Perform the following operations using Python on the Facebook metrics data sets:

a. Create data subsets b. Merge Data c. Sort Data (Ascending Order) d. Transposing Data e. Shape Data

In [4]:

```
import pandas as pd
import numpy as np
```

In [10]:

```
#Reading Dataset:
df = pd.read_csv('dataset_Facebook.csv',sep=';')
```

In [11]:

```
df
```

Out[11]:

	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

a. Create data subsets

a.1 Create a subset of a Python Dataframe using the loc() Function:

In [12]:

```
#Extract data of specific rows of a dataframe:
df.loc[[0,1,3]]
```

Out[12]:

	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
3	139441	Photo	2	12	2	10	1.0	50128	87991	2211

In [15]:

```
#Create a subset of rows using slicing:
df.loc[0:5:10]
```

Out[15]:

	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

In [16]:

```
#Create a subset of particular columns using Labels:
df.loc[0:5,['Type','Post Month']]
```

Out[16]:

	Type	Post Month
0	Photo	12
1	Status	12
2	Photo	12
3	Photo	12
4	Photo	12
5	Status	12

a.2 iloc() function to create a subset of dataframe:

In [19]:

```
df.iloc[0:5,[0,5]]
```

Out[19]:

	Page total likes	Post Hour
0	139441	3
1	139441	10
2	139441	3
3	139441	10
4	139441	3

a.3 Indexing operator to create a subset of a dataframe:

In [20]:

```
df[['Page total likes','Type','Category','comment']]
```

Out[20]:

	Page total likes	Type	Category	comment
0	139441	Photo	2	4
1	139441	Status	2	5
2	139441	Photo	3	0
3	139441	Photo	2	58
4	139441	Photo	2	19
...	...	...	...	...
495	85093	Photo	3	5
496	81370	Photo	2	0
497	81370	Photo	1	4
498	81370	Photo	3	7
499	81370	Photo	2	0

500 rows × 4 columns

b. Merge Data

In [21]:

```
df1 = df[['Page total likes','Type','Category','comment']]
df1
```

Out[21]:

	Page total likes	Type	Category	comment
0	139441	Photo	2	4
1	139441	Status	2	5
2	139441	Photo	3	0
3	139441	Photo	2	58
4	139441	Photo	2	19
...	...	...	...	...
495	85093	Photo	3	5
496	81370	Photo	2	0
497	81370	Photo	1	4
498	81370	Photo	3	7
499	81370	Photo	2	0

500 rows × 4 columns

In [22]:

```
df2 = df[['Post Month','Post Weekday','Post Hour','Paid']]
df2
```

Out[22]:

	Post Month	Post Weekday	Post Hour	Paid
0	12	4	3	0.0
1	12	3	10	0.0
2	12	3	3	0.0
3	12	2	10	1.0
4	12	2	3	0.0
...	...	...	...	...
495	1	7	2	0.0
496	1	5	8	0.0
497	1	5	2	0.0
498	1	4	11	0.0
499	1	4	4	NaN

500 rows × 4 columns

In [24]:

```
pd.concat([df1,df2])
```

Out[24]:

	Page total likes	Type	Category	comment	Post Month	Post Weekday	Post Hour	Paid
0	139441.0	Photo	2.0	4.0	NaN	NaN	NaN	NaN
1	139441.0	Status	2.0	5.0	NaN	NaN	NaN	NaN
2	139441.0	Photo	3.0	0.0	NaN	NaN	NaN	NaN
3	139441.0	Photo	2.0	58.0	NaN	NaN	NaN	NaN
4	139441.0	Photo	2.0	19.0	NaN	NaN	NaN	NaN
...	...	...	...	...	...	...	...	...
495	NaN	NaN	NaN	NaN	1.0	7.0	2.0	0.0
496	NaN	NaN	NaN	NaN	1.0	5.0	8.0	0.0
497	NaN	NaN	NaN	NaN	1.0	5.0	2.0	0.0
498	NaN	NaN	NaN	NaN	1.0	4.0	11.0	0.0
499	NaN	NaN	NaN	NaN	1.0	4.0	4.0	NaN

1000 rows × 8 columns

c. Sort Data (Ascending Order)

In [25]:

```
df.sort_values(by=['Category'])
```

Out[25]:

	Page total likes	Type	Category	Post Month	Post Weekday	Post Hour	Paid	Lifetime Post Total Reach	Lifetime Post Total Impressions	Lifetime Engaged Users
128	136393	Photo	1	10	6	13	0.0	645	1117	195
144	136013	Photo	1	10	2	3	1.0	50736	140432	1462
145	136013	Photo	1	10	1	10	1.0	5324	11040	528
402	107907	Photo	1	4	3	4	1.0	39568	47128	741
401	107907	Photo	1	4	3	13	1.0	46192	80227	1364
...	...	...	...	...	...	...	...	...	...	...
356	116435	Photo	3	5	1	13	0.0	4202	7633	562
359	116091	Photo	3	5	7	2	0.0	6984	12066	780
361	116091	Photo	3	5	6	3	0.0	3332	5797	463
143	136013	Photo	3	10	2	10	1.0	16776	39549	714
162	135617	Photo	3	9	6	10	0.0	7512	13633	769

500 rows × 19 columns

d. Transposing Data

In [26]:

```
df.transpose()
```

Out[26]:

	0	1	2	3	4	5	6	7	8	
Page total likes	139441	139441	139441	139441	139441	139441	139441	139441	139441	13
Type	Photo	Status	Photo	Photo	Photo	Status	Photo	Photo	Status	I
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

e. Shape Data

In [27]:

```
df.shape
```

Out[27]:

```
(500, 19)
```