

In [1]:

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

In [2]:

```
df=pd.read_csv(r'C:\Users\user\Downloads\3_Fitness-1.csv')
df
```

Out[2]:

	Row Labels	Sum of Jan	Sum of Feb	Sum of Mar	Sum of Total Sales
0	A	5.62%	7.73%	6.16%	75
1	B	4.21%	17.27%	19.21%	160
2	C	9.83%	11.60%	5.17%	101
3	D	2.81%	21.91%	7.88%	127
4	E	25.28%	10.57%	11.82%	179
5	F	8.15%	16.24%	18.47%	167
6	G	18.54%	8.76%	17.49%	171
7	H	25.56%	5.93%	13.79%	170
8	Grand Total	100.00%	100.00%	100.00%	1150

In [3]:

```
df.head(10)
```

Out[3]:

	Row Labels	Sum of Jan	Sum of Feb	Sum of Mar	Sum of Total Sales
0	A	5.62%	7.73%	6.16%	75
1	B	4.21%	17.27%	19.21%	160
2	C	9.83%	11.60%	5.17%	101
3	D	2.81%	21.91%	7.88%	127
4	E	25.28%	10.57%	11.82%	179
5	F	8.15%	16.24%	18.47%	167
6	G	18.54%	8.76%	17.49%	171
7	H	25.56%	5.93%	13.79%	170
8	Grand Total	100.00%	100.00%	100.00%	1150

In [4]:

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 9 entries, 0 to 8
Data columns (total 5 columns):
 #   Column                Non-Null Count  Dtype  
---  -
 0   Row Labels            9 non-null     object 
 1   Sum of Jan            9 non-null     object 
 2   Sum of Feb            9 non-null     object 
 3   Sum of Mar            9 non-null     object 
 4   Sum of Total Sales    9 non-null     int64  
dtypes: int64(1), object(4)
memory usage: 488.0+ bytes
```

In [5]:

```
df.describe()
```

Out[5]:

	Sum of Total Sales
count	9.000000
mean	255.555556
std	337.332963
min	75.000000
25%	127.000000
50%	167.000000
75%	171.000000
max	1150.000000

In [6]:

```
df.columns
```

Out[6]:

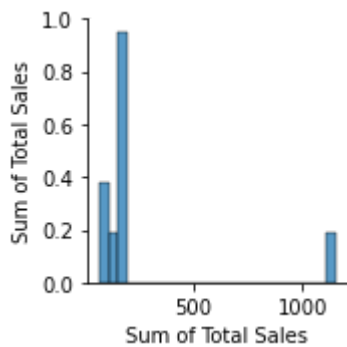
```
Index(['Row Labels', 'Sum of Jan', 'Sum of Feb', 'Sum of Mar',
      'Sum of Total Sales'],
      dtype='object')
```

In [7]:

```
sns.pairplot(df)
```

Out[7]:

<seaborn.axisgrid.PairGrid at 0x1e871707fa0>



In [8]:

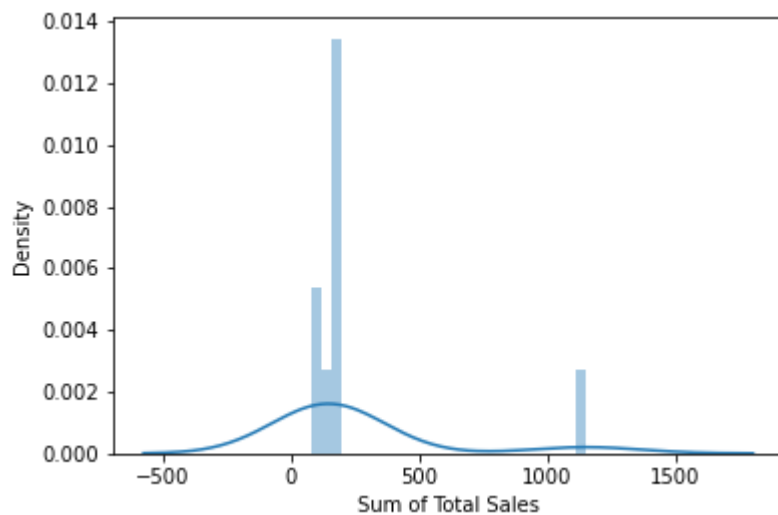
```
sns.distplot(df['Sum of Total Sales'])
```

C:\ProgramData\Anaconda3\lib\site-packages\seaborn\distributions.py:2557:
FutureWarning: `distplot` is a deprecated function and will be removed in
a future version. Please adapt your code to use either `displot` (a figure
-level function with similar flexibility) or `histplot` (an axes-level fun
ction for histograms).

```
warnings.warn(msg, FutureWarning)
```

Out[8]:

<AxesSubplot:xlabel='Sum of Total Sales', ylabel='Density'>

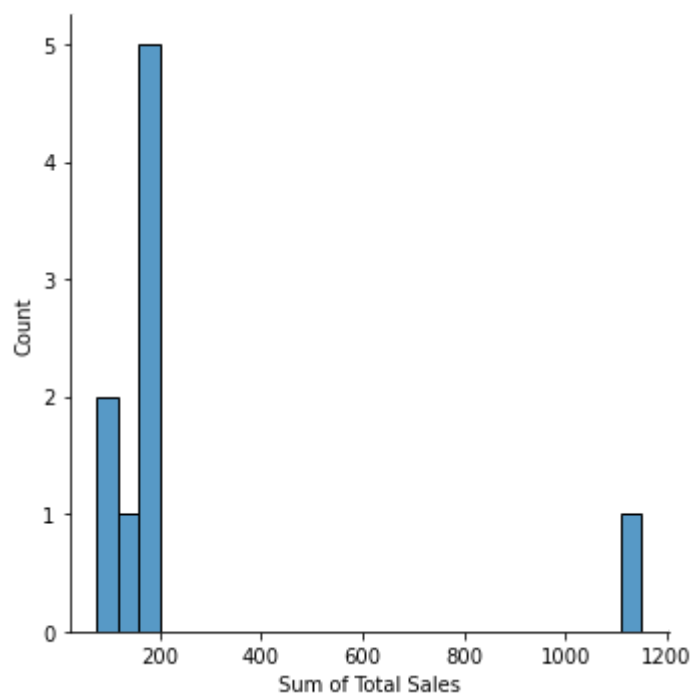


In [9]:

```
sns.displot(df["Sum of Total Sales"])
```

Out[9]:

<seaborn.axisgrid.FacetGrid at 0x1e872090700>



In [10]:

```
df1=df[['Row Labels', 'Sum of Jan', 'Sum of Feb', 'Sum of Mar',  
        'Sum of Total Sales']]
```

In [11]:

```
sns.heatmap(df1.corr())
```

Out[11]:

<AxesSubplot:>



In [12]:

```
x=df1[['Sum of Total Sales']]
y=df1[['Sum of Total Sales']]
```

In [13]:

```
from sklearn.model_selection import train_test_split
```

In [14]:

```
x_train,x_test,y_train,y_test = train_test_split(x,y,test_size=0.3)
```

In [15]:

```
from sklearn.linear_model import LinearRegression

lr=LinearRegression()
lr.fit(x_train,y_train)#ValueError: Input contains NaN, infinity or a value too large for
```

Out[15]:

```
LinearRegression()
```

In [16]:

```
print(lr.intercept_)
```

```
[5.68434189e-14]
```

In [17]:

```
coef= pd.DataFrame(lr.coef_)
coef
```

Out[17]:

```
   0
0  1.0
```

In [18]:

```
print(lr.score(x_test,y_test))
```

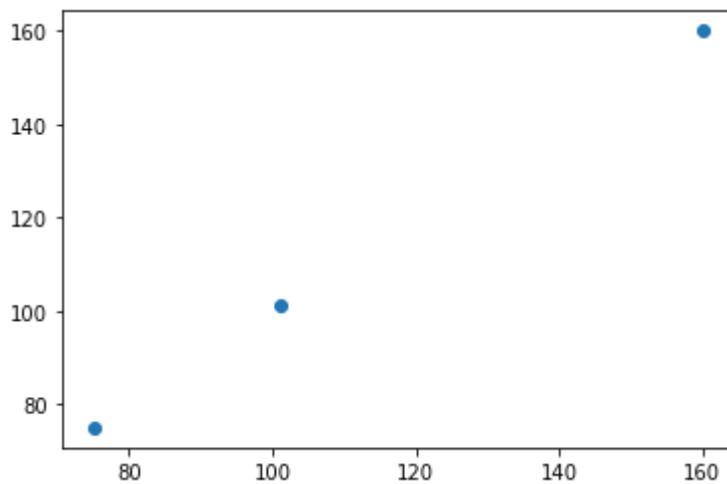
```
1.0
```

In [19]:

```
prediction = lr.predict(x_test)
plt.scatter(y_test,prediction)
```

Out[19]:

<matplotlib.collections.PathCollection at 0x1e8739bca90>



In [20]:

```
lr.score(x_test,y_test)
```

Out[20]:

1.0

In [21]:

```
lr.score(x_train,y_train)
```

Out[21]:

1.0

In [22]:

```
from sklearn.linear_model import Ridge,Lasso
```

In [23]:

```
rr=Ridge(alpha=10)
rr.fit(x_train,y_train)
```

Out[23]:

Ridge(alpha=10)

In [24]:

```
rr.score(x_test,y_test)
```

Out[24]:

0.9999999943131951

In [25]:

```
la=Lasso(alpha=10)  
la.fit(x_train,y_train)
```

Out[25]:

Lasso(alpha=10)

In [26]:

```
la.score(x_test,y_test)
```

Out[26]:

0.9999997952699908