D10

In [1]:
```
import pandas as pd
import numpy as np
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 [4]:
```
df.head(10)
```

Out[4]:

	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 [5]:
```
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: 492.0+ bytes
```

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

Out[6]:

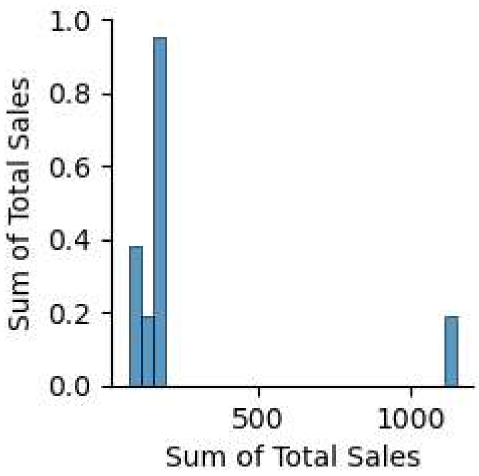
	Sum of Total Sales
count	9.000000
mean	255.555556
std	337.332963
min	75.000000
25%	127.000000
50%	167.000000
75%	171.000000
max	1150.000000

In [7]:
```
df.columns
```

Out[7]:
```
Index(['Row Labels', 'Sum of Jan', 'Sum of Feb', 'Sum of Mar',
       'Sum of Total Sales'],
      dtype='object')
```

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

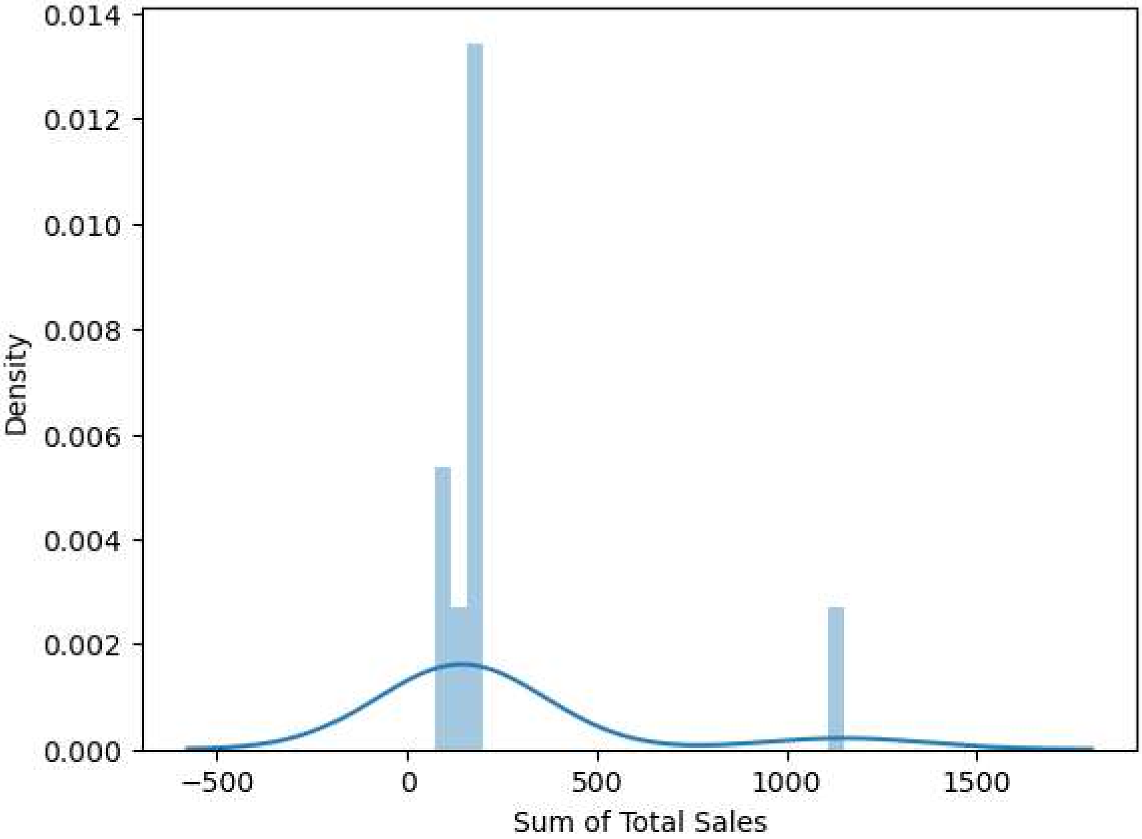
```
Out[8]: <seaborn.axisgrid.PairGrid at 0x1d643d5be10>
```



In [9]:
```
sns.distplot(df["Sum of Total Sales"])
```

```
C:\Users\user\AppData\Local\Temp\ipykernel_3424\3527311814.py:1: 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 (https://gis
t.github.com/mwaskom/de44147ed2974457ad6372750bbe5751)

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

Out[9]:
```
<Axes: xlabel='Sum of Total Sales', ylabel='Density'>
```

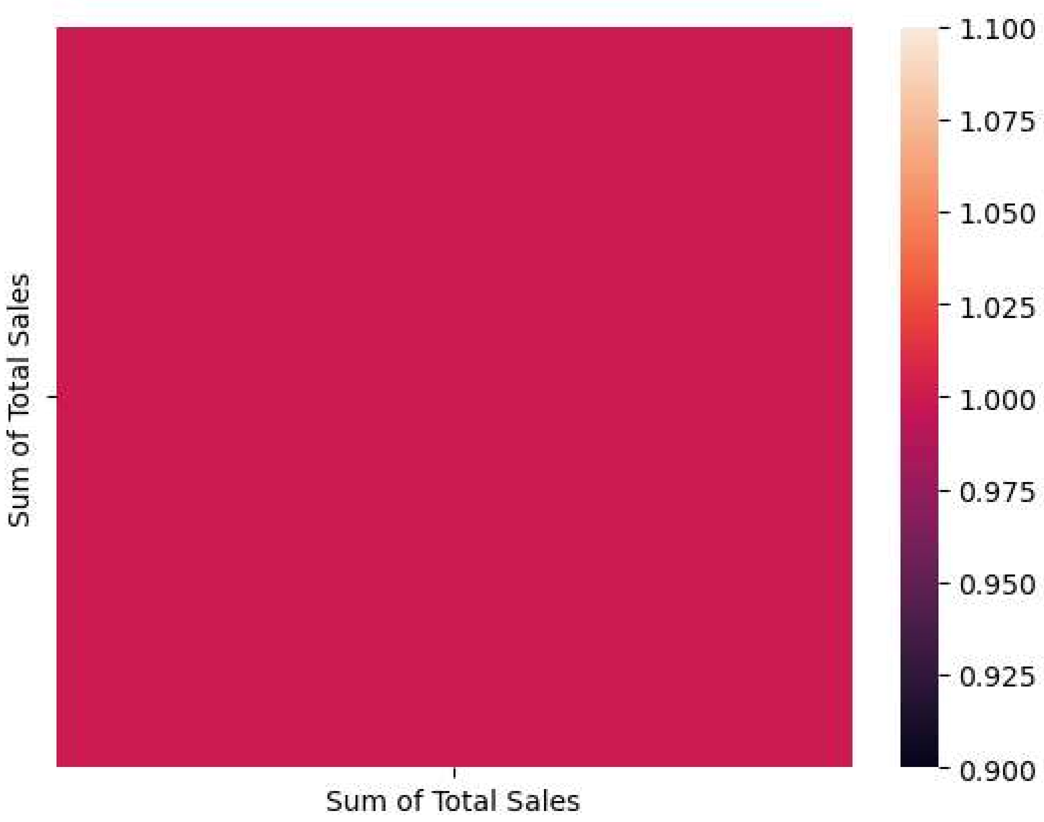


In [10]:
```
df1=df[['Row Labels', 'Sum of Jan', 'Sum of Feb', 'Sum of Mar',
       'Sum of Total Sales']]
```

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

```
C:\Users\user\AppData\Local\Temp\ipykernel_3424\781785195.py:1: FutureWarnin
g: The default value of numeric_only in DataFrame.corr is deprecated. In a fu
ture version, it will default to False. Select only valid columns or specify
the value of numeric_only to silence this warning.
  sns.heatmap(df1.corr())
```

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



In [12]:
```
x=df1[['Sum of Total Sales']]
y=df1['Sum of Total Sales']
```

In [13]:
```
from sklearn.model_selection import train_test_split
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.3)
```

In [14]:
```
from sklearn.linear_model import LinearRegression
lr=LinearRegression()
lr.fit(x_train,y_train)
```

Out[14]:
```
▾ LinearRegression
LinearRegression()
```

In [15]:
```
print(lr.intercept_)
```

```
0.0
```

In [16]:

```python
coeff = pd.DataFrame(lr.coef_,x.columns,columns=['Co-efficient'])
coeff
```

Out[16]:

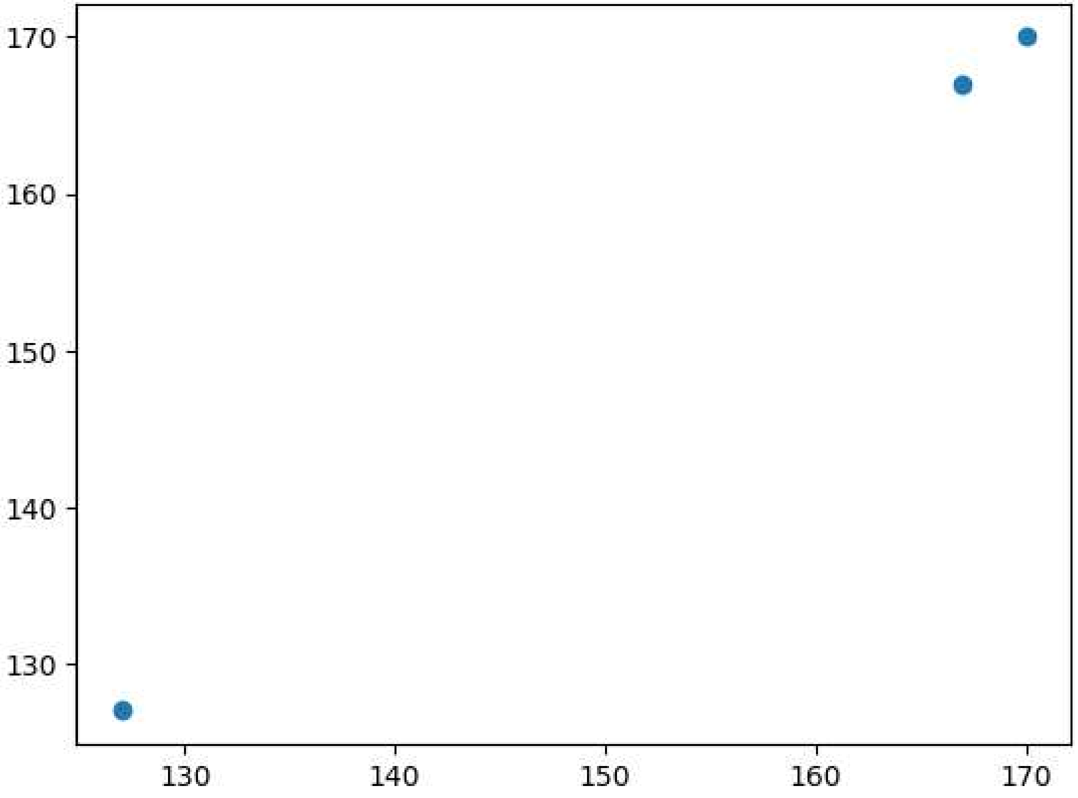
	Co-efficient
Sum of Total Sales	1.0

In [17]:

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

Out[17]:

```
<matplotlib.collections.PathCollection at 0x1d646285790>
```



In [18]:

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

```
1.0
```

In [ ]: