

```

import pandas as pd
import numpy as np
data = pd.read_csv("dataset_Facebook.csv", delimiter=';')
#, '\s*,\s*', header=0, encoding='ascii', engine='python')
#create data subsets or slicing
#print(data.columns.tolist())
print(data.head())
cols=data[0:3] # extract first 3 rows index starts at 0
print(cols.head())
index = data.index
print('index is' + str(index))
cols = data.columns
print(data.iloc[53:]) # extract row 3 & 4
print(data.iloc[:5]) # first 5 rows
print(data.iloc[0:3,1:4])# Three rows and cols from 1 to 3
print(data.iloc[[2,5,6]]) # display specific rows
print(data.iloc[:,2])# all rows and column no 2
print(data.loc[[2, 4, 5], ['Type', 'Category']])
print('no of cols'+str(len(data.columns)))

```

Hour	Page	total	likes	Type	Category	Post	Month	Post	Weekday	Post
0		139441		Photo		2		12		4
3		139441		Status		2		12		3
1		139441		Photo		3		12		3
10		139441		Photo		2		12		2
2		139441		Photo		2		12		2
3		139441		Photo		2		12		2
10		139441		Photo		2		12		2
4		139441		Photo		2		12		2
3		139441		Photo		2		12		2

	Paid	Lifetime Post	Total	Reach	Lifetime Post	Total	Impressions	\
0	0.0			2752			5091	
1	0.0			10460			19057	
2	0.0			2413			4373	
3	1.0			50128			87991	
4	0.0			7244			13594	

	Lifetime Engaged Users	Lifetime Post Consumers	\
0	178	109	
1	1457	1361	
2	177	113	
3	2211	790	
4	671	410	

	Lifetime Post Consumptions	\
0	159	
1	1674	

2 154  
3 1119  
4 580

Lifetime Post Impressions by people who have liked your Page \\\n0 3078  
1 11710  
2 2812  
3 61027  
4 6228

Lifetime Post reach by people who like your Page \\\n0 1640  
1 6112  
2 1503  
3 32048  
4 3200

Lifetime People who have liked your Page and engaged with your post\\\n0 119  
1 1108  
2 132  
3 1386  
4 396

	comment	like	share	Total Interactions
0	4	79.0	17.0	100
1	5	130.0	29.0	164
2	0	66.0	14.0	80
3	58	1572.0	147.0	1777
4	19	325.0	49.0	393

  

	Page total likes	Type	Category	Post Month	Post Weekday	Post Hour
0	139441	Photo	2	12		4
3						
1	139441	Status	2	12		3
10						
2	139441	Photo	3	12		3
3						

	Paid	Lifetime Post Total Reach	Lifetime Post Total Impressions \\\n
0	0.0	2752	5091
1	0.0	10460	19057

2	0.0	2413	4373					
0	Lifetime Engaged Users	178	109					
1		1457	1361					
2		177	113					
0	Lifetime Post Consumptions	159						
1		1674						
2		154						
0	Lifetime Post Impressions by people who have liked your Page	3078						
1		11710						
2		2812						
0	Lifetime Post reach by people who like your Page	1640						
1		6112						
2		1503						
0	Lifetime People who have liked your Page and engaged with your post	119						
1		1108						
2		132						
0	comment	like	share	Total Interactions				
1	4	79.0	17.0	100				
2	5	130.0	29.0	164				
3	0	66.0	14.0	80				
4	index isRangeIndex(start=0, stop=500, step=1)							
5	Page total	likes	Type	Category	Post Month	Post Weekday	Post Hour	
6	139441		Photo		2	12	2	
7	139441		Photo		2	12	2	
8	Paid	Lifetime Post Total	Reach	Lifetime Post Total	Impressions	\		
9	1.0		50128		87991			
10	0.0		7244		13594			
11	Lifetime Engaged Users	2211	Lifetime Post Consumers	790	\			

4	671	410	
3	Lifetime Post Consumptions \		
4	1119		
	580		
3	Lifetime Post Impressions by people who have liked your Page \		
4	61027		
	6228		
3	Lifetime Post reach by people who like your Page \		
4	32048		
	3200		
3	Lifetime People who have liked your Page and engaged with your post \		
4	1386		
		396	
3	comment like share Total Interactions		
4	58 1572.0 147.0 1777		
	19 325.0 49.0 393		
Hour	Page total likes	Type Category Post Month Post Weekday Post	
0	139441	Photo 2	12 4
3	139441	Status 2	12 3
1	139441	Photo 3	12 3
10	139441	Photo 2	12 2
2	139441	Photo 2	12 2
3	139441	Photo 2	12 2
10	139441	Photo 2	12 2
4	139441	Photo 2	12 2
3			
0	Paid Lifetime Post Total Reach	Lifetime Post Total Impressions \	
1	0.0 2752	5091	
2	0.0 10460	19057	
3	0.0 2413	4373	
4	1.0 50128	87991	
	0.0 7244	13594	
0	Lifetime Engaged Users	Lifetime Post Consumers \	
1	178	109	
2	1457	1361	
3	177	113	
	2211	790	

4	671	410
	Lifetime Post Consumptions \	
0	159	
1	1674	
2	154	
3	1119	
4	580	
	Lifetime Post Impressions by people who have liked your Page \	
0	3078	
1	11710	
2	2812	
3	61027	
4	6228	
	Lifetime Post reach by people who like your Page \	
0	1640	
1	6112	
2	1503	
3	32048	
4	3200	
	Lifetime People who have liked your Page and engaged with your post \	
0	119	
1	1108	
2	132	
3	1386	
4	396	
	comment like share Total Interactions	
0	4 79.0 17.0 100	
1	5 130.0 29.0 164	
2	0 66.0 14.0 80	
3	58 1572.0 147.0 1777	
4	19 325.0 49.0 393	
	Type Category Post Month	
0	Photo 2 12	
1	Status 2 12	
2	Photo 3 12	
	Page total likes Type Category Post Month Post Weekday Post	
Hour \		
2	139441 Photo 3 12 3	

3	139441	Status	2	12	1	
5	139441	Photo	3	12	1	
9						
6	Paid	Lifetime Post Total Reach	Lifetime Post Total Impressions	\		
3	0.0	2413	4373			
2	0.0	10472	20849			
5	1.0	11692	19479			
6						
2	Lifetime Engaged Users	Lifetime Post Consumers	\			
5	177	113				
6	1191	1073				
2	481	265				
5						
6						
2	Lifetime Post Consumptions	\				
5	154					
6	1389					
2	364					
5						
6						
2	Lifetime Post Impressions by people who have liked your Page	\				
5	2812					
6	16034					
2	15432					
5						
6						
2	Lifetime Post reach by people who like your Page	\				
5	1503					
6	7852					
2	9328					
5						
6						
2	Lifetime People who have liked your Page and engaged with your post	\				
5	132					
6	1016					
2	379					
5						
6						
2	comment	like	share	Total Interactions		
5	0	66.0	14.0	80		
6	1	152.0	33.0	186		
0	3	249.0	27.0	279		
1	2					
2	2					
3	3					
4	2					

```

495      .
496      3
497      2
498      1
499      3
500      2
Name: Category, Length: 500, dtype: int64
    Type   Category
2   Photo        3
4   Photo        2
5  Status        2
no of cols19

ldataset = data.iloc[:,0:10]
ldataset[['Paid', 'Category']]
#print(ldataset.loc[[2,3,4],['Paid', 'Category']])
rdataset = data.iloc[:,9:20]
print(rdataset.head())
#merge operation on common column
merge_result = pd.merge(ldataset,rdataset[['Lifetime Engaged
Users','Lifetime Post Consumers']],on='Lifetime Engaged Users')
print(merge_result.head())
common_values = ldataset['Lifetime Engaged
Users'].isin(rdataset['Lifetime Engaged Users']).value_counts()
print (common_values)
# merge left join

leftjoin = pd.merge(ldataset,rdataset[['Lifetime Engaged
Users','Lifetime Post Consumers']],on='Lifetime Engaged
Users',how='left')
print ("Left join")
print (leftjoin.head())
rightjoin = pd.merge(ldataset,rdataset[['Lifetime Engaged
Users','Lifetime Post Consumers']],on='Lifetime Engaged
Users',how='right')
# merge right join
print (rightjoin.head())
outerjoin = pd.merge(ldataset,rdataset[['Lifetime Engaged
Users','Lifetime Post Consumers']],on='Lifetime Engaged
Users',how='outer')
# merge outer join
print (outerjoin.head())
innerjoin = pd.merge(ldataset,rdataset[['Lifetime Engaged
Users','Lifetime Post Consumers']],on='Lifetime Engaged
Users',how='inner')
# merge inner join
print (innerjoin.head())

    Lifetime Engaged Users  Lifetime Post Consumers  \
0                      178                      109

```

1	1457	1361
2	177	113
3	2211	790
4	671	410

Lifetime Post Consumptions \

0	159
1	1674
2	154
3	1119
4	580

Lifetime Post Impressions by people who have liked your Page \

0	3078
1	11710
2	2812
3	61027
4	6228

Lifetime Post reach by people who like your Page \

0	1640
1	6112
2	1503
3	32048
4	3200

Lifetime People who have liked your Page and engaged with your post \

0	119
1	1108
2	132
3	1386
4	396

	comment	like	share	Total Interactions
0	4	79.0	17.0	100
1	5	130.0	29.0	164
2	0	66.0	14.0	80
3	58	1572.0	147.0	1777
4	19	325.0	49.0	393

Page total likes      Type   Category   Post Month   Post Weekday   Post Hour \

0	139441	Photo	2	12	4
3					

```

1          139441 Status      2       12       3
10
2          139441 Photo       3       12       3
3
3          139441 Photo       2       12       2
10
4          139441 Photo       2       12       2
3

   Paid  Lifetime Post Total Reach  Lifetime Post Total Impressions \
0    0.0           2752                  5091
1    0.0           10460                 19057
2    0.0           2413                  4373
3    1.0           50128                 87991
4    0.0           7244                  13594

Lifetime Engaged Users  Lifetime Post Consumers
0                      178                  109
1                     1457                 1361
2                      177                  113
3                     2211                  790
4                      671                  410
True      500
Name: Lifetime Engaged Users, dtype: int64
Left join
  Page total likes      Type Category Post Month Post Weekday Post
Hour \
0          139441 Photo       2       12       4
3
1          139441 Status      2       12       3
10
2          139441 Photo       3       12       3
3
3          139441 Photo       2       12       2
10
4          139441 Photo       2       12       2
3

   Paid  Lifetime Post Total Reach  Lifetime Post Total Impressions \
0    0.0           2752                  5091
1    0.0           10460                 19057
2    0.0           2413                  4373
3    1.0           50128                 87991
4    0.0           7244                  13594

Lifetime Engaged Users  Lifetime Post Consumers
0                      178                  109
1                     1457                 1361
2                      177                  113
3                     2211                  790

```

4	Page total likes	671	Type	Category	Post Month	410	Post Weekday	Post
Hour \								
0	139441	Photo		2	12		4	
3								
1	139441	Status		2	12		3	
10								
2	139441	Photo		3	12		3	
3								
3	139441	Photo		2	12		2	
10								
4	139441	Photo		2	12		2	
3								

Paid	Lifetime Post Total Reach	Lifetime Post Total Impressions	\
0 0.0	2752	5091	
1 0.0	10460	19057	
2 0.0	2413	4373	
3 1.0	50128	87991	
4 0.0	7244	13594	

Lifetime Engaged Users	Lifetime Post Consumers
0 178	109
1 1457	1361
2 177	113
3 2211	790
4 671	410

4	Page total likes	671	Type	Category	Post Month	410	Post Weekday	Post
Hour \								
0	139441	Photo		2	12		4	
3								
1	139441	Status		2	12		3	
10								
2	139441	Photo		3	12		3	
3								
3	139441	Photo		2	12		2	
10								
4	139441	Photo		2	12		2	
3								

Paid	Lifetime Post Total Reach	Lifetime Post Total Impressions	\
0 0.0	2752	5091	
1 0.0	10460	19057	
2 0.0	2413	4373	
3 1.0	50128	87991	
4 0.0	7244	13594	

Lifetime Engaged Users	Lifetime Post Consumers
0 178	109
1 1457	1361

```

2          177          113
3          2211         790
4          671          410
Page total likes    Type   Category Post Month Post Weekday Post
Hour \
0          139441 Photo      2        12           4
3          139441 Status     2        12           3
10         139441 Photo      3        12           3
2          139441 Photo      2        12           2
3          139441 Photo      2        12           2
10         139441 Photo      2        12           2
4          139441 Photo      2        12           2
3          139441 Photo      2        12           2

Paid  Lifetime Post Total Reach  Lifetime Post Total Impressions \
0    0.0          2752
1    0.0          10460
2    0.0          2413
3    1.0          50128
4    0.0          7244          5091
19057
4373
87991
13594

Lifetime Engaged Users  Lifetime Post Consumers
0          178          109
1          1457         1361
2          177          113
3          2211         790
4          671          410

## by default in ascending order on particular column value
sorted_data = data.sort_values('Lifetime Post Total Reach')
print(sorted_data.head(n=3))
# in descending order
desc_sorted_data = data.sort_values('Lifetime Post Total
Reach', ascending=False)
print(desc_sorted_data.head(n=3))

data.sort_values('Lifetime Post Total
Reach', inplace=True, ascending=False)
data.sort_index(inplace=True) # sort the dataframe using row index on
which dataframe is already sorted

Page total likes    Type   Category Post Month Post Weekday Post
Hour \
422         102112 Photo      1        3           1
19          100732 Photo      1        3           7
426         100732 Photo      1        3           6
18          100732 Photo      1        3           6
432         100732 Photo      1        3           6

```

17

	Paid	Lifetime Post Total Reach	Lifetime Post Total Impressions
\			
422	0.0	238	570
426	0.0	391	746
432	0.0	452	726

	Lifetime Engaged Users	Lifetime Post Consumers	\
422	143	142	
426	131	130	
432	186	184	

	Lifetime Post Consumptions	\
422	834	
426	766	
432	889	

	Lifetime Post Impressions by people who have liked your Page	\
422	567	
426	723	
432	721	

	Lifetime Post reach by people who like your Page	\
422	236	
426	380	
432	450	

post	Lifetime People who have liked your Page and engaged with your post	\
422	99	
426	93	
432	114	

	comment	like	share	Total Interactions
422	0	2.0	0.0	2
426	0	6.0	1.0	7
432	0	4.0	1.0	5

Hour	Page total likes	Type	Category	Post Month	Post Weekday	Post
244	130791	Photo	2	7		3
5						
464	92079	Photo	1	2		6

13						
463	92186	Photo	3	2	7	
2						
	Paid	Lifetime Post Total Reach	Lifetime Post Total Impressions			
\						
244	1.0	180480	319133			
464	0.0	158208	453213			
463	1.0	153536	497910			
	Lifetime Engaged Users	Lifetime Post Consumers	\			
244	8072	4010				
464	2482	2319				
463	1713	1633				
	Lifetime Post Consumptions	\				
244	6242					
464	3412					
463	2493					
	Lifetime Post Impressions by people who have liked your Page	\				
244		108752				
464		81938				
463		8907				
	Lifetime Post reach by people who like your Page	\				
244		51456				
464		20608				
463		5696				
	Lifetime People who have liked your Page and engaged with your post	\				
244		3316				
464		1034				
463		593				
	comment	like	share	Total Interactions		
244	372	5172.0	790.0	6334		
464	9	268.0	36.0	313		
463	8	134.0	34.0	176		

trans\_data = data.T

```

df = pd.read_csv("dataset_Facebook.csv",delimiter=';')

df = df.transpose()

print (df)
#Shape and reshape

```

	0	1
2 \		
Page total likes	139441	139441
139441		
Type	Photo	Status
Photo		
Category	2	2
3		
Post Month	12	12
12		
Post Weekday	4	3
3		
Post Hour	3	10
3		
Paid	0.0	0.0
0.0		
Lifetime Post Total Reach	2752	10460
2413		
Lifetime Post Total Impressions	5091	19057
4373		
Lifetime Engaged Users	178	1457
177		
Lifetime Post Consumers	109	1361
113		
Lifetime Post Consumptions	159	1674
154		
Lifetime Post Impressions by people who have li...	3078	11710
2812		
Lifetime Post reach by people who like your Page	1640	6112
1503		
Lifetime People who have liked your Page and en...	119	1108
132		
comment	4	5
0		
like	79.0	130.0
66.0		
share	17.0	29.0
14.0		
Total Interactions	100	164
80		
	3	4

5 \  
Page total likes 139441 139441  
139441  
Type Photo Photo  
Status  
Category 2 2  
2  
Post Month 12 12  
12  
Post Weekday 2 2  
1  
Post Hour 10 3  
9  
Paid 1.0 0.0  
0.0  
Lifetime Post Total Reach 50128 7244  
10472  
Lifetime Post Total Impressions 87991 13594  
20849  
Lifetime Engaged Users 2211 671  
1191  
Lifetime Post Consumers 790 410  
1073  
Lifetime Post Consumptions 1119 580  
1389  
Lifetime Post Impressions by people who have li... 61027 6228  
16034  
Lifetime Post reach by people who like your Page 32048 3200  
7852  
Lifetime People who have liked your Page and en... 1386 396  
1016  
comment 58 19  
1  
like 1572.0 325.0  
152.0  
share 147.0 49.0  
33.0  
Total Interactions 1777 393  
186  
6 7

8 \  
Page total likes 139441 139441  
139441  
Type Photo Photo  
Status  
Category 3 3  
2  
Post Month 12 12  
12

Post Weekday	1	7
7		
Post Hour	3	9
3		
Paid	1.0	1.0
0.0		
Lifetime Post Total Reach	11692	13720
11844		
Lifetime Post Total Impressions	19479	24137
22538		
Lifetime Engaged Users	481	537
1530		
Lifetime Post Consumers	265	232
1407		
Lifetime Post Consumptions	364	305
1692		
Lifetime Post Impressions by people who have li...	15432	19728
15220		
Lifetime Post reach by people who like your Page	9328	11056
7912		
Lifetime People who have liked your Page and en...	379	422
1250		
comment	3	0
0		
like	249.0	325.0
161.0		
share	27.0	14.0
31.0		
Total Interactions	279	339
192		
	9	...
		490
491 \		
Page total likes	139441	...
85979		85979
Type	Photo	...
Photo		Photo
Category	3	...
3		3
Post Month	12	...
1		1
Post Weekday	6	...
6		6
Post Hour	10	...
3		11
Paid	0.0	...
1.0		0.0
Lifetime Post Total Reach	4694	...
6184		5280
Lifetime Post Total Impressions	8668	...
		8703

10228			
Lifetime Engaged Users	280	...	951
956			
Lifetime Post Consumers	183	...	911
901			
Lifetime Post Consumptions	250	...	1237
1140			
Lifetime Post Impressions by people who have li...	4309	...	5757
6085			
Lifetime Post reach by people who like your Page	2324	...	3300
3502			
Lifetime People who have liked your Page and en...	199	...	431
437			
comment	3	...	1
1			
like	113.0	...	79.0
105.0			
share	26.0	...	30.0
46.0			
Total Interactions	142	...	110
152			
	492		493
494 \			
Page total likes	85979		85093
85093			
Type		Link	Photo
Photo			
Category	1		3
3			
Post Month	1		1
1			
Post Weekday	5		1
7			
Post Hour	11		2
10			
Paid	0.0		0.0
0.0			
Lifetime Post Total Reach	45920		8412
5400			
Lifetime Post Total Impressions	5808		13960
9218			
Lifetime Engaged Users	753		1179
810			
Lifetime Post Consumers	655		1111
756			
Lifetime Post Consumptions	763		1632
1003			
Lifetime Post Impressions by people who have li...	15766		8632
5654			

Lifetime Post reach by people who like your Page	10720	5348
3230		
Lifetime People who have liked your Page and en...	220	699
422		
comment	0	17
10		
like	128.0	185.0
125.0		
share	9.0	55.0
41.0		
Total Interactions	137	257
176		
	495	496
497 \		
Page total likes	85093	81370
81370		
Type	Photo	Photo
Photo		
Category	3	2
1		
Post Month	1	1
1		
Post Weekday	7	5
5		
Post Hour	2	8
2		
Paid	0.0	0.0
0.0		
Lifetime Post Total Reach	4684	3480
3778		
Lifetime Post Total Impressions	7536	6229
7216		
Lifetime Engaged Users	733	537
625		
Lifetime Post Consumers	708	508
572		
Lifetime Post Consumptions	985	687
795		
Lifetime Post Impressions by people who have li...	4750	3961
4742		
Lifetime Post reach by people who like your Page	2876	2104
2388		
Lifetime People who have liked your Page and en...	392	301
363		
comment	5	0
4		
like	53.0	53.0
93.0		
share	26.0	22.0

18.0		
Total Interactions	84	75
115		
	498	499
Page total likes	81370	81370
Type	Photo	Photo
Category	3	2
Post Month	1	1
Post Weekday	4	4
Post Hour	11	4
Paid	0.0	NaN
Lifetime Post Total Reach	4156	4188
Lifetime Post Total Impressions	7564	7292
Lifetime Engaged Users	626	564
Lifetime Post Consumers	574	524
Lifetime Post Consumptions	832	743
Lifetime Post Impressions by people who have li...	4534	3861
Lifetime Post reach by people who like your Page	2452	2200
Lifetime People who have liked your Page and en...	370	316
comment	7	0
like	91.0	91.0
share	38.0	28.0
Total Interactions	136	119

[19 rows x 500 columns]

```
# creating a dataframe
df = pd.DataFrame({'Name': {0: 'Shubham', 1: 'Prsika', 2: 'Ishwar'},
                    'Course': {0:'12th', 1: '12th', 2: 'Diploma'},
                    'Roll No': {0: 1, 1: 2, 2: 3}})
print(df)

pd.melt(df, id_vars =[ 'Name'], value_vars =[ 'Course'])
pd.melt(df, id_vars =[ 'Name'], value_vars =[ 'Course', 'Roll No'])

meltdatal = pd.melt(data,id_vars = [ 'Type'], value_vars = [ 'Post
Hour'])
print (meltdatal.head(n=10))
meltdatal2 = pd.melt(data,id_vars = [ 'Type'], value_vars = [ 'Post
Hour', 'Post Month'])
print (meltdatal2.tail(n=3))
meltdatal3 = pd.melt(data,id_vars = [ 'Type'], var_name ='Facebook
Metrics', value_vars = [ 'Post Hour','Post Month'])
print (meltdatal3.head(n=3))
```

	Name	Course	Roll No
0	Shubham	12th	1
1	Prsika	12th	2
2	Ishwar	Diploma	3

	Type	variable	value
0	Photo	Post Hour	3
1	Status	Post Hour	10
2	Photo	Post Hour	3
3	Photo	Post Hour	10
4	Photo	Post Hour	3
5	Status	Post Hour	9
6	Photo	Post Hour	3
7	Photo	Post Hour	9
8	Status	Post Hour	3
9	Photo	Post Hour	10

	Type	variable	value
997	Photo	Post Month	1
998	Photo	Post Month	1
999	Photo	Post Month	1

	Type	Facebook Metrics	value
0	Photo	Post Hour	3
1	Status	Post Hour	10
2	Photo	Post Hour	3