loc[0:12]
df1
```

Out[6]:

|    | Page total likes | comment | like   |
|----|------------------|---------|--------|
| 0  | 139441           | 4       | 79.0   |
| 1  | 139441           | 5       | 130.0  |
| 2  | 139441           | 0       | 66.0   |
| 3  | 139441           | 58      | 1572.0 |
| 4  | 139441           | 19      | 325.0  |
| 5  | 139441           | 1       | 152.0  |
| 6  | 139441           | 3       | 249.0  |
| 7  | 139441           | 0       | 325.0  |
| 8  | 139441           | 0       | 161.0  |
| 9  | 139441           | 3       | 113.0  |
| 10 | 139441           | 0       | 233.0  |
| 11 | 139441           | 0       | 88.0   |
| 12 | 139441           | 0       | 90.0   |

```
In [7]: df2 = df[['Category','Total Interactions','Post Month']].loc[0:12]
df2
```

Out[7]:

|    | Category | Total Interactions | Post Month |
|----|----------|--------------------|------------|
| 0  | 2        | 100                | 12         |
| 1  | 2        | 164                | 12         |
| 2  | 3        | 80                 | 12         |
| 3  | 2        | 1777               | 12         |
| 4  | 2        | 393                | 12         |
| 5  | 2        | 186                | 12         |
| 6  | 3        | 279                | 12         |
| 7  | 3        | 339                | 12         |
| 8  | 2        | 192                | 12         |
| 9  | 3        | 142                | 12         |
| 10 | 2        | 252                | 12         |
| 11 | 2        | 106                | 12         |
| 12 | 2        | 104                | 12         |

```
In [8]: #merging data
df3 = pd.concat([df1,df2])
df3
```

Out[8]:

|    | Page total likes | comment | like   | Category | Total Interactions | Post Month |
|----|------------------|---------|--------|----------|--------------------|------------|
| 0  | 139441.0         | 4.0     | 79.0   | NaN      | NaN                | NaN        |
| 1  | 139441.0         | 5.0     | 130.0  | NaN      | NaN                | NaN        |
| 2  | 139441.0         | 0.0     | 66.0   | NaN      | NaN                | NaN        |
| 3  | 139441.0         | 58.0    | 1572.0 | NaN      | NaN                | NaN        |
| 4  | 139441.0         | 19.0    | 325.0  | NaN      | NaN                | NaN        |
| 5  | 139441.0         | 1.0     | 152.0  | NaN      | NaN                | NaN        |
| 6  | 139441.0         | 3.0     | 249.0  | NaN      | NaN                | NaN        |
| 7  | 139441.0         | 0.0     | 325.0  | NaN      | NaN                | NaN        |
| 8  | 139441.0         | 0.0     | 161.0  | NaN      | NaN                | NaN        |
| 9  | 139441.0         | 3.0     | 113.0  | NaN      | NaN                | NaN        |
| 10 | 139441.0         | 0.0     | 233.0  | NaN      | NaN                | NaN        |
| 11 | 139441.0         | 0.0     | 88.0   | NaN      | NaN                | NaN        |
| 12 | 139441.0         | 0.0     | 90.0   | NaN      | NaN                | NaN        |
| 0  | NaN              | NaN     | NaN    | 2.0      | 100.0              | 12.0       |
| 1  | NaN              | NaN     | NaN    | 2.0      | 164.0              | 12.0       |
| 2  | NaN              | NaN     | NaN    | 3.0      | 80.0               | 12.0       |
| 3  | NaN              | NaN     | NaN    | 2.0      | 1777.0             | 12.0       |
| 4  | NaN              | NaN     | NaN    | 2.0      | 393.0              | 12.0       |
| 5  | NaN              | NaN     | NaN    | 2.0      | 186.0              | 12.0       |
| 6  | NaN              | NaN     | NaN    | 3.0      | 279.0              | 12.0       |
| 7  | NaN              | NaN     | NaN    | 3.0      | 339.0              | 12.0       |
| 8  | NaN              | NaN     | NaN    | 2.0      | 192.0              | 12.0       |
| 9  | NaN              | NaN     | NaN    | 3.0      | 142.0              | 12.0       |
| 10 | NaN              | NaN     | NaN    | 2.0      | 252.0              | 12.0       |
| 11 | NaN              | NaN     | NaN    | 2.0      | 106.0              | 12.0       |
| 12 | NaN              | NaN     | NaN    | 2.0      | 104.0              | 12.0       |

```
In [9]: #Sorting data
sorting = df1.sort_values('comment',ascending=False)
sorting
```

Out[9]:

|    | Page total likes | comment | like   |
|----|------------------|---------|--------|
| 3  | 139441           | 58      | 1572.0 |
| 4  | 139441           | 19      | 325.0  |
| 1  | 139441           | 5       | 130.0  |
| 0  | 139441           | 4       | 79.0   |
| 6  | 139441           | 3       | 249.0  |
| 9  | 139441           | 3       | 113.0  |
| 5  | 139441           | 1       | 152.0  |
| 2  | 139441           | 0       | 66.0   |
| 7  | 139441           | 0       | 325.0  |
| 8  | 139441           | 0       | 161.0  |
| 10 | 139441           | 0       | 233.0  |
| 11 | 139441           | 0       | 88.0   |
| 12 | 139441           | 0       | 90.0   |

```
In [10]: sorting.sort_values('comment',ascending=True)
```

Out[10]:

|    | Page total likes | comment | like   |
|----|------------------|---------|--------|
| 2  | 139441           | 0       | 66.0   |
| 7  | 139441           | 0       | 325.0  |
| 8  | 139441           | 0       | 161.0  |
| 10 | 139441           | 0       | 233.0  |
| 11 | 139441           | 0       | 88.0   |
| 12 | 139441           | 0       | 90.0   |
| 5  | 139441           | 1       | 152.0  |
| 6  | 139441           | 3       | 249.0  |
| 9  | 139441           | 3       | 113.0  |
| 0  | 139441           | 4       | 79.0   |
| 1  | 139441           | 5       | 130.0  |
| 4  | 139441           | 19      | 325.0  |
| 3  | 139441           | 58      | 1572.0 |

```
In [11]: #transpose
transpose = df.transpose()
transpose
```

Out[11]:

|  |   | 0      | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | ... | 490   | 491   | 492   | 493   | 494   | 495   | 496   | 497   | 498   | 499   |
|--|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|  | Page total likes  | 139441 | 139441 | 139441 | 139441 | 139441 | 139441 | 139441 | 139441 | 139441 | 139441 | ... | 85979 | 85979 | 85979 | 85093 | 85093 | 85093 | 81370 | 81370 | 81370 | 81370 |
|  | Type  | Photo  | Status | Photo  | Photo  | Photo  | Status | Photo  | Photo  | Status | Photo  | ... | Photo | Photo | Link  | Photo | Photo | Photo | Photo | Photo | Photo | Photo |
|  | Category  | 2      | 2      | 3      | 2      | 2      | 2      | 3      | 3      | 2      | 3      | ... | 3     | 3     | 1     | 3     | 3     | 3     | 2     | 1     | 3     | 2     |
|  | Post Month  | 12     | 12     | 12     | 12     | 12     | 12     | 12     | 12     | 12     | 12     | ... | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
|  | Post Weekday  | 4      | 3      | 3      | 2      | 2      | 1      | 1      | 7      | 7      | 6      | ... | 6     | 6     | 5     | 1     | 7     | 7     | 5     | 5     | 4     | 4     |
|  | Post Hour   | 3      | 10     | 3      | 10     | 3      | 9      | 3      | 9      | 3      | 10     | ... | 11    | 3     | 11    | 2     | 10    | 2     | 8     | 2     | 11    | 4     |
|  | Paid  | 0.0    | 0.0    | 0.0    | 1.0    | 0.0    | 0.0    | 1.0    | 1.0    | 0.0    | 0.0    | ... | 0.0   | 1.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | NaN   |
|  | Lifetime Post Total Reach   | 2752   | 10460  | 2413   | 50128  | 7244   | 10472  | 11692  | 13720  | 11844  | 4694   | ... | 5280  | 6184  | 45920 | 8412  | 5400  | 4684  | 3480  | 3778  | 4156  | 4188  |
|  | Lifetime Post Total Impressions                                     | 5091   | 19057  | 4373   | 87991  | 13594  | 20849  | 19479  | 24137  | 22538  | 8668   | ... | 8703  | 10228 | 5808  | 13960 | 9218  | 7536  | 6229  | 7216  | 7564  | 7292  |
|  | Lifetime Engaged Users  | 178    | 1457   | 177    | 2211   | 671    | 1191   | 481    | 537    | 1530   | 280    | ... | 951   | 956   | 753   | 1179  | 810   | 733   | 537   | 625   | 626   | 564   |
|  | Lifetime Post Consumers   | 109    | 1361   | 113    | 790    | 410    | 1073   | 265    | 232    | 1407   | 183    | ... | 911   | 901   | 655   | 1111  | 756   | 708   | 508   | 572   | 574   | 524   |
|  | Lifetime Post Consumptions  | 159    | 1674   | 154    | 1119   | 580    | 1389   | 364    | 305    | 1692   | 250    | ... | 1237  | 1140  | 763   | 1632  | 1003  | 985   | 687   | 795   | 832   | 743   |
|  | Lifetime Post Impressions by people who have liked your Page        | 3078   | 11710  | 2812   | 61027  | 6228   | 16034  | 15432  | 19728  | 15220  | 4309   | ... | 5757  | 6085  | 15766 | 8632  | 5654  | 4750  | 3961  | 4742  | 4534  | 3861  |
|  | Lifetime Post reach by people who like your Page                    | 1640   | 6112   | 1503   | 32048  | 3200   | 7852   | 9328   | 11056  | 7912   | 2324   | ... | 3300  | 3502  | 10720 | 5348  | 3230  | 2876  | 2104  | 2388  | 2452  | 2200  |
|  | Lifetime People who have liked your Page and engaged with your post | 119    | 1108   | 132    | 1386   | 396    | 1016   | 379    | 422    | 1250   | 199    | ... | 431   | 437   | 220   | 699   | 422   | 392   | 301   | 363   | 370   | 316   |
|  | comment   | 4      | 5      | 0      | 58     | 19     | 1      | 3      | 0      | 0      | 3      | ... | 1     | 1     | 0     | 17    | 10    | 5     | 0     | 4     | 7     | 0     |
|  | like  | 79.0   | 130.0  | 66.0   | 1572.0 | 325.0  | 152.0  | 249.0  | 325.0  | 161.0  | 113.0  | ... | 79.0  | 105.0 | 128.0 | 185.0 | 125.0 | 53.0  | 53.0  | 93.0  | 91.0  | 91.0  |
|  | share   | 17.0   | 29.0   | 14.0   | 147.0  | 49.0   | 33.0   | 27.0   | 14.0   | 31.0   | 26.0   | ... | 30.0  | 46.0  | 9.0   | 55.0  | 41.0  | 26.0  | 22.0  | 18.0  | 38.0  | 28.0  |
|  | Total Interactions  | 100    | 164    | 80     | 1777   | 393    | 186    | 279    | 339    | 192    | 142    | ... | 110   | 152   | 137   | 257   | 176   | 84    | 75    | 115   | 136   | 119   |

```
19 rows × 500 columns
```

```
In [12]: #shape and reshape
shape=df.shape
shape
```

```
Out[12]: (500, 19)
```

```
In [14]: #reshape
x = np.array([[ 'a','b','c'],[1,2,3]]) #created an array to reshape it
x
```

```
Out[1
```