```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import plotly.express as px
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression

data = pd.read_csv("/content/drive/MyDrive/Instagram data.csv", encoding = 'latin1')
print(data.head())
```

```
   Impressions  From Home  From Hashtags  From Explore  From Other  Saves  \
0         3920       2586           1028           619          56     98
1         5394       2727           1838          1174          78    194
2         4021       2085           1188             0         533     41
3         4528       2700            621           932          73    172
4         2518       1704            255           279          37     96

   Comments  Shares  Likes  Profile Visits  Follows  \
0         9       5    162              35        2
1         7      14    224              48       10
2        11       1    131              62       12
3        10       7    213              23        8
4         5       4    123               8        0

                                             Caption  \
0  Here are some of the most important data visua...
1  Here are some of the best data science project...
2  Learn how to train a machine learning model an...
3  Here's how you can write a Python program to d...
4  Plotting annotations while visualizing your da...

                                            Hashtags
0  #finance #money #business #investing #investme...
1  #healthcare #health #covid #data #datascience ...
2  #data #datascience #dataanalysis #dataanalytic...
3  #python #pythonprogramming #pythonprojects #py...
4  #datavisualization #datascience #data #dataana...
```

```
data.isnull().sum()
```

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

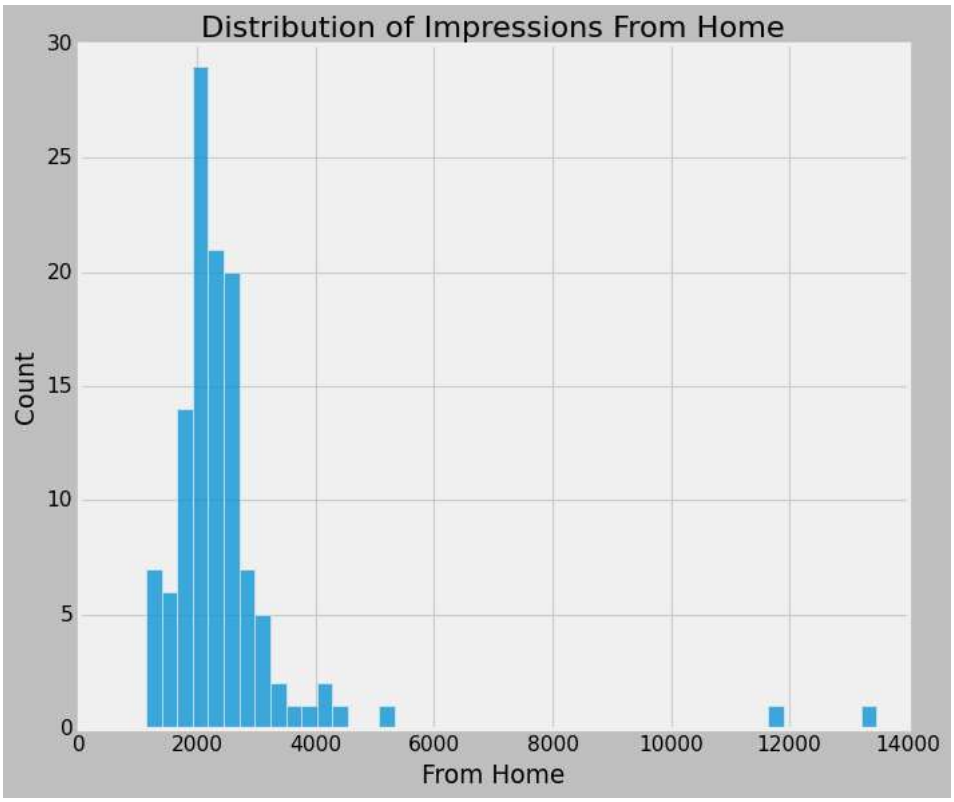
```
data = data.dropna()
```

```
data.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
```

```
plt.figure(figsize=(10, 8))
plt.style.use('fivethirtyeight')
plt.title("Distribution of Impressions From Home")
sns.histplot(data['From Home'])
plt.show()
```

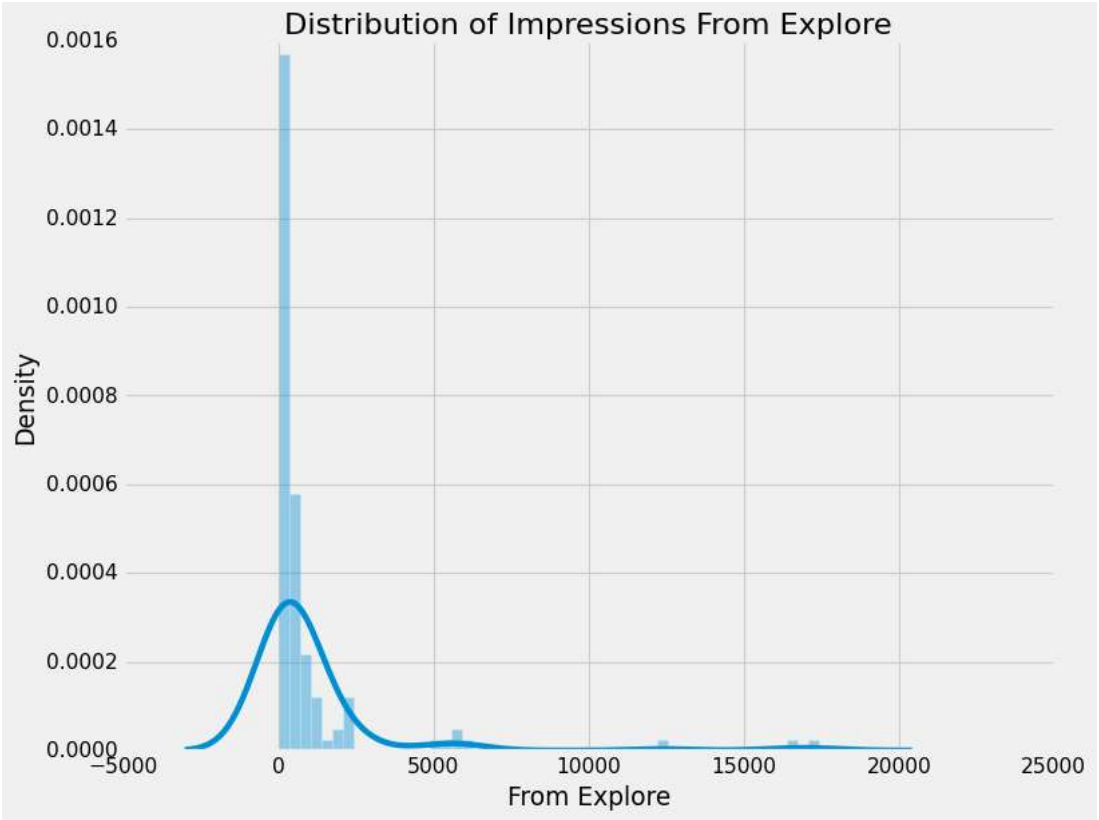



```
plt.figure(figsize=(10, 8))
plt.title("Distribution of Impressions From Hashtags")
sns.distplot(data['From Hashtags'])
plt.show()
```

```
<ipython-input-31-8c45b7b41edc>:3: UserWarning:


`distplot` is a deprecated function and will be removed in seaborn v0.14.0.

Please adapt your code to use either `displot` (a figure-level function with
similar flexibility) or `histplot` (an axes-level function for histograms).

For a guide to updating your code to use the new functions, please see
https://gist.github.com/mwaskom/de44147ed2974457ad6372750bbe5751
```

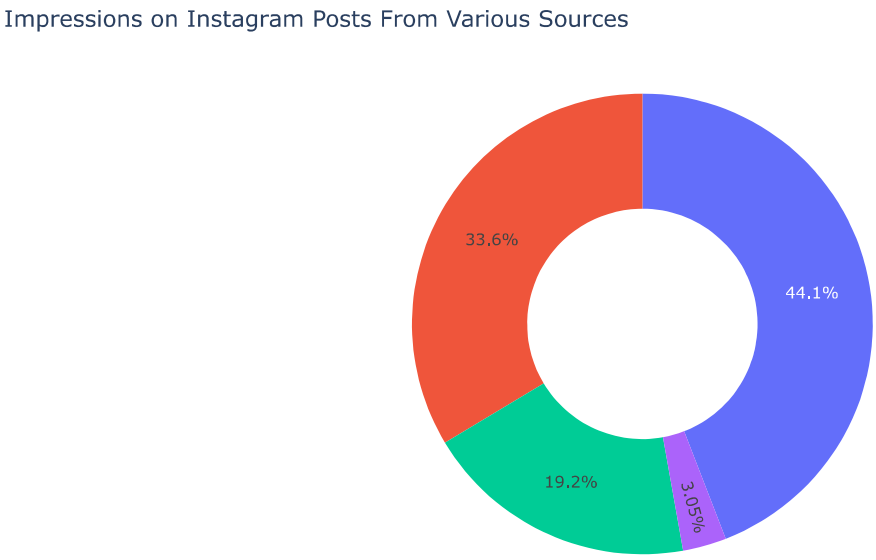

```
plt.figure(figsize=(10, 8))
plt.title("Distribution of Impressions From Explore")
sns.distplot(data['From Explore'])
plt.show()
```

```
<ipython-input-32-3461ec84008d>:3: UserWarning:


`distplot` is a deprecated function and will be removed in seaborn v0.14.0.

Please adapt your code to use either `displot` (a figure-level function with
similar flexibility) or `histplot` (an axes-level function for histograms).

For a guide to updating your code to use the new functions, please see
https://gist.github.com/mwaskom/de44147ed2974457ad6372750bbe5751
```

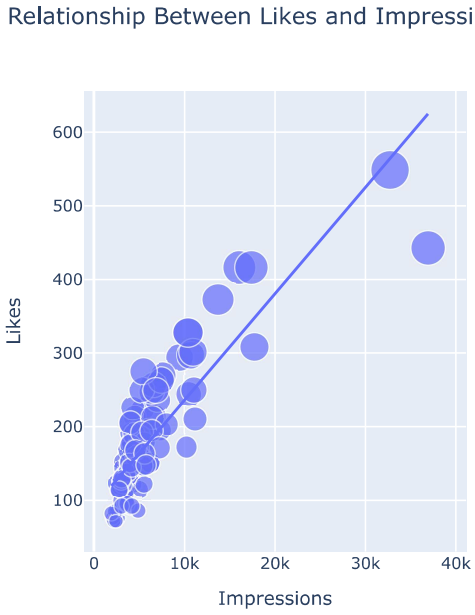



```
home = data["From Home"].sum()
hashtags = data["From Hashtags"].sum()
explore = data["From Explore"].sum()
other = data["From Other"].sum()

labels = ['From Home','From Hashtags','From Explore','Other']
values = [home, hashtags, explore, other]

fig = px.pie(data, values=values, names=labels,
```

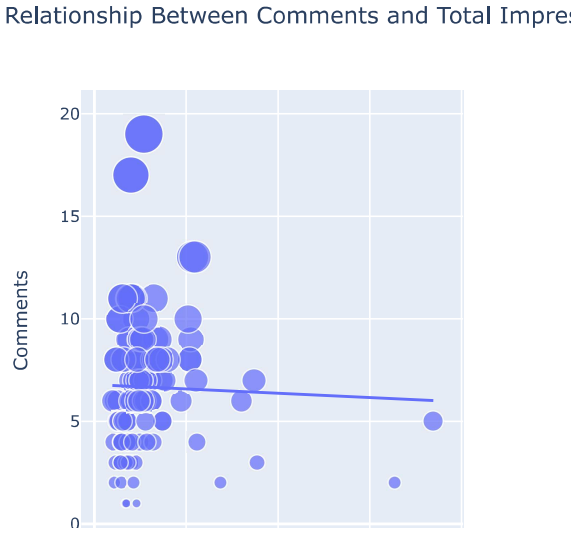
```
            title='Impressions on Instagram Posts From Various Sources', hole=0.5)
fig.show()
```



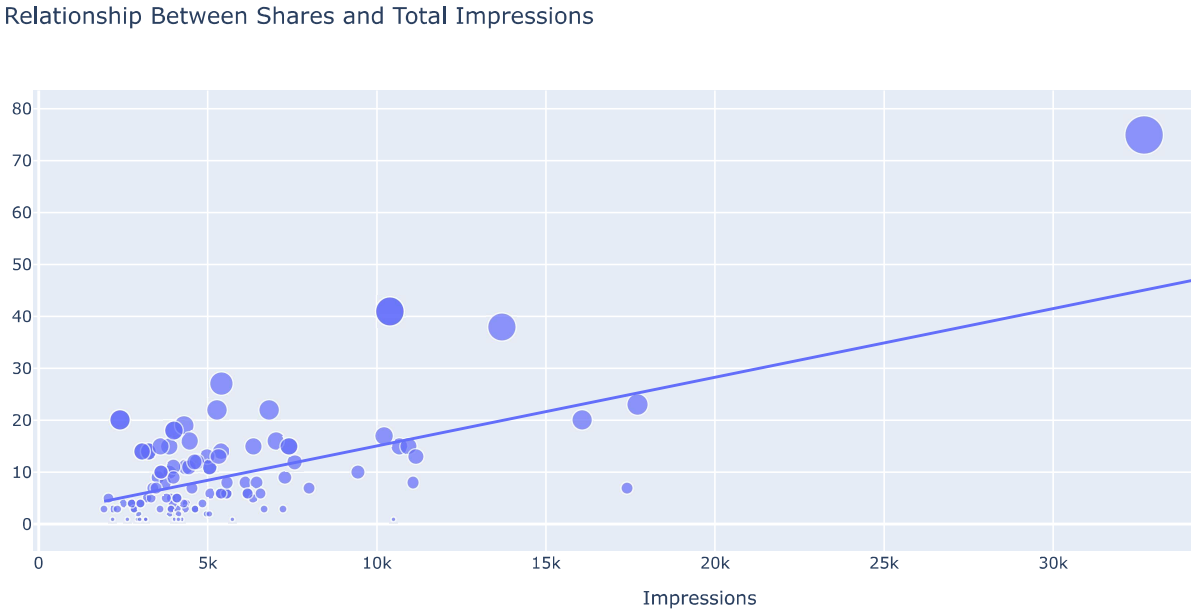

```
figure = px.scatter(data_frame = data, x="Impressions",
                    y="Likes", size="Likes", trendline="ols",
                    title = "Relationship Between Likes and Impressions")
figure.show()
```



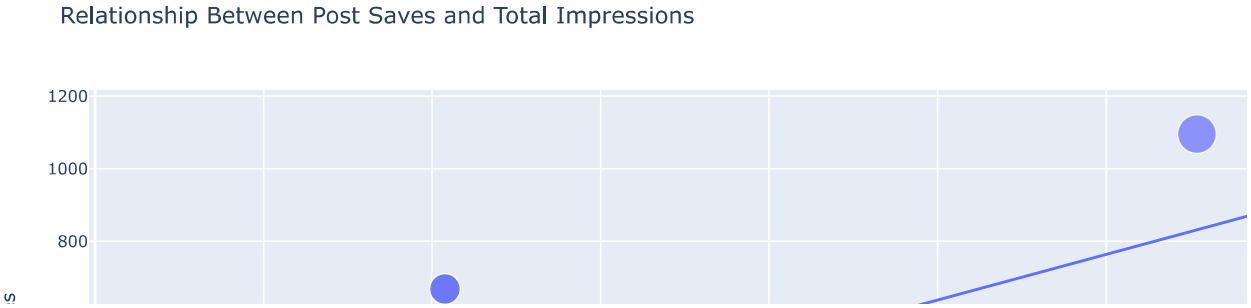

```
figure = px.scatter(data_frame = data, x="Impressions",
                    y="Comments", size="Comments", trendline="ols",
                    title = "Relationship Between Comments and Total Impressions")
figure.show()
```




```
figure = px.scatter(data_frame = data, x="Impressions",
                    y="Shares", size="Shares", trendline="ols",
                    title = "Relationship Between Shares and Total Impressions")
figure.show()
```




```
figure = px.scatter(data_frame = data, x="Impressions",
                    y="Saves", size="Saves", trendline="ols",
                    title = "Relationship Between Post Saves and Total Impressions")
figure.show()
```



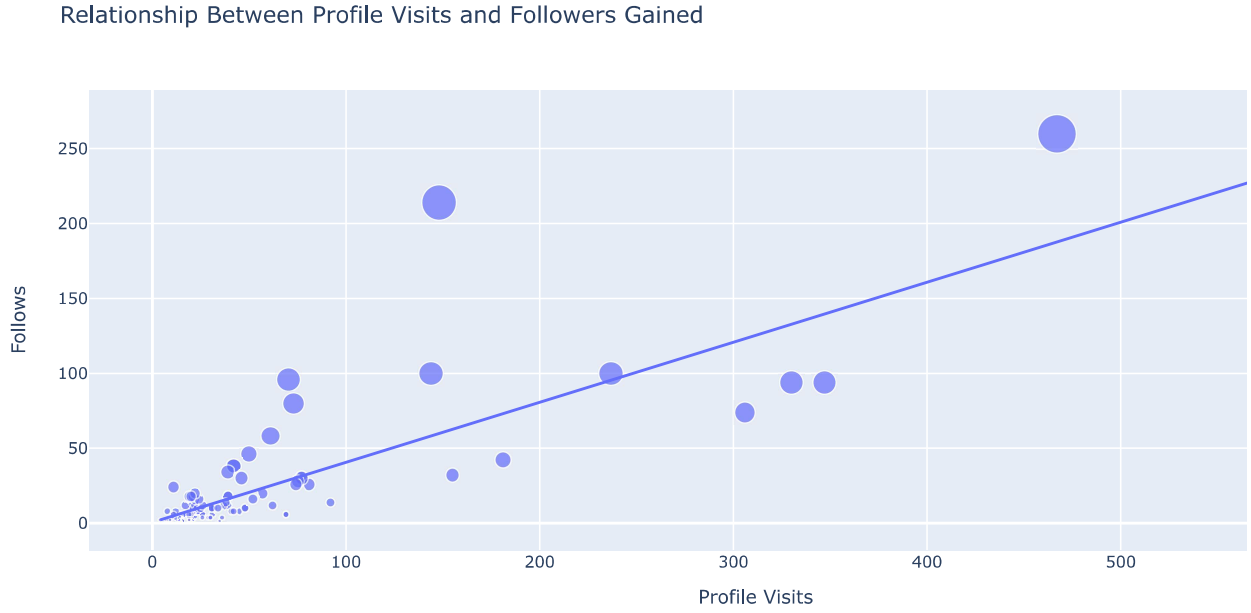

```
correlation = data.corr()
print(correlation["Impressions"].sort_values(ascending=False))
```

```
Impressions       1.000000
From Explore      0.893607
Follows           0.889363
Likes             0.849835
From Home         0.844698
Saves             0.779231
Profile Visits    0.760981
Shares            0.634675
From Other        0.592960
From Hashtags     0.560760
Comments         -0.028524
Name: Impressions, dtype: float64
<ipython-input-38-e57b1c4dec3a>:1: FutureWarning:

The default value of numeric_only in DataFrame.corr is deprecated. In a future version, it will default to False. Select only valid colu
```

```
conversion_rate = (data["Follows"].sum() / data["Profile Visits"].sum()) * 100
print(conversion_rate)
```

```
41.00265604249668
```

```
figure = px.scatter(data_frame = data, x="Profile Visits",
                    y="Follows", size="Follows", trendline="ols",
                    title = "Relationship Between Profile Visits and Followers Gained")
figure.show()
```




```
x = np.array(data[['Likes', 'Saves', 'Comments', 'Shares',
                   'Profile Visits', 'Follows']])
```

```
y = np.array(data["Impressions"])
xtrain, xtest, ytrain, ytest = train_test_split(x, y,
                                                test_size=0.2,
                                                random_state=42)


model = LinearRegression()
model.fit(xtrain, ytrain)
model.score(xtest, ytest)
```

```
0.8777977785012779
```

```
# Features = [['Likes','Saves', 'Comments', 'Shares', 'Profile Visits', 'Follows']]
features = np.array([[1282.0, 333.0, 4.0, 9.0, 165.0, 54.0]])
model.predict(features)
```

```
array([21568.20432307])
```

✓ 0s completed at 18:23