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

In [2]:
```
df=pd.read_excel('facebook_metrics.xlsx')
df
```

Out[2]:

	Page total likes	Type	Category	Post Month	Post Weekday	Post Hour	Paid	Lifetime Post Total Reach	Lifetime Post Total Impressions	Lifetime Engaged Users
0	139441	Photo	2	12	4	3	0.0	2752	5091	178
1	139441	Status	2	12	3	10	0.0	10460	19057	1457
2	139441	Photo	3	12	3	3	0.0	2413	4373	177
3	139441	Photo	2	12	2	10	1.0	50128	87991	2211
4	139441	Photo	2	12	2	3	0.0	7244	13594	671
...	...	...	...	...	...	...	...	...	...	...
495	85093	Photo	3	1	7	2	0.0	4684	7536	733
496	81370	Photo	2	1	5	8	0.0	3480	6229	537
497	81370	Photo	1	1	5	2	0.0	3778	7216	625
498	81370	Photo	3	1	4	11	0.0	4156	7564	626
499	81370	Photo	2	1	4	4	NaN	4188	7292	564

500 rows × 19 columns

In [3]:
```
#display total rows and columns in the dataset
df.shape
```

Out[3]:
```
(500, 19)
```

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

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 500 entries, 0 to 499
Data columns (total 19 columns):
 #   Column
Non-Null Count  Dtype
---  ------
--------------  -----
 0   Page total likes
500 non-null    int64
 1   Type
500 non-null    object
 2   Category
500 non-null    int64
 3   Post Month
500 non-null    int64
 4   Post Weekday
500 non-null    int64
 5   Post Hour
500 non-null    int64
 6   Paid
499 non-null    float64
 7   Lifetime Post Total Reach
500 non-null    int64
 8   Lifetime Post Total Impressions
500 non-null    int64
 9   Lifetime Engaged Users
500 non-null    int64
 10  Lifetime Post Consumers
500 non-null    int64
 11  Lifetime Post Consumptions
500 non-null    int64
 12  Lifetime Post Impressions by people who have liked your Page
500 non-null    int64
 13  Lifetime Post reach by people who like your Page
500 non-null    int64
 14  Lifetime People who have liked your Page and engaged with your post
500 non-null    int64
 15  comment
500 non-null    int64
 16  like
499 non-null    float64
 17  share
496 non-null    float64
 18  Total Interactions
500 non-null    int64
dtypes: float64(3), int64(15), object(1)
memory usage: 74.3+ KB
```

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

Out[5]:
```
Index(['Page total likes', 'Type', 'Category', 'Post Month', 'Post Weekda
y',
       '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 pos
t',
       'comment', 'like', 'share', 'Total Interactions'],
      dtype='object')
```

In [6]:
```
# a.Creating data subsets
# subset 1
df1=df[['Page total likes', 'Type', 'Category', 'Post Month', 'Post Weekday
df1
```

Out[6]:

	Page total likes	Type	Category	Post Month	Post Weekday
0	139441	Photo	2	12	4
1	139441	Status	2	12	3
2	139441	Photo	3	12	3
3	139441	Photo	2	12	2
4	139441	Photo	2	12	2
5	139441	Status	2	12	1
6	139441	Photo	3	12	1
7	139441	Photo	3	12	7
8	139441	Status	2	12	7
9	139441	Photo	3	12	6

In [7]:
```
# subset 2
df2=df[['Page total likes', 'Type', 'Category', 'Post Month', 'Post Weekday
df2
```

Out[7]:

	Page total likes	Type	Category	Post Month	Post Weekday
10	139441	Status	2	12	5
11	139441	Photo	2	12	5
12	139441	Photo	2	12	5
13	139441	Photo	2	12	5
14	138414	Photo	2	12	4
15	138414	Status	2	12	3
16	138414	Photo	3	12	3
17	138414	Photo	1	12	2
18	138414	Status	3	12	2
19	138414	Photo	3	12	1

In [8]:
```
# subset 3
df3=df[['Page total likes', 'Type', 'Category', 'Post Month', 'Post Weekday
df3
```

Out[8]:

	Page total likes	Type	Category	Post Month	Post Weekday
20	138414	Photo	2	12	1
21	138414	Photo	1	12	7
22	138414	Link	1	12	7
23	138414	Photo	3	12	7
24	138414	Status	2	12	6
25	138458	Status	2	12	6
26	138458	Status	2	12	5
27	138458	Photo	3	12	5
28	138895	Photo	2	12	5
29	138895	Video	1	12	4

In [9]:
```
#b. merging all the data subsets 1,2,3
merged_data = pd.concat([df1,df2,df3])
merged_data
```

Out[9]:

	Page total likes	Type	Category	Post Month	Post Weekday
0	139441	Photo	2	12	4
1	139441	Status	2	12	3
2	139441	Photo	3	12	3
3	139441	Photo	2	12	2
4	139441	Photo	2	12	2
5	139441	Status	2	12	1
6	139441	Photo	3	12	1
7	139441	Photo	3	12	7
8	139441	Status	2	12	7
9	139441	Photo	3	12	6
10	139441	Status	2	12	5
11	139441	Photo	2	12	5
12	139441	Photo	2	12	5
13	139441	Photo	2	12	5
14	138414	Photo	2	12	4
15	138414	Status	2	12	3
16	138414	Photo	3	12	3
17	138414	Photo	1	12	2
18	138414	Status	3	12	2
19	138414	Photo	3	12	1
20	138414	Photo	2	12	1
21	138414	Photo	1	12	7
22	138414	Link	1	12	7
23	138414	Photo	3	12	7
24	138414	Status	2	12	6
25	138458	Status	2	12	6
26	138458	Status	2	12	5
27	138458	Photo	3	12	5
28	138895	Photo	2	12	5
29	138895	Video	1	12	4

In [10]:
```
#c. sorting data
sorted_data = df.sort_values('Page total likes', ascending = False)
sorted_data
```

Out[10]:

	Page total likes	Type	Category	Post Month	Post Weekday	Post Hour	Paid	Lifetime Post Total Reach	Lifetime Post Total Impressions	Lifetime Engaged Users
0	139441	Photo	2	12	4	3	0.0	2752	5091	178
8	139441	Status	2	12	7	3	0.0	11844	22538	1530
1	139441	Status	2	12	3	10	0.0	10460	19057	1457
12	139441	Photo	2	12	5	10	0.0	2847	5133	193
11	139441	Photo	2	12	5	10	0.0	3112	5590	208
...	...	...	...	...	...	...	...	...	...	...
495	85093	Photo	3	1	7	2	0.0	4684	7536	733
496	81370	Photo	2	1	5	8	0.0	3480	6229	537
497	81370	Photo	1	1	5	2	0.0	3778	7216	625
498	81370	Photo	3	1	4	11	0.0	4156	7564	626
499	81370	Photo	2	1	4	4	NaN	4188	7292	564

500 rows × 19 columns

In [11]:
```
#d. transposing data
df.transpose()
```

Out[11]:

	0	1	2	3	4	5	6	7	8	
Page total likes	139441	139441	139441	139441	139441	139441	139441	139441	139441	1
Type	Photo	Status	Photo	Photo	Photo	Status	Photo	Photo	Status	
Category	2	2	3	2	2	2	3	3	2	
Post Month	12	12	12	12	12	12	12	12	12	
Post Weekday	4	3	3	2	2	1	1	7	7	
Post Hour	3	10	3	10	3	9	3	9	3	
Paid	0.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	
Lifetime Post Total Reach	2752	10460	2413	50128	7244	10472	11692	13720	11844	
Lifetime Post Total Impressions	5091	19057	4373	87991	13594	20849	19479	24137	22538	
Lifetime Engaged Users	178	1457	177	2211	671	1191	481	537	1530	
Lifetime Post Consumers	109	1361	113	790	410	1073	265	232	1407	
Lifetime Post Consumptions	159	1674	154	1119	580	1389	364	305	1692	
Lifetime Post Impressions by people who have liked your Page	3078	11710	2812	61027	6228	16034	15432	19728	15220	
Lifetime Post reach by people who like your Page	1640	6112	1503	32048	3200	7852	9328	11056	7912	
Lifetime People who have liked your Page and engaged with your post	119	1108	132	1386	396	1016	379	422	1250	
comment	4	5	0	58	19	1	3	0	0	
like	79.0	130.0	66.0	1572.0	325.0	152.0	249.0	325.0	161.0	
share	17.0	29.0	14.0	147.0	49.0	33.0	27.0	14.0	31.0	
Total Interactions	100	164	80	1777	393	186	279	339	192	

19 rows × 500 columns

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

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

In [13]:
```
#reshape data
pivot_table = pd.pivot_table(df, index=['Type', 'Category'],values='comment
print(pivot_table)
```

```
                  comment
Type   Category
Link   1          2.900000
       2          2.000000
       3          2.000000
Photo  1          5.897297
       2         11.692308
       3          6.913333
Status 1          4.333333
       2          9.921053
       3          2.750000
Video  1         12.285714
```

In [14]:
```
#extra command to reshape data using array
reshaping_array=np.array([1,2,3,4,5,6,7,8])
reshaping_array.reshape(4,2)
```

Out[14]:
```
array([[1, 2],
       [3, 4],
       [5, 6],
       [7, 8]])
```

In [ ]:
```

```