In [1]:

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

In [2]:

```
df=pd.read_csv(r"C:\Users\user\Downloads\5_Instagram data.csv")
df.fillna(0,inplace=True)
df
```

Out[2]:

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	F
0	3920	2586	1028	619	56	98	9	5	162	35	
1	5394	2727	1838	1174	78	194	7	14	224	48	
2	4021	2085	1188	0	533	41	11	1	131	62	
3	4528	2700	621	932	73	172	10	7	213	23	
4	2518	1704	255	279	37	96	5	4	123	8	
...	...	...	...	...	...	...	...	...	...	...	
114	13700	5185	3041	5352	77	573	2	38	373	73	
115	5731	1923	1368	2266	65	135	4	1	148	20	
116	4139	1133	1538	1367	33	36	0	1	92	34	
117	32695	11815	3147	17414	170	1095	2	75	549	148	

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	F
118	36919	13473	4176	16444	2547	653	5	26	443	611	

119 rows × 13 columns

```
In [3]: df.head()
```

Out[3]:

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comments	Shares	Likes	Profile Visits	Foll
0	3920	2586	1028	619	56	98	9	5	162	35	
1	5394	2727	1838	1174	78	194	7	14	224	48	
2	4021	2085	1188	0	533	41	11	1	131	62	
3	4528	2700	621	932	73	172	10	7	213	23	
4	2518	1704	255	279	37	96	5	4	123	8	

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

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 119 entries, 0 to 118
Data columns (total 13 columns):
 #   Column          Non-Null Count  Dtype 
---  ------          --------------  ----- 
 0   Impressions     119 non-null    int64 
 1   From Home       119 non-null    int64 
 2   From Hashtags   119 non-null    int64 
 3   From Explore    119 non-null    int64 
 4   From Other      119 non-null    int64 
 5   Saves           119 non-null    int64 
 6   Comments        119 non-null    int64 
 7   Shares          119 non-null    int64 
 8   Likes           119 non-null    int64 
 9   Profile Visits  119 non-null    int64 
 10  Follows         119 non-null    int64 
 11  Caption         119 non-null    object
 12  Hashtags        119 non-null    object
dtypes: int64(11), object(2)
memory usage: 12.2+ KB
```

In [5]:
```
import seaborn as sns
```

In [6]:
```
df.describe()
```

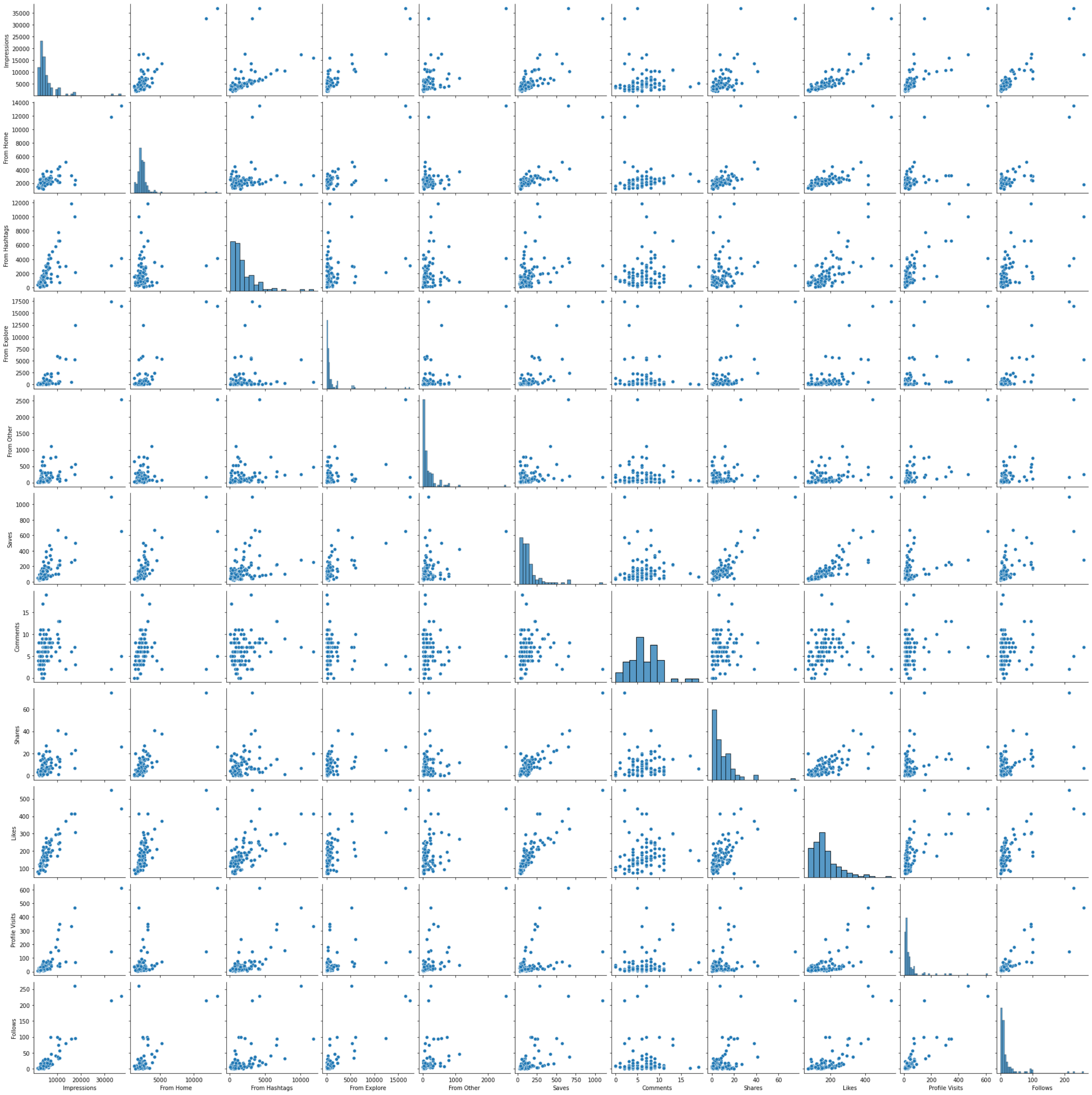
Out[6]:

	Impressions	From Home	From Hashtags	From Explore	From Other	Saves	Comm
count	119.000000	119.000000	119.000000	119.000000	119.000000	119.000000	119.00
mean	5703.991597	2475.789916	1887.512605	1078.100840	171.092437	153.310924	6.66
std	4843.780105	1489.386348	1884.361443	2613.026132	289.431031	156.317731	3.54
min	1941.000000	1133.000000	116.000000	0.000000	9.000000	22.000000	0.00
25%	3467.000000	1945.000000	726.000000	157.500000	38.000000	65.000000	4.00
50%	4289.000000	2207.000000	1278.000000	326.000000	74.000000	109.000000	6.00
75%	6138.000000	2602.500000	2363.500000	689.500000	196.000000	169.000000	8.00
max	36919.000000	13473.000000	11817.000000	17414.000000	2547.000000	1095.000000	19.00

In [7]:
```
df=pd.read_csv("5_Instagram data.csv")
```

```
In [8]: sns.pairplot(df)

Out[8]: <seaborn.axisgrid.PairGrid at 0x1c9afc3d8e0>
```



In [9]:

```
df1=df.drop(['Comments'],axis=1)
df1
df1=df1.drop(df1.index[1537:])
df1.isna().sum()
```

Out[9]:

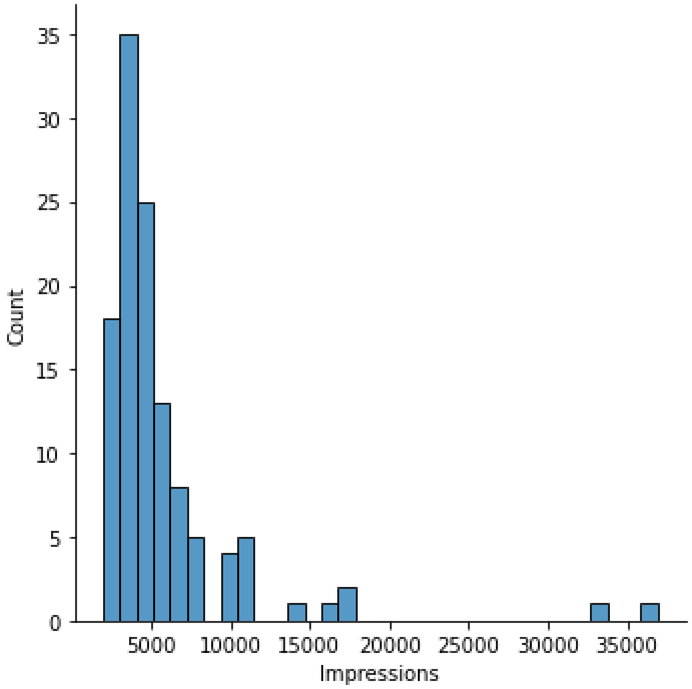
```
Impressions       0
From Home         0
From Hashtags     0
From Explore      0
From Other        0
Saves             0
Shares            0
Likes             0
Profile Visits    0
Follows           0
Caption           0
Hashtags          0
dtype: int64
```

In [10]:

```
sns.displot(df['Impressions'])
```

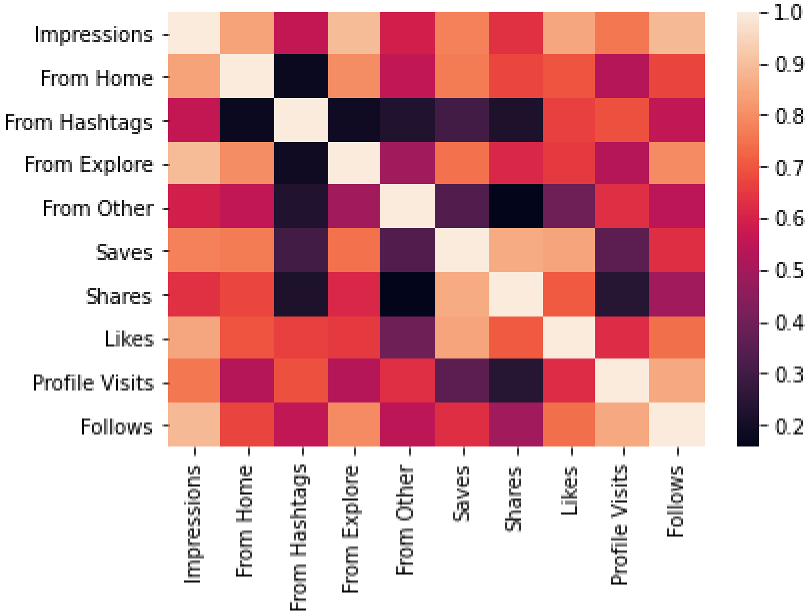
Out[10]:

```
<seaborn.axisgrid.FacetGrid at 0x1c9b44a3ca0>
```



In [11]:
```
sns.heatmap(df1.corr())
```

Out[11]:
```
<AxesSubplot:>
```



In [12]:
```
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
```

In [13]:
```
df1.isna().sum()
```

Out[13]:
```
Impressions       0
From Home         0
From Hashtags     0
From Explore      0
From Other        0
Saves             0
Shares            0
Likes             0
Profile Visits    0
Follows           0
Caption           0
Hashtags          0
dtype: int64
```

In [14]:

```
y=df1['Likes']
x=df1.drop(['Caption','Hashtags'],axis=1)
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.3)
print(x_train)
```

```
     Impressions  From Home  From Hashtags  From Explore  From Other  Saves  
\
12          4344       2168           1274           673          40    119   
14          9453       2525           5799           208         794    100   
85          6168       2177           3450           153         296     82   
51          7018       2569           4221           796          83    342   
31          3854       1975           1721            60          43     81   
..           ...        ...            ...           ...         ...    ...   
15          5055       2017           2351           298         108    101   
65          3333       1502           1423           182         148     38   
80          4681       2252           1674           360         308    207   
43          3880       2207           1109           199         317     90   
114        13700       5185           3041          5352          77    573   

     Shares  Likes  Profile Visits  Follows  
12       11    162               8        2  
14       10    294             181       42  
85        6    151              77       30  
51       16    236              20       12  
31       15    150              13        2  
..      ...    ...             ...      ...  
15       11    159              17        6  
65        5     96              37       12  
80       12    170              23       10  
43        2    127              32       10  
114      38    373              73       80  

[83 rows x 10 columns]
```

In [15]:

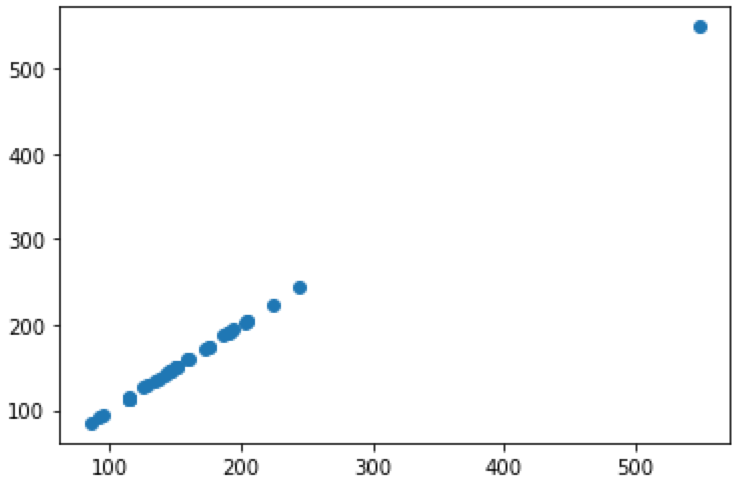
```
model=LinearRegression()
model.fit(x_train,y_train)
model.intercept_
```

Out[15]:

```
-1.1652900866465643e-12
```

In [16]:
```
prediction=model.predict(x_test)
plt.scatter(y_test,prediction)
```

Out[16]:
```
<matplotlib.collections.PathCollection at 0x1c9b83f5580>
```



In [17]:
```
model.score(x_test,y_test)
```

Out[17]:
```
1.0
```

In [18]:
```
from sklearn.linear_model import Ridge,Lasso
```

In [19]:
```
rr=Ridge(alpha=10)
rr.fit(x_train,y_train)
```

Out[19]:
```
Ridge(alpha=10)
```

In [20]:
```
rr.score(x_test,y_test)
```

Out[20]:
```
0.9999999937670582
```

In [21]:
```
la =Lasso(alpha=10)
la.fit(x_train,y_train)
```

Out[21]:
```
Lasso(alpha=10)
```

In [22]:
```
la.score(x_test,y_test)
```

Out[22]:
```
0.9999802436825285
```

In [23]:

```
from sklearn.linear_model import ElasticNet
en=ElasticNet()
en.fit(x_train,y_train)

print(en.coef_)


print(en.intercept_)


print(en.predict(x_test))


print(en.score(x_test,y_test))


from sklearn import metrics

print("Mean Absolute Error:",metrics.mean_absolute_error(y_test,prediction))


print("Mean Squared Error:",metrics.mean_squared_error(y_test,prediction))


print("Root Mean Squared Error:",np.sqrt(metrics.mean_squared_error(y_test,pred
```

```
[ 3.99733305e-05 -2.26557602e-05 -1.61894917e-06 -3.75152611e-05
 -4.47161367e-05  4.53452162e-04  0.00000000e+00  9.98319858e-01
 -0.00000000e+00 -0.00000000e+00]
0.10010941488275193
[186.98307492 115.07736601 223.91505479 203.0381495   85.0260466
 172.01495174 174.95681635 244.07426275 133.99272713 204.88041821
 549.04750443 159.01531897 143.98439643 194.01729557 149.98307765
 113.99884545 204.88041821 150.99963429 151.05626376  92.0361578
 128.96609589 113.97720573 114.0360338  191.97021561 159.99156747
 141.96991256 144.96045333 189.96904481 137.0282889   95.03637442
 190.92938284 125.97257882 147.03545229 147.03545229 113.99884545
 174.95681635]
0.9999996079575983
Mean Absolute Error: 2.2500519965736507e-13
Mean Squared Error: 1.5015984861124298e-25
Root Mean Squared Error: 3.875046433415256e-13
```