```
import pandas as pd

# Load data
df = pd.read_csv("/content/Dataset 1.csv")

# Display columns to debug if needed
print("Columns:", df.columns.tolist())

# Fix any misspelled column names
if 'Restaurnt_name' in df.columns:
    df.rename(columns={'Restaurnt_name': 'Restaurant_name'}, inplace=True)

# Check for duplicate column names
df = df.loc[:, ~df.columns.duplicated()]

# Ensure 'Restaurant_name' exists and is one-dimensional
if 'Restaurant_name' in df.columns:
    chain_counts = df['Restaurant_name'].value_counts()
    restaurant_chains = chain_counts[chain_counts > 1]

    print("Identified restaurant chains:")
    print(restaurant_chains)
else:
    print("Column 'Restaurant_name' not found.")
```

```
Columns: ['Restaurant_ ID', 'Restaurnt_name', 'Country_Code', 'City', 'Address', 'Locality', 'Locality_Verbose', 'Longi
Identified restaurant chains:
Restaurant_name
Cafe Coffee Day        83
Domino'S Pizza         79
Subway                 63
Green Chick Chop       51
Mcdonald'S             48
                       ..
Sadda Adda              2
Shalimar Vyanjan        2
Spooky Sky              2
```

```
Shri Ram Restaurant     2
Nanking                 2
Name: count, Length: 744, dtype: int64
```

```
import pandas as pd
import plotly.express as px

# Load data
df = pd.read_csv("/content/Dataset 1.csv")

# Strip whitespace from column names
df.columns = df.columns.str.strip()

# Fix any misspelled or inconsistent column name
if 'Restaurnt_name' in df.columns:
    df.rename(columns={'Restaurnt_name': 'Restaurant_name'}, inplace=True)

# Check for and remove duplicate column names
df = df.loc[:, ~df.columns.duplicated()]

# Drop rows with missing essential values
df = df.dropna(subset=['Restaurant_name', 'Aggregate_rating', 'Votes'])

# Ensure numeric columns are of correct dtype
df['Aggregate_rating'] = pd.to_numeric(df['Aggregate_rating'], errors='coerce')
df['Votes'] = pd.to_numeric(df['Votes'], errors='coerce')

# Drop again after converting types
df = df.dropna(subset=['Aggregate_rating', 'Votes'])

# Group by Restaurant_name to calculate average rating and total votes
restaurant_analysis = df.groupby('Restaurant_name').agg(
    Branch_Count=('Restaurant_name', 'count'),
    Average_Rating=('Aggregate_rating', 'mean'),
    Total_Votes=('Votes', 'sum')
).reset_index()
```

```
# Round rating for readability
restaurant_analysis['Average_Rating'] = restaurant_analysis['Average_Rating'].round(2)

# Sort by popularity (Votes) or Rating
top_rated = restaurant_analysis.sort_values(by='Average_Rating', ascending=False)
most_voted = restaurant_analysis.sort_values(by='Total_Votes', ascending=False)

# Show top 10 by average rating
print("Top 10 Restaurants by Average Rating:")
print(top_rated.head(10))

# Show top 10 by popularity (votes)
print("\nTop 10 Restaurants by Total Votes:")
print(most_voted.head(10))
# Graphs

# Bar chart: Top 10 by Average Rating
fig1 = px.bar(
    top_rated.head(10),
    x='Restaurant_name',
    y='Average_Rating',
    color='Average_Rating',
    title='Top 10 Restaurants by Average Rating',
    text='Average_Rating'
)
fig1.update_layout(xaxis_title="Restaurant", yaxis_title="Average Rating")
fig1.update_traces(textposition='outside')
fig1.show()

# Bar chart: Top 10 by Total Votes
fig2 = px.bar(
    most_voted.head(10),
    x='Restaurant_name',
    y='Total_Votes',
    color='Total_Votes',
    title='Top 10 Restaurants by Total Votes',
    text='Total_Votes'
)
fig2.update_layout(xaxis_title="Restaurant", yaxis_title="Total Votes")
```

```
    fig2.update_traces(textposition='outside')
    fig2.show()
```

Top 10 Restaurants by Average Rating:

	Restaurant_name	Branch_Count	Average_Rating	Total_Votes
3149	Ingleside Village Pizza	1	4.9	478
4995	Pom Pom'S Teahouse And Sandwicheria	1	4.9	1457
3119	Indian Accent - The Manor	1	4.9	1934
4072	Mcguire'S Irish Pub & Brewery	1	4.9	2238
1282	Carnival By Tresind	1	4.9	322
1241	Cakebee	1	4.9	200
4068	Mazzaro'S Italian Market	1	4.9	1424
1292	Caterspoint	1	4.9	223
482	Atlanta Highway Seafood Market	1	4.9	681
4043	Masala Library	1	4.9	408

Top 10 Restaurants by Total Votes:

	Restaurant_name	Branch_Count	Average_Rating	Total_Votes
653	Barbeque Nation	26	4.35	28142
124	Ab'S - Absolute Barbecues	4	4.82	13400
6938	Toit	1	4.80	10934
779	Big Chill	4	4.47	10853
2291	Farzi Cafe	6	4.37	10098
6984	Truffles	2	3.95	9682
1508	Chili'S	5	4.58	8156
2879	Hauz Khas Social	1	4.30	7931
3263	Joey'S Pizza	2	4.25	7807
4899	Peter Cat	1	4.30	7574

Top 10 Restaurants by Average Rating