ZOMATO RESTAURANT ANALYSIS

By Vaddi Jaswant

OBJECTIVE:

Analyze the data and come up with strategies to open new restaurant

Objective Questions:

Note: Each objective question is answered in the format of answer and approach if needed

Q1)What is the total no. of tables present in the data?
Ans: There are two tables in the given excel workbook one is the table in excel sheet raw data which contains the details of restaurants, another one is in excel sheet country description which contains a table which has details regarding country and their country code

Q2) What is the total no. of attributes present in the data?
Ans: There are 20 columns in table which is in Raw data sheet and 2 columns in table which is in country description sheet
Approach: I have used excel formula =COUNTA and selected the range of header cells of the table to get the number

Q3) How many categorical columns are there in the data?
Ans: 14

Q4) The data consists of some inconsistent and missing values so ensure that the data used for further analysis is cleaned.
Approach: There are 9 blank cells in cuisines column, I don't want to make direct modifications to the given raw data so I made a new column cusines_modified and filled the blank cells with a normal default value "food",
The format of the DateKey_Opening is not in correct dateTime format so I have created a new column DateKey_Opening_modified and converted the values to date time format

Q5) Using the LookUp functions, fill up the countries in the original data using the country code.
Approach: I have created a new column with name Country next to CountryCode and used a VLOOKUP function(`=VLOOKUP(C2,'country description'!$A$1:$B$16,2)`) I got the value for country and using fill handle filled column

Q6) Create a table to represent the number of restaurants opened in each country.

Approach: I have created a new sheet named pivot table and then added a pivot table to it

I have given the whole raw data as its range and added the Country column as its rows and selected Count of Restaurants ID as its values
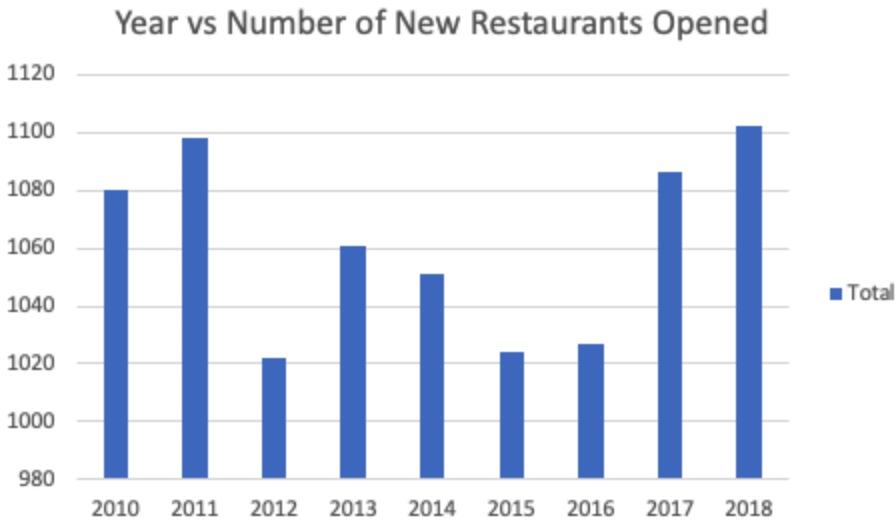
	Number of Restaurants in each country	
1		
2	**Country**	**Count of RestaurantID**
3	Australia	24
4	Brazil	60
5	Canada	4
6	India	8652
7	Indonesia	21
8	New Zealand	40
9	Philippines	22
10	Qatar	20
11	Singapore	20
12	South Africa	60
13	Sri Lanka	20
14	Turkey	34
15	United Arab Emirates	60
16	United Kingdom	80
17	United States of America	434
18	**Grand Total**	**9551**

Q7) Also, the management wants to look at the number of restaurants opened each year, so provide them with something here.

Approach: I have created a new column which contain left four chars of our datekey_opening which is year and I have created a pivot table in our pivot table sheet

I have given the new column DateKey_Opening_year as rows and count of restaurant id as values

Number of Restaurants Opened in each year	
DateKey_Opening_year ⌄	Count of RestaurantID
2010	1080
2011	1098
2012	1022
2013	1061
2014	1051
2015	1024
2016	1027
2017	1086
2018	1102
Grand Total	9551

Year vs Number of New Restaurants Opened

**Q8) What is the total number of restaurants in India in the price range of 4**

Approach: I have created a new Pivot table with price_range as rows and count of restaurantsID as values and added a slicer for Country and filtered the data for india, from this table we can see that there are **388** restaurants in india in price range of 4

No of Restaurants in reach price range	
Price_range	Count of RestaurantID
1	4295
2	2858
3	1111
4	388
Grand Total	8652

Country

- Australia
- Brazil
- Canada
- India
- Indonesia
- New Zealand
- Philippines
- Qatar
- Singapore

Q9) **What is the average number of voters for the restaurants in each country according to the data?**

Approach: I have created a new pivot table with country as rows and average no of votes as values to get the required data

Average No of Votes for restaurants in each Country	
Country	**Average of Votes**
Australia	111.4166667
Brazil	19.61666667
Canada	103
India	137.212552
Indonesia	772.0952381
New Zealand	243.025
Philippines	407.4090909
Qatar	163.8
Singapore	31.9
South Africa	315.1666667
Sri Lanka	146.45
Turkey	431.4705882
United Arab Emirates	493.5166667
United Kingdom	205.4875
United States of America	428.2211982
Grand Total	**156.9097477**
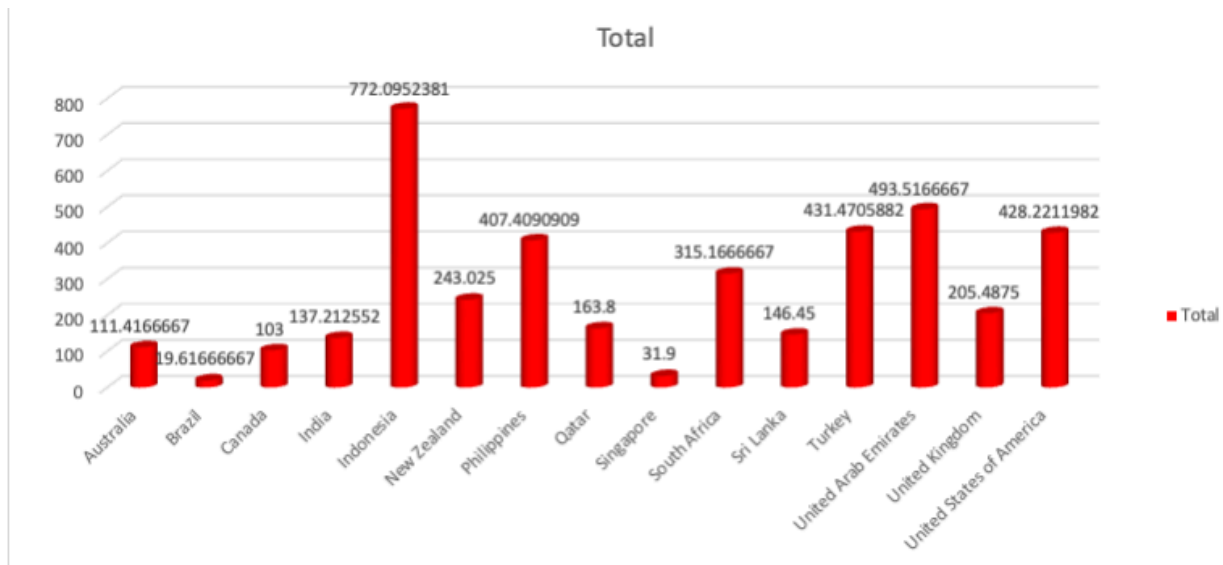
Q10) Calculate the average rating for all the restaurants that have price_range < 4 and provide online delivery. Use only the "IF" function, Logical Operators, and Aggregation functions to solve this problem.

Approach: I got average rating as **3.27381151,** I have used the formula:

"`=AVERAGE(IF((('Raw Data'!R2:R9552 < 4) * ('Raw Data'!O2:O9552 = "Yes"), 'Raw Data'!U2:U9552))`" to the average rating

Q11) Using Conditional formatting highlight the rows of restaurants that are located in the countries or cities that you've suggested to the management for opening new restaurants.

Approach: Added a new conditional formatting rule in Raw Data sheet which will check if country code matches the countries we have selected and if it does then that rows are colored in green color

Q12) Create a new customized price column that consists of the abbreviation/symbol of the currency along with the Average_cost_for_two value.

Approach: I have created a new column next to average_cost_for_two I have named that column as Customized Column and I have used

formula:`=CONCAT(MID(M10,FIND("(",M10)+1,FIND(")",M10)-FIND("(",M10)-1),T10)"`

To fill the column

Q13) How can you create an array formula in Excel or Google Sheets to count the number of restaurants listed that do not offer online delivery, are in the lowest price range, and have an average cost for two people less than or equal to 250 Indian Rupees?

ANS: I got total 1694 restaurants which satisfies all our given conditions

Approach: To solve this question I have converted the average cost for two which is in different currencies for different countries into rs and then I have used the array formula :"**=SUM(IF((('Raw Data'!O2:O9552 = "No") * ('Raw Data'!R2:R9552 = MIN('Raw Data'!R2:R9552)) * ('Raw Data'!Y2:Y9552 <= 250)), 1,0))**"

Here column O represents has online delivery, Column R represents the price range and column y represents the average cost for two of all the countries in rupees

SUBJECTIVE

Q1)**Suggest a few countries where the team can open newer restaurants with lesser competition. Which visualization/technique will you use here to justify the suggestions?**

Ans)

Based on the analysis, I recommend the team consider Canada, Singapore, Australia, and Sri Lanka for opening new restaurants. These countries were

selected because they exhibit lower competition compared to others, as indicated by the lower average rating and lower count of existing restaurants.

Rationale for Selection:

- **Canada and Singapore**:
  - **Canada** has only 4 restaurants, and **Singapore** has 20, making them attractive markets with significantly lower competition compared to others like India.
  - The average ratings for Canada and Singapore are 3.575, suggesting that while the market appreciates quality, there is still room for growth and improvement.
- **Australia**:
  - With 24 restaurants and an average rating of 3.683, Australia presents an opportunity where competition is present but not overwhelming, making it feasible to capture market share with a new, high-quality offering.
- **Sri Lanka**:
  - Sri Lanka has 20 restaurants with an average rating of 3.87, indicating a market with a balance between lower competition and relatively high customer satisfaction, making it a viable option for expansion.

Rationale for Not Selecting India and Brazil:

- **India**:
  - India has an overwhelming 8,652 restaurants, which indicates a highly saturated market. The sheer number of existing restaurants would make it challenging for new entrants to differentiate themselves and capture market share.
- **Brazil**:
  - Although Brazil has fewer restaurants (60) compared to India, it still represents a more competitive market than the selected countries. The moderate level of competition combined with the average rating does not provide a compelling case for expansion when compared to

the less saturated markets of Canada, Singapore, Australia, and Sri Lanka.

These insights highlight the strategic advantage of targeting markets where competition is lower, allowing for easier entry and the potential to establish a strong presence.

Here is that pivot table

Row Labels	Count of RestaurantID	Average of Rating
India	8652	2.770550162
Canada	4	3.575
Singapore	20	3.575
Australia	24	3.658333333
Brazil	60	3.846666667
Sri Lanka	20	3.87
United States of America	434	4.011290323
Qatar	20	4.06
United Kingdom	80	4.1
South Africa	60	4.21
United Arab Emirates	60	4.233333333
New Zealand	40	4.2625
Indonesia	21	4.295238095
Turkey	34	4.3
Philippines	22	4.468181818
Grand Total	**9551**	**2.89126793**

Visualization Technique: To support these suggestions, I used a Combo Chart derived from the pivot table.

- **Why a Combo Chart?**
  - The combo chart effectively combines a bar chart and a line chart, enabling a clear comparison of both the number of restaurants and the average rating in each country. This allows for an easier assessment of competition levels across different countries.
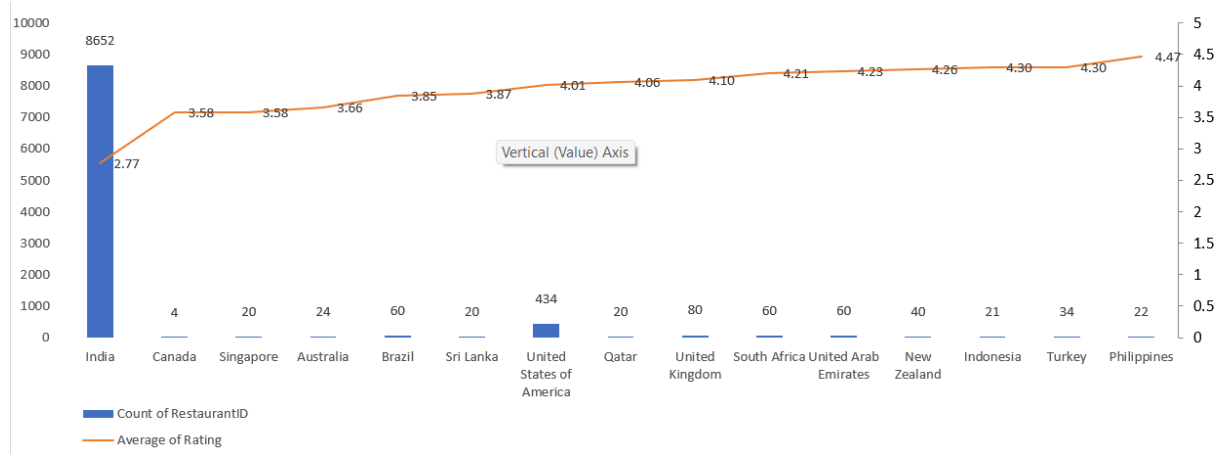
So the few Countries I recommend are:**Canada, Singapore, Australia and Sri lanka**

Q2)Come up with the names of States and cities in the suggested countries suitable for opening restaurants.
ANS)

Based on the analysis of the selected countries—Canada, Singapore, Sri Lanka, and Australia—I recommend the following cities and states for opening new restaurants:

1. **Canada**
   - **City: Consort**
     - **Reason:** Consort has only one restaurant, making it an ideal location with minimal competition. The average rating of 3.3

suggests room for improvement, offering an opportunity to introduce new dining experiences.

2. **Singapore**
   - **City: Singapore**
     - **Reason:** While Singapore has 20 restaurants, the consistent average rating of 3.575 indicates steady demand. This presents an opportunity for new entrants to differentiate themselves with unique offerings.

3. **Sri Lanka**
   - **City: Colombo**
     - **Reason:** Colombo has 20 restaurants with an average rating of 3.87. This higher-than-average rating suggests a strong market, yet with moderate competition, making it a promising location for expansion.

4. **Australia**
   - **City: Montville**
     - **Reason:** Montville has only one restaurant with a low average rating of 2.4, indicating significant room for improvement. This creates an opportunity for a new restaurant to capture the market by offering a superior dining experience.

Pivot Table: The pivot table summarizes key metrics—count of restaurants and average rating—by country and city. This helps in identifying cities with lower competition.

Row Labels	Count of RestaurantID	Average of Rating
⊟ **Canada**	**4**	**3.575**
Consort	1	3
Yorkton	1	3.3
Chatham-Kent	1	3.7
Vineland Station	1	4.3
⊟ **Singapore**	**20**	**3.575**
Singapore	20	3.575
⊟ **Sri Lanka**	**20**	**3.87**
Colombo	20	3.87
⊟ **Australia**	**24**	**3.658333333**
Montville	1	2.4
Paynesville	1	2.6
Mayfield	1	2.9
Balingup	1	3.2
Penola	1	3.4
Armidale	1	3.5
Macedon	1	3.5
Flaxton	1	3.5
Lorn	1	3.6
Victor Harbor	1	3.6
Dicky Beach	1	3.6
Forrest	1	3.7
Phillip Island	1	3.7
Inverloch	1	3.7
Hepburn Springs	2	3.8
Lakes Entrance	1	3.8
Middleton Beach	1	3.8
Huskisson	1	4.1
East Ballina	1	4.1

Chart:

Combo Chart: The Combo chart visualizes the count of restaurants and their average ratings across selected cities. It provides a clear comparative view
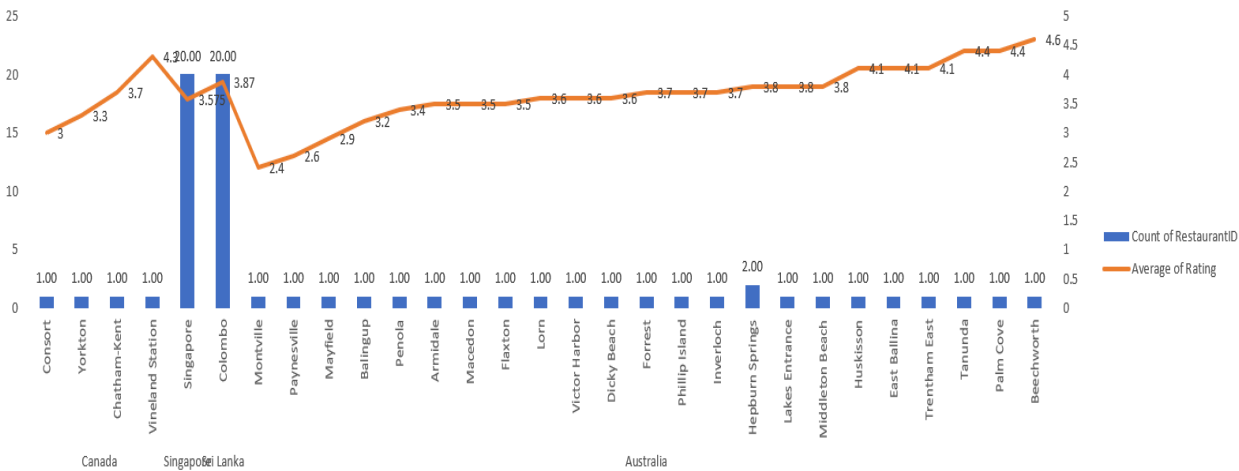
Q3) According to the countries you suggested, what is the current quality regarding ratings for restaurants that are open there?
ANS)

I have created a pivot table with countries as column and filtered the countries which I have selected and average rating as value

The overall average rating across these countries is approximately **3.69**.

Summary: Sri Lanka has the highest average restaurant rating among the countries analyzed, followed by Australia. Canada and Singapore have similar and slightly lower average ratings. This indicates that the quality of restaurants, in terms of customer ratings, is highest in Sri Lanka and relatively consistent across the other countries, with slight variations.

Pivot table:

Row Labels ▼Ⴈ	Average of Rating
Australia	3.658333333
Canada	3.575
Singapore	3.575
Sri Lanka	3.87
Grand Total	**3.691176471**

Visualization:

Country Vs Average Rating
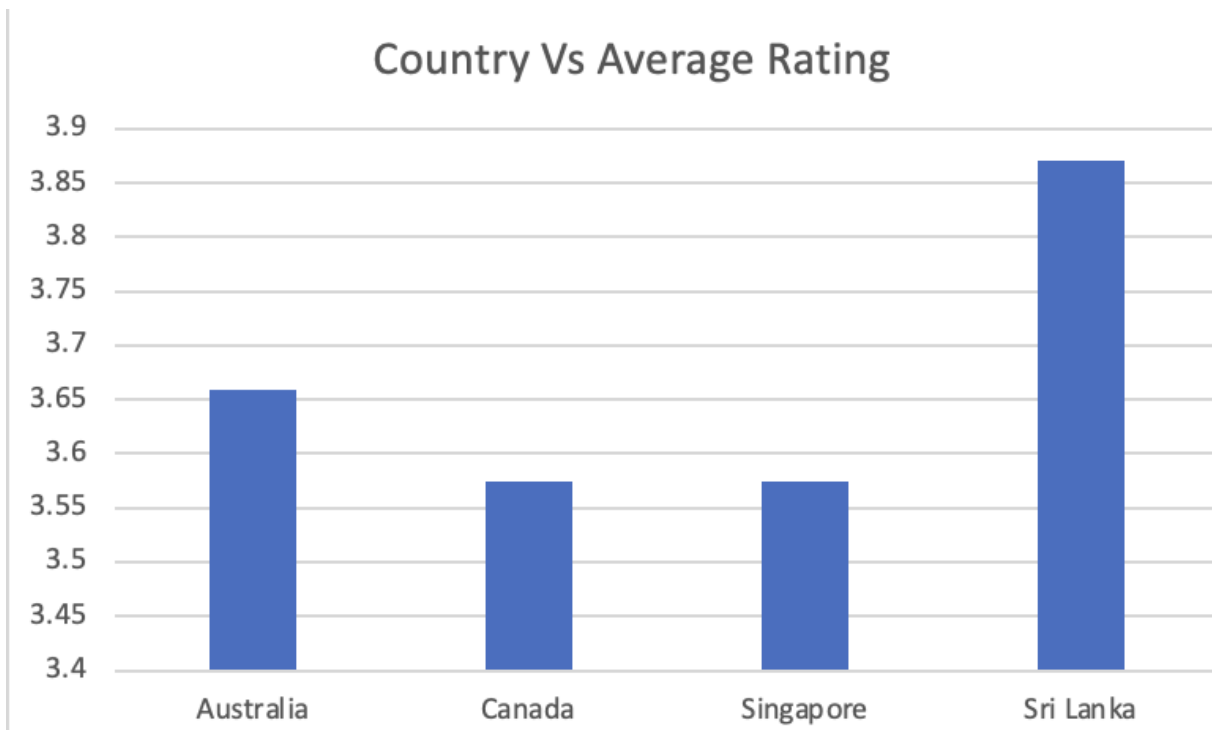
Q4)**Also, what is the current expenditure on food in the suggested countries, so we can keep our financial expenditure in control?**

Ans)

We are not given any data which directly links to the expenditure on food for countries but we can use average cost for 2 people in each restaurant assuming each restaurant is trying to make same approximately same profit
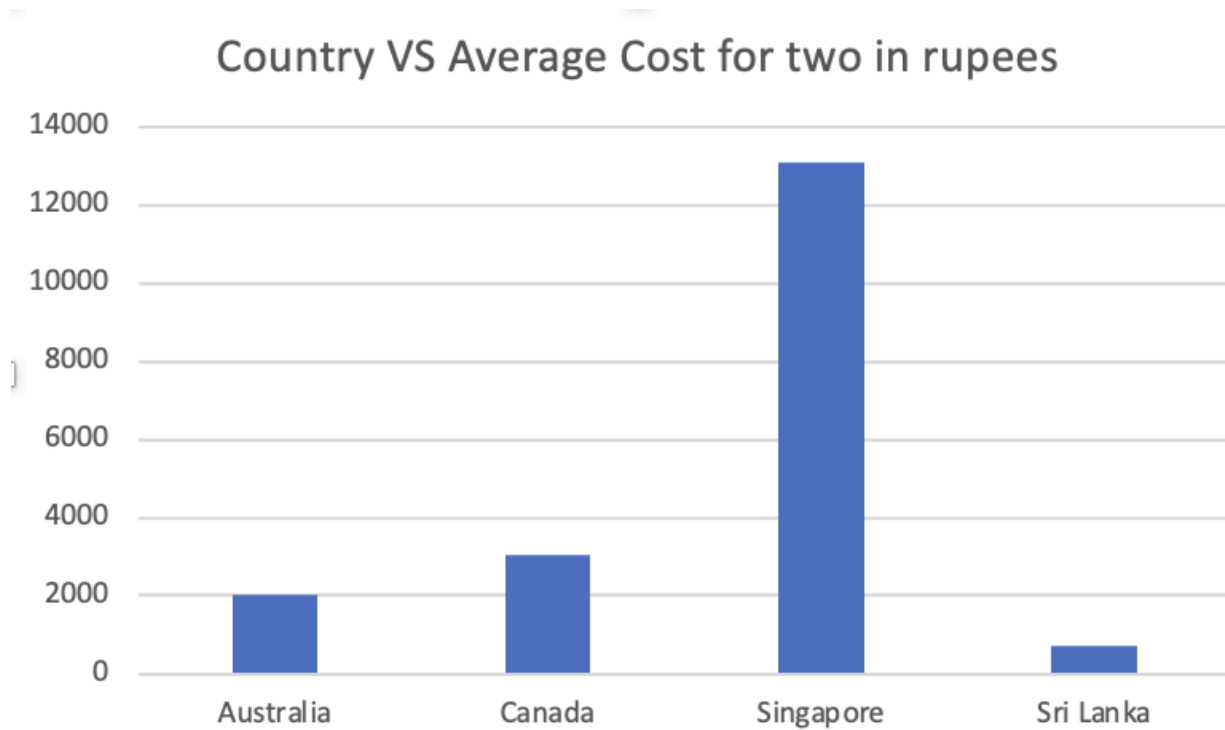
We have average cost for 2 people in different currencies for different restaurants in different countries so to overcome this limitation I have made a new column which is average cost for 2 people in rs and converted each restaurants average cost for 2 in all currencies to rs

To achieve this I have created a new table in new currencies sheet which has price conversion for each currency to rupees and I have used a xlookup function to get the conversion value and multiplied the conversion value with the present average cost for 2

Pivot table:

Row Labels	Average of Average_Cost_for_two in rs
Australia	2023
Canada	3045
Singapore	13083
Sri Lanka	712.5
Grand Total	**4950.617647**

visualization:

Country VS Average Cost for two in rupees

Q5)**Come up with the names of restaurants from the recommended states that are our biggest competitors and also those that are rated in the lower brackets, i.e. 1-2 or 2-3.**

Ans)

Our biggest competitor will be the restaurants who has rating of more than 4 so I have created a pivot table which takes the whole raw data as data source and added cities and restaurants as rows and added a filter to citi names to filter the restaurants which only in the cities which we have selected and added ratings in the values

Pivot table:

| Row Labels	Average of Rating
⊟ Singapore	4.15
Fratini La Trattoria	4.1
Al'frank Cookies	4.2
⊟ Colombo	4.277777778
Carnival Ice Cream	4.1
Burger's King	4.1
Cafe Beverly	4.1
Arabian Knights	4.2
Cricket Club Cafe	4.2
Butter Boutique	4.2
The Sizzle	4.2
Simply Strawberries By Jagro	4.5
Ministry of Crab	4.9
Grand Total	4.254545455

Visualization
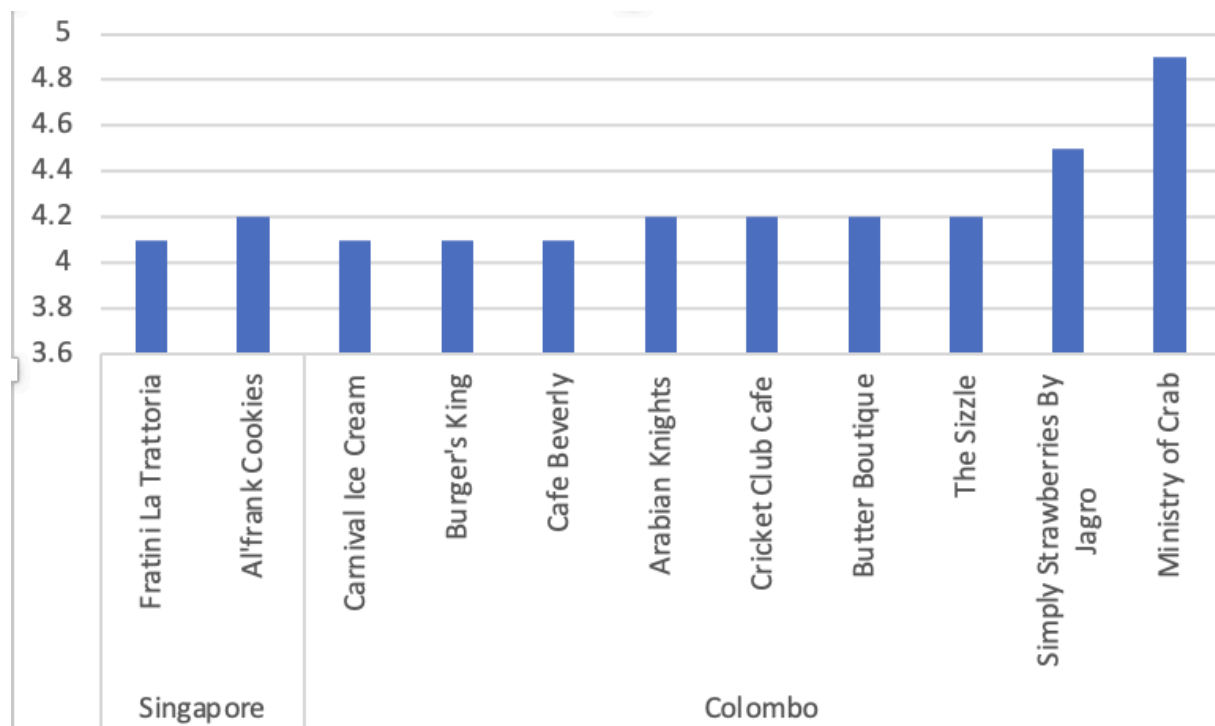
Same way as above I have created another pivot table and filtered restaurants names in our selected cities which have rating less than or equal to 3

Pivot table:

Row Labels	Average of Rating
Montville	2.4
Poets Cafe	2.4
Colombo	2.45
Elite Indian Restaurant	2.4
Queen's Cafe	2.5
Consort	3
Consort Restaurant	3
Singapore	3
Makansutra Gluttons Bay	3
Grand Total	2.66

Visualization
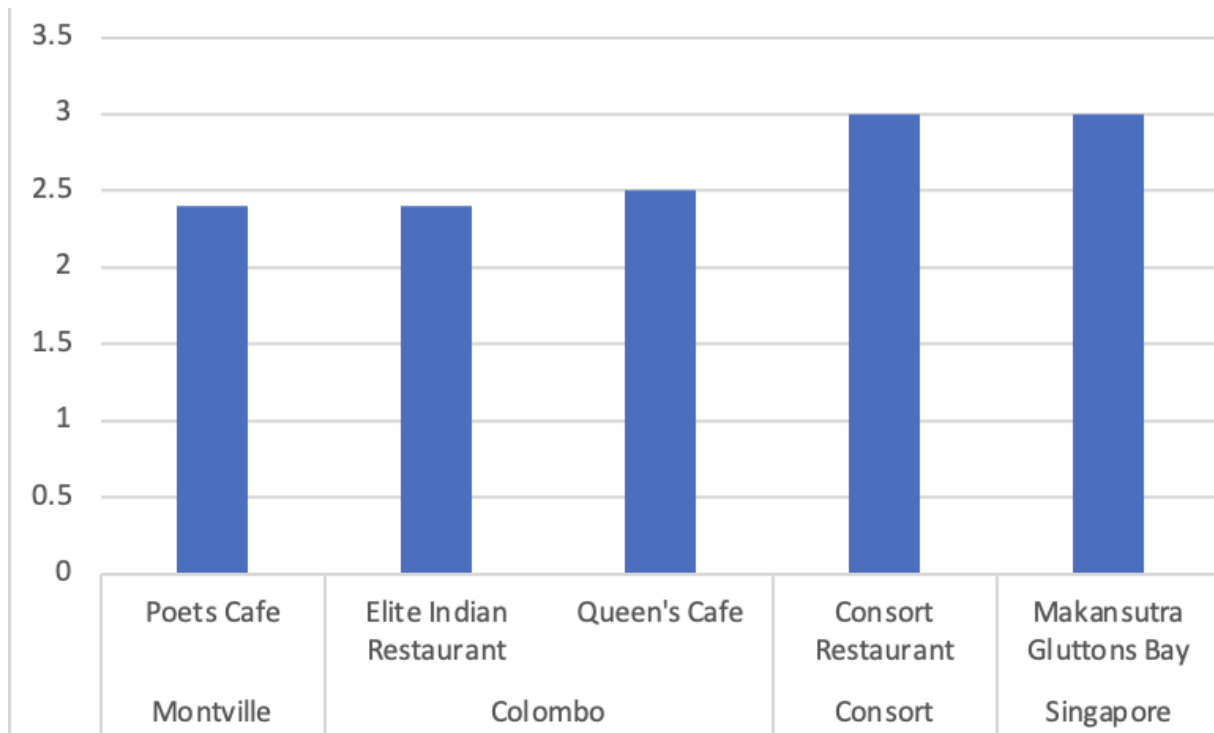
INFERENCE:

Based on the first pivot table, we can observe that there are nine restaurants in Colombo with ratings of 4 or higher. The top contenders are Ministry of Crab and Simply Strawberries By Jagro, both with average ratings of 4.5 or above, making them strong competitors in the market. In Singapore, the two restaurants with ratings above 4 are Fratini La Trattoria and Al'Frank Cookies.

From the second pivot table, we see that there are two restaurants in Colombo with ratings below 3: Elite Indian Restaurant and Queen's Cafe. In Singapore, Makansutra Gluttons Bay has a rating of 3. Additionally, Poets Cafe in Montville has a rating of 2.4, and Consort Restaurant in Consort has a rating of 3. These lower-rated establishments might pose less of a competitive threat.

Q6)**Which cuisines should we focus on in the newer restaurants to get better feedback? Does the choice of cuisines affect the restaurant ratings?**
Ans) Yes, the choice of cuisine does influence restaurant ratings, as certain cuisines are more popular in specific cities. To analyze this, I created a pivot table and a visualization chart to examine how different cuisines are rated in various cities.

From the data, we can infer that seafood, juices, and desserts are particularly popular in Colombo, while in Singapore, bakery items, Italian dishes, and American steaks are highly favored.

On the other hand, Consort and Montville each have only one restaurant offering a single type of cuisine, and since their ratings are low, it's difficult to determine which type of cuisine would be most successful in these locations.

Pivot table:

Row Labels	Average of Rating
⊟ Colombo	3.87
Seafood	4.9
Juices, Desserts	4.5
Middle Eastern, Arabian	4.2
American, Fast Food, Steak, Beverages	4.2
Continental, American, Seafood	4.2
Desserts, Bakery	4.2
Continental, American	4.1
Fast Food	4.1
Desserts, Ice Cream	4.1
Cafe, Sri Lankan, Continental, American	4
Sri Lankan	4
Seafood, Italian	4
American, Steak	4
Cafe, Fast Food, Beverages	3.8
Italian, Cafe, Desserts	3.7
Cafe, Italian	3.6
Malaysian, North Indian, Sri Lankan	3.5
Chinese	3.4
American, Chinese, North Indian	2.5
North Indian, Chinese, Sri Lankan	2.4
⊟ Consort	3
Chinese, Canadian	3
⊟ Montville	2.4
Coffee and Tea, Modern Australian	2.4
⊟ Singapore	3.575
Bakery	4.2
Italian	4.1
American, Steak	4
Chinese, Seafood, Cantonese, Dim Sum	3.9
Finger Food	3.9
French	3.85
Asian, Continental, Seafood	3.8
French, Mediterranean, European	3.8
American, Bakery, European, Burger, Fusion	3.8
Cafe	3.7
Chinese, Continental, Singaporean	3.4
Italian, French, Bakery, Cafe	3.2
American, Mexican	3.2
Western, Fusion, Fast Food	3.2
Cafe, Spanish, Turkish, Greek	3.2
American, Japanese, Singaporean	3.2
Singaporean, Australian, German	3.1
American	3.1
Singaporean, Chinese, Seafood, Malay, Indian	3
Grand Total	3.673809524

Visualize:
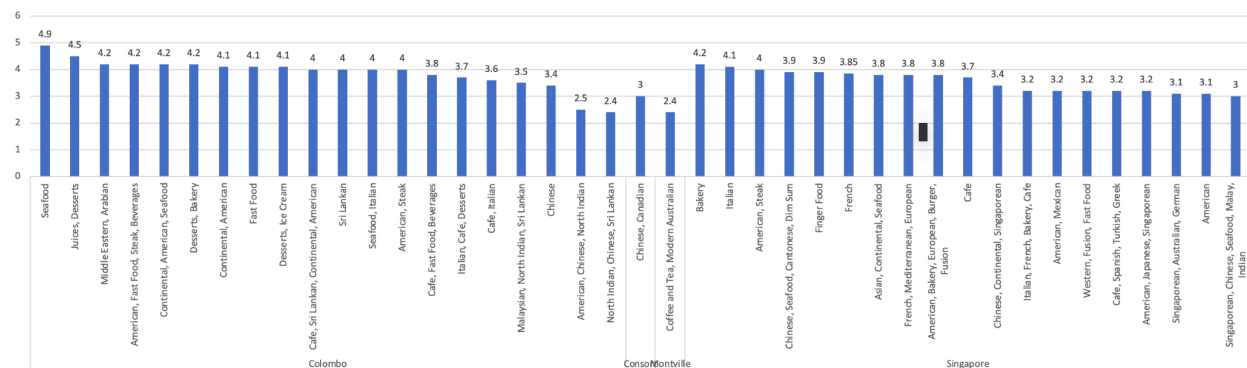
Q7)According to our current data, should we go for online delivery and table booking? Does that affect the customer's ratings?
Ans)
The data suggests that there is a slight increase in customer ratings when a restaurant offers both online delivery and table bookings.

Looking at the grand total average ratings, we see that restaurants offering both options have a higher average rating (2.89) compared to those offering only online delivery (2.89) or only table bookings (2.89). However, the difference is minimal.

The pie charts further illustrate this trend:
- Table Bookings: 55% of customers with table bookings give a higher rating, while only 45% give a lower rating.
- Online Delivery: 54% of customers with online delivery give a higher rating, while only 46% give a lower rating.

Pivot table:

Has Table Bookings ▼	Average of Rating
No	2.809686644
Yes	3.482556131
Grand Total	**2.89126793**

Has Online Delivery ▼	Average of Rating
No	2.754309859
Yes	3.288004896
Grand Total	**2.89126793**

Visualization:

Has Table Bookings / Has Online Delivery
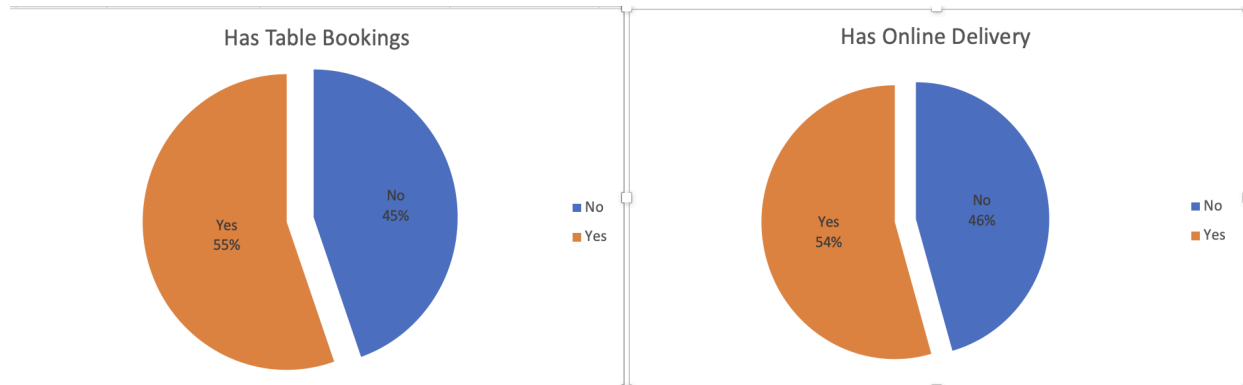
Q8)**Should the team keep the rate of cuisines higher? Will that affect the feedback? According to our data are the rates of cuisines and ratings, correlated?**
**Ans)**

The correlation analysis between the average price and customer ratings resulted in a correlation coefficient of **0.2782**. This indicates a **weak positive correlation** between the two variables, suggesting that as the average price increases, customer ratings tend to increase slightly, but the relationship is not strong.

Additionally, the scatter plot with a linear forecast trendline confirms this weak positive trend. The trendline shows that while there is a slight upward trajectory, the variation in ratings cannot be strongly predicted by changes in price alone.

Given this weak correlation, **keeping the rate of cuisines higher may have a slight positive impact on customer feedback**, but it's unlikely to be the primary factor influencing customer satisfaction. Other factors, such as the quality of the food, service, ambiance, and overall dining experience, may play a more significant role in shaping customer feedback.

0.278279648

.

Rating vs Average Cost For two in rs
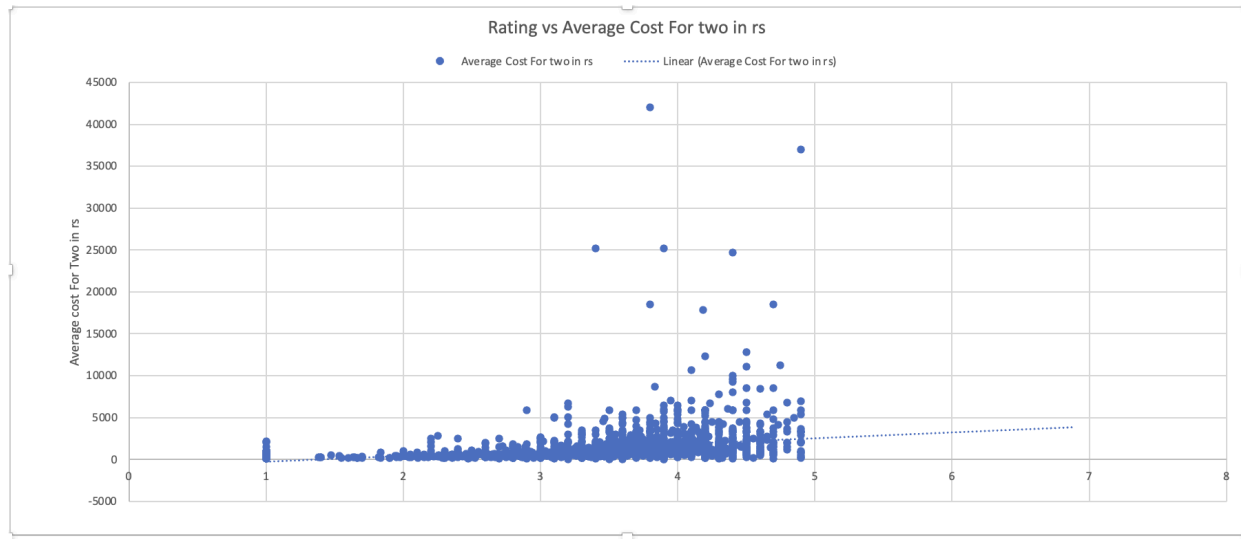
Q9)What is the distribution of the number of restaurants of different price ranges in all the countries?
Ans)

Based on the pivot table data, the distribution of restaurants across different price ranges varies significantly by country. India has the largest number of restaurants in all price ranges, which significantly skews the data, making it difficult to observe the distribution in other countries.

To address this, a clustered bar chart was created with a logarithmic scale on the Y-axis (base 10). This adjustment allows us to better visualize the restaurant distribution across different countries, even when some countries have only one restaurant in a particular price range.

Key Observations:

- **India** dominates in all price ranges, particularly in the lowest price range (1), with a total of 4,295 restaurants.

- **Other countries** such as the United States, United Kingdom, and South Africa have a more balanced distribution across the different price ranges but with significantly lower totals compared to India.
- **Countries with fewer restaurants,** like Indonesia, Sri Lanka, and Qatar, have small but visible contributions across different price ranges when viewed on a logarithmic scale. These countries might have as few as one restaurant in some price ranges, which would be invisible on a linear scale but are now represented.

Conclusion:

The logarithmic scale effectively brings out the visibility of smaller data points, allowing us to see that even countries with fewer restaurants are spread across different price ranges. The clustered bar chart thus provides a clearer comparison across all countries despite the wide range of values, highlighting the diversity in restaurant distribution globally.

Pivot table:

Count of RestaurantID	Column Labels				
Row Labels	1	2	3	4	Grand Total
Australia	4	14	5	1	24
Brazil	2	7	16	35	60
Canada		3		1	4
India	4295	2858	1111	388	8652
Indonesia		1	20		21
New Zealand	3	4	17	16	40
Philippines		1	12	9	22
Qatar		1	5	14	20
Singapore		1	5	14	20
South Africa		4	17	39	60
Sri Lanka		6	11	3	20
Turkey		11	18	5	34
United Arab Emirates		9	29	22	60
United Kingdom	4	28	32	16	80
United States of America	136	165	110	23	434
Grand Total	4444	3113	1408	586	9551

Visualization:
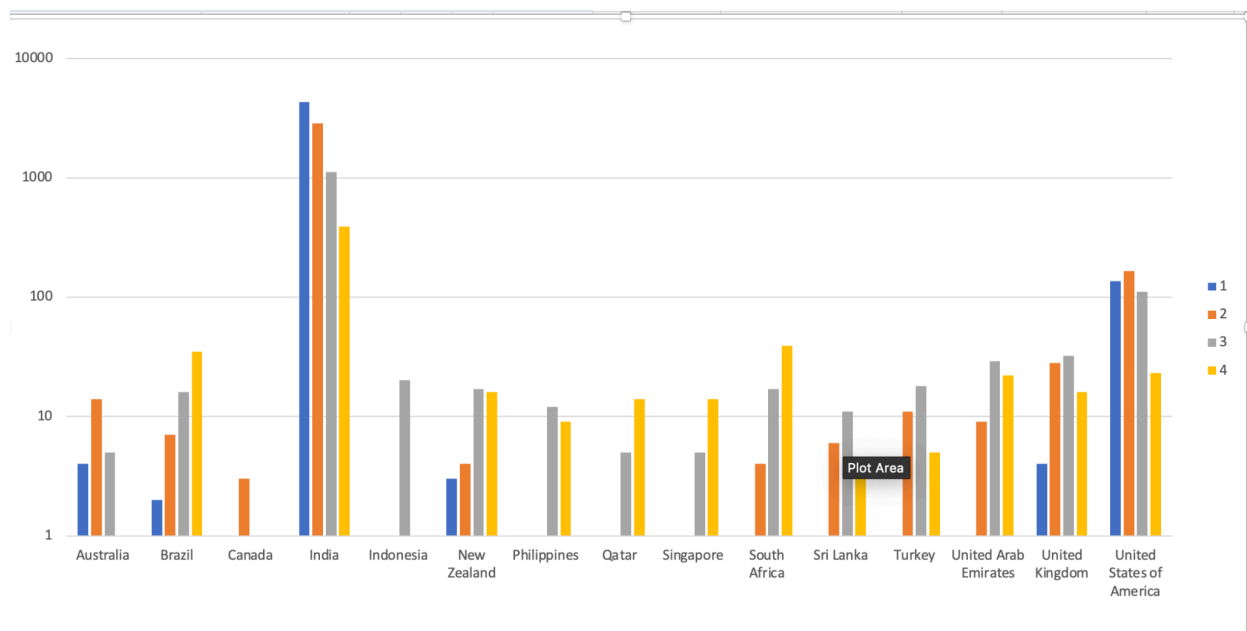
Q10)Explain your approach in brief for suggesting countries/cities in order to open new restaurants, if the objective and subjective questions would have not been given to assist you. **[you have to give bullet pointers in order to answer this question]**
ANS)
Country and City Selection Strategy:

- **Low Competition: Selected countries and cities based on a strategic analysis of restaurant density. The aim is to enter markets with fewer existing restaurants to minimize direct competition and increase the chances of establishing a strong market presence.**
- **High Spending Potential: Focused on cities where the average cost for two is high. This suggests a higher spending capacity among customers, which provides an opportunity to introduce affordable yet high-quality food options. By offering competitive pricing, we can attract cost-conscious customers while maintaining a focus on quality.**

Cuisine Recommendations by City:

- **Colombo:**
  - **Recommended Cuisines: Seafood, Juices & Desserts, American Fast Food & Steak**
  - **Rationale: Seafood and dessert items are highly rated, indicating strong customer preferences. Introducing these cuisines with competitive pricing can quickly attract a loyal customer base.**
- **Doha:**
  - **Recommended Cuisines: Chinese, Italian, Thai**
  - **Rationale: Chinese cuisine is particularly popular in Doha. Offering high-quality Chinese dishes at a lower price point can set the restaurant apart from existing competitors.**
- **Singapore:**
  - **Recommended Cuisines: Bakery, Italian, American Steak**
  - **Rationale: The popularity of bakery items and Italian cuisine suggests a market ready for affordable yet authentic options. This provides an**

opportunity to capture a portion of the market by offering value-for-money choices.
- **Vineland Station:**
  - **Recommended Cuisines: Italian, Mediterranean, Pizza**
  - **Rationale: With a strong preference for Italian and Mediterranean cuisine, introducing budget-friendly yet high-quality options can help in quickly establishing a foothold in this market.**

Main Strategy:

- **Affordable Quality: By targeting cities with high average dining costs, the strategy is to introduce competitively priced yet high-quality food. This can attract a wide customer base, including those who seek value for money.**
- **Market Penetration: The focus on cities with lower competition will allow the restaurant to enter the market with a unique selling proposition (USP) of offering affordable yet high-rated cuisines, helping to quickly gain a competitive edge.**