```
import pandas as pd
import pandas as pd
import matplotlib.pyplot as plt
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
from sklearn.metrics import mean_squared_error, r2_score, mean_absolute_error
import statistics as stats
```

```
df=pd.read_csv('restaurants.csv')
df
```

	Name	Location	Locality	City	Cuisine	Rating	Votes	Cost
0	Local	Scindia House,Connaught Place, Central Delhi	Central Delhi	Delhi	North Indian, Finger Food, Continental	4.1	2415	2000
1	The G.T. ROAD	M-Block,Connaught Place, Central Delhi	Central Delhi	Delhi	North Indian	4.3	2363	1500
2	Tamasha	Connaught Place, Central Delhi	Central Delhi	Delhi	Finger Food, North Indian, Italian, Contine...	4.2	5016	2000
3	The Junkyard Cafe	Connaught Place, Central Delhi	Central Delhi	Delhi	North Indian, Mediterranean, Asian, Italian...	4.2	2821	1800
4	Chili's American Grill and Bar	M-Block,Connaught Place, Central Delhi	Central Delhi	Delhi	Mexican, American, Italian	4.4	1094	2000
...	...	...	...	...	...	...	...	...
6588	Shree Rathnam	Wave Mall,BRS Nagar, West Ludhiana	West Ludhiana	Ludhiana	South Indian	4.1	20	600
6589	Cafe Delish	Radisson Blu,Rajguru Nagar, West Ludhiana	West Ludhiana	Ludhiana	Multi-Cuisine, North Indian, Continental, A...	4.4	48	3100
6590	3 K Resorts	BRS Nagar, West Ludhiana	West Ludhiana	Ludhiana	North Indian	1.0	1	1100
6591	Dovka Bar	Nirvana Hotel Banquets Club,PAU, Central Ludhiana	Central Ludhiana	Ludhiana	North Indian, Chinese, Finger Food	4.3	3	1500

Next steps: Generate code with df | View recommended plots | New interactive sheet

```
df.shape
```

```
(6593, 8)
```

```
df.size
```

```
52744
```

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

	Name	Location	Locality	City	Cuisine	Rating	Votes	Cost
0	Local	Scindia House,Connaught Place, Central Delhi	Central Delhi	Delhi	North Indian, Finger Food, Continental	4.1	2415	2000
1	The G.T. ROAD	M-Block,Connaught Place, Central Delhi	Central Delhi	Delhi	North Indian	4.3	2363	1500
2	Tamasha	Connaught Place, Central Delhi	Central Delhi	Delhi	Finger Food, North Indian, Italian, Contine...	4.2	5016	2000
3	The Junkyard Cafe	Connaught Place, Central Delhi	Central Delhi	Delhi	North Indian, Mediterranean, Asian, Italian...	4.2	2821	1800
4	Chili's American Grill and Bar	M-Block,Connaught Place, Central Delhi	Central Delhi	Delhi	Mexican, American, Italian	4.4	1094	2000
5	Ardor 2.1 Restaurant and Lounge	Connaught Place, Central Delhi	Central Delhi	Delhi	Multi-Cuisine, North Indian, Italian, Chine...	3.9	1391	2000
6	The Luggage Room By Sandoz	M-Block,Connaught Place, Central Delhi	Central Delhi	Delhi	Multi-Cuisine, North Indian, Italian, Chine...	4.0	1022	1800
7	QBA	Connaught Place, Central Delhi	Central Delhi	Delhi	Multi-Cuisine, North Indian, Italian, Conti...	4.3	963	2100
8	My Bar Square	Connaught Place, Central Delhi	Central Delhi	Delhi	Finger Food, Italian, Chinese, Continental	3.9	506	1500
9	Ghoomar Traditional Thali Restaurant	Connaught Place, Central Delhi	Central Delhi	Delhi	Rajasthani	4.2	712	1000

Next steps: Generate code with df | View recommended plots | New interactive sheet

```
df.tail(10)
```

	Name	Location	Locality	City	Cuisine	Rating	Votes	Cost
6583	The Biker's Sky Lounge Cafe	Sarabha Nagar, West Ludhiana	West Ludhiana	Ludhiana	North Indian	1.0	1	800
6584	The Yard Lounge & Bar	Pakhowal Road, West Ludhiana	West Ludhiana	Ludhiana	North Indian, Italian, Chinese	3.5	4	900
6585	Sixtynine.ml	Aggar Nagar, West Ludhiana	West Ludhiana	Ludhiana	Multi-Cuisine, North Indian, Continental, A...	3.9	23	1200
6586	Salsa Spice And Grill	BRS Nagar, West Ludhiana	West Ludhiana	Ludhiana	North Indian, Fast Food, Chinese	3.5	15	1000
6587	Hungry Point	PAU, Central Ludhiana	Central Ludhiana	Ludhiana	Fast Food, Pizza, Italian	1.0	1	500
6588	Shree Rathnam	Wave Mall,BRS Nagar, West Ludhiana	West Ludhiana	Ludhiana	South Indian	4.1	20	600
6589	Cafe Delish	Radisson Blu,Rajguru Nagar, West Ludhiana	West Ludhiana	Ludhiana	Multi-Cuisine, North Indian, Continental, A...	4.4	48	3100
6590	3 K Resorts	BRS Nagar, West Ludhiana	West Ludhiana	Ludhiana	North Indian	1.0	1	1100
	Nirvana Hotel Banquets Club PAU		Central		North Indian, Chinese, Finger			

```
df.isnull()
```

	Name	Location	Locality	City	Cuisine	Rating	Votes	Cost
0	False	False	False	False	False	False	False	False
1	False	False	False	False	False	False	False	False
2	False	False	False	False	False	False	False	False
3	False	False	False	False	False	False	False	False
4	False	False	False	False	False	False	False	False
...	...	...	...	...	...	...	...	...
6588	False	False	False	False	False	False	False	False
6589	False	False	False	False	False	False	False	False
6590	False	False	False	False	False	False	False	False
6591	False	False	False	False	False	False	False	False
6592	False	False	False	False	False	False	False	False

6593 rows × 8 columns

```
df.isnull().sum()
```

	0
Name	0
Location	0
Locality	0
City	0
Cuisine	0
Rating	0
Votes	0
Cost	0

```
df.duplicated()
```

	0
0	False
1	False
2	False
3	False
4	False
...	...
6588	False
6589	False
6590	False
6591	False
6592	False

6593 rows × 1 columns

```
df.empty
```

```
False
```

```
df.dropna()
```

	Name	Location	Locality	City	Cuisine	Rating	Votes	Cost
0	Local	Scindia House,Connaught Place, Central Delhi	Central Delhi	Delhi	North Indian, Finger Food, Continental	4.1	2415	2000
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...	...	...	...	...	...	...	...	...
6588	Shree Rathnam	Wave Mall,BRS Nagar, West Ludhiana	West Ludhiana	Ludhiana	South Indian	4.1	20	600
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6590	3 K Resorts	BRS Nagar, West Ludhiana	West Ludhiana	Ludhiana	North Indian	1.0	1	1100
6591	Dovka Bar	Nirvana Hotel Banquets Club,PAU, Central Ludhiana	Central Ludhiana	Ludhiana	North Indian, Chinese, Finger Food	4.3	3	1500

```
df.all()
```

	0
Name	True
Location	True
Locality	True
City	True
Cuisine	True
Rating	True
Votes	True
Cost	True

```
df.drop_duplicates()
```

	Name	Location	Locality	City	Cuisine	Rating	Votes	Cost
0	Local	Scindia House,Connaught Place, Central Delhi	Central Delhi	Delhi	North Indian, Finger Food, Continental	4.1	2415	2000
1	The G.T. ROAD	M-Block,Connaught Place, Central Delhi	Central Delhi	Delhi	North Indian	4.3	2363	1500
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...	...	...	...	...	...	...	...	...
6588	Shree Rathnam	Wave Mall,BRS Nagar, West Ludhiana	West Ludhiana	Ludhiana	South Indian	4.1	20	600
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6591	Dovka Bar	Nirvana Hotel Banquets Club,PAU, Central Ludhiana	Central Ludhiana	Ludhiana	North Indian, Chinese, Finger Food	4.3	3	1500

```
X=df[['Rating','Votes']]
Y=df['Cost']
```

```
X_train,X_test,Y_train,Y_test=train_test_split(X,Y,test_size=0.2,random_state=42)
```

```
X_train,X_test
Y_train,Y_test
```

```
(3125     700
 3388     600
 6068    1600
 701     2000
 2818    1200
         ...
 3772     500
 5191    1000
 5226     400
 5390     500
 860      500
 Name: Cost, Length: 5274, dtype: int64,
 2770     500
 5897    1000
 4310     300
 503      500
 5435    1600
         ...
 2124    1500
 589     1500
 2526     800
 1558     700
 5635    3100
 Name: Cost, Length: 1319, dtype: int64)
```

```
model=LinearRegression()
```

```
model.fit(X_train,Y_train)
```

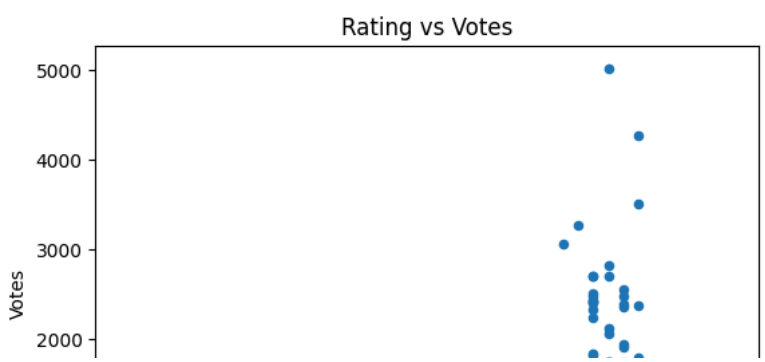
```
▾ LinearRegression
LinearRegression()
```

```
pred=model.predict(X_test)
```

```
mse=mean_squared_error(Y_test,pred)
mae=mean_absolute_error(Y_test,pred)
```

```
r2=r2_score(Y_test,pred)
intercept=model.intercept_
coef=model.coef_
```

```
print('Mean Squared Error:',mse)
print('Mean Absolute Error:',mae)
print('Mean Squared Error:',mse)
print('Mean Absolute Error:',mae)
print('R-squared:',r2)
print('Intercept:',intercept)
print('Coefficient:',coef)
```

```
Mean Squared Error: 471384.7481021881
Mean Absolute Error: 502.45826464317514
Mean Squared Error: 471384.7481021881
Mean Absolute Error: 502.45826464317514
R-squared: 0.08527721755456708
Intercept: 483.4974040435177
Coefficient: [126.87722636   0.88729928]
```

```
ax=df.plot(kind='scatter',x='Rating',y='Votes')
ax.set_xlabel('Rating')
ax.set_ylabel('Votes')
ax.set_title('Rating vs Votes')
plt.show()
```