

```

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)))

```

	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	

	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						

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

2	0.0	2413	4373
---	-----	------	------

	Lifetime Engaged Users	Lifetime Post Consumers	\
0	178	109	
1	1457	1361	
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	Lifetime Post Consumptions	\
0	159	
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	Lifetime Post Impressions by people who have liked your Page	\
0	3078	
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	Lifetime Post reach by people who like your Page	\
0	1640	
1	6112	
2	1503	

	Lifetime People who have liked your Page and engaged with your post	\
0	119	
1	1108	
2	132	

	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

index isRangeIndex(start=0, stop=500, step=1)

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

	Paid	Lifetime Post Total Reach	Lifetime Post Total Impressions	\
3	1.0	50128	87991	
4	0.0	7244	13594	

	Lifetime Engaged Users	Lifetime Post Consumers	\
3	2211	790	

4		671		410
	Lifetime Post Consumptions \			
3		1119		
4		580		
	Lifetime Post Impressions by people who have liked your Page \			
3		61027		
4		6228		
	Lifetime Post reach by people who like your Page \			
3		32048		
4		3200		
	Lifetime People who have liked your Page and engaged with your post			
\				
3		1386		
4		396		
	comment	like	share	Total Interactions
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
3				4
1	139441	Status	2	12
10				3
2	139441	Photo	3	12
3				3
3	139441	Photo	2	12
10				2
4	139441	Photo	2	12
3				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 \
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						
5	139441	Status	2	12		1
9						
6	139441	Photo	3	12		1
3						

	Paid	Lifetime Post Total	Reach	Lifetime Post Total Impressions	\
2	0.0		2413		4373
5	0.0		10472		20849
6	1.0		11692		19479

	Lifetime Engaged Users	Lifetime Post Consumers	\
2	177	113	
5	1191	1073	
6	481	265	

	Lifetime Post Consumptions	\
2	154	
5	1389	
6	364	

	Lifetime Post Impressions by people who have liked your Page	\
2	2812	
5	16034	
6	15432	

	Lifetime Post reach by people who like your Page	\
2	1503	
5	7852	
6	9328	

	Lifetime People who have liked your Page and engaged with your post	\
2	132	
5	1016	
6	379	

	comment	like	share	Total Interactions
2	0	66.0	14.0	80
5	1	152.0	33.0	186
6	3	249.0	27.0	279
0	2			
1	2			
2	3			
3	2			
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			671		410		
	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

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

```
## 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
```

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

	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

	Page total likes	Type	Category	Post Month	Post Weekday	Post
Hour	\					
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	... 11
3		
Paid	0.0	... 0.0
1.0		
Lifetime Post Total Reach	4694	... 5280
6184		
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'])
```

```
meltdat1 = pd.melt(data, id_vars = ['Type'], value_vars = ['Post
Hour'])
print (meltdat1.head(n=10))
meltdat2 = pd.melt(data, id_vars = ['Type'], value_vars = ['Post
Hour', 'Post Month'])
print (meltdat2.tail(n=3))
meltdat3 = pd.melt(data, id_vars = ['Type'], var_name = 'Facebook
Metrics', value_vars = ['Post Hour', 'Post Month'])
print (meltdat3.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