**ZOMATO RESTAURANTS PROJECT**

**Objective Questions**:

1. **What is the total no. of tables present in the data?**

2 Tables

Table 1: Raw data – All information about restaurants

Table 2 : Country Description – Country code and Country name

2.**What is the total no. of attributes present in the data?**

Each column is considered an attribute, so the data contains 22 attributes. Although "Country Code" appears in both the 'Raw Data' table and the "Country Description" table, they are treated as distinct attributes due to their presence in separate tables. Columns with the same name but in different tables are viewed independently because each table represents a unique entity.

Sheet 1: Raw data

* **Restaurant ID:** Unique identifier for each restaurant.
* **Restaurant Name:** The name of the restaurant.
* **Country Code:** Country code of the location where the restaurant is situated.
* **City:** The city where the restaurant is located.
* **Address:** The specific address of the restaurant.
* **Locality:** The locality or neighbourhood where the restaurant is situated.
* **Locality Verbose:** Detailed information about the locality.
* **Longitude:** The geographical longitude coordinate of the restaurant.
* **Latitude:** The geographical latitude coordinate of the restaurant.
* **Cuisines:** The type of cuisine offered by the restaurant.
* **Currency:** The currency used for transactions in the restaurant.
* **Has\_Table\_booking:** Indicates whether the restaurant has a table booking option (Yes/No).
* **Has\_Online\_delivery:** Indicates whether the restaurant offers online delivery (Yes/No).
* **Is\_delivering\_now:** Indicates whether the restaurant is currently delivering (Yes/No).
* **Switch\_to\_order\_menu:** Indicates whether users can switch to the order menu (Yes/No).
* **Price\_range:** A numeric value indicating the price range category of the restaurant.
* **Votes:** The number of votes or ratings/(feedback) received by the restaurant.
* **Average\_Cost\_for\_two:** The average cost for two people dining at the restaurant.
* **Rating:** The overall rating of the restaurant is based on user reviews.
* **Datekey\_opening:** The date when the restaurant was opened.

Sheet 2: Country description

**CountryCode:** Country code of the location where the restaurant is situated.

**Country name: Respective** country for given country code.

**3.How many categorical columns are there in the data? [Search about categorical and continuous data, and try to answer this question]**

Categorical data consists of discrete values that fall into distinct categories or groups, and they often include text values or codes. So, there are 15 categorical columns and that are following:

1.**Restaurant Name:** The name of the restaurant.

2.**CountryCode:** Country code of the location where the restaurant is situated.

3.**City:** The city where the restaurant is located.

4.**Address:** The specific address of the restaurant.

5.**Locality:** The locality or neighbourhood where the restaurant is situated.

6.**Locality Verbose:** Detailed information about the locality.

7.**Cuisines:** The type of cuisine offered by the restaurant.

8.**Currency:** The currency used for transactions in the restaurant.

9. **Has\_Table\_booking:** Indicates whether the restaurant has a table booking option (Yes/No).

10. **Has\_Online\_delivery:** Indicates whether the restaurant offers online delivery (Yes/No).

11.**Is\_delivering\_now:** Indicates whether the restaurant is currently delivering (Yes/No).

12.**Switch\_to\_order\_menu:** Indicates whether users can switch to the order menu (Yes/No).

13.**Datekey\_opening:** The date when the restaurant was opened.

14. **CountryCode:** Country code of the location where the restaurant is situated.

15. **Country name: Respective** country for given country code.

**4.The data consists of some inconsistent and missing values so ensure that the data used for further analysis is cleaned.**

**Identify and handling missing values**

**1.Cuisines**

There were 9 missing values

How I find it:

* Find and S elect
* Go to Special
* Blanks

All the blank cells got Highlighted with green colour. Applied ‘Filter by color’ on Cuisines to check Blank Cells. Then deleted the rows.

All the 9 missing values belong to country code – 216. So, created two pivot tables

Table 1: 'Objective answers'!$A$3

* Rows – Country Code
* Values – Distinct count of restaurants id and averages
* Output – Restaurants count is 434 and Average rating is 4.0

Table 2:

* Rows – Cuisines
* Columns – Country code
* Values – Avg. rating
* Output – Blank restaurants is **4.011290323**

Average of all restaurants is approximately equal to average of restaurants with blank cuisines. So, removing these 9 restaurants from country code - 216 will not affect the whole dataset.

**Inconsistent Values**

1.**Restaurants Id**

There is inconsistency in restaurants id.

* I checked maximum length of restaurants Id, and it comes out to be 8.

FORMULA: =MAX(LEN(A2:A9552))

* Then applied conditional formatting in which applied the rule to highlight the restaurants ids with length less than 8.

RULE: =LEN(A1) <8

* To make all the restaurants ids in same length, Formatted the cells in a custom format of “00000000”

2**. Leading and Trailing spaces**

* Selected the whole dataset and used conditional formatting with a new rule.

RULE: =LEN(A1)<>TRIM(LEN(A1))

* Address, Locality, Locality Verbose had extra spaces in values. So, by using TRIM function I make it consistent.

**3.Pre-Processing – added column**

* **Country:** Added the country for respective country code by using V-lookup Function. This column make analysis better.

=VLOOKUP('Raw Data'!C2,'country description'!$A$2:$B$16,2,0)

* Opening\_Month and Opening\_year: Extracted the opening year and opening month from ‘Date key opening’ using TEXT function.

=TEXT(DATEVALUE(SUBSTITUTE(T2, "\_", "/")), "yyyy")

=TEXT(DATEVALUE(SUBSTITUTE(T2, "\_", "/")), "mmmm")

* State: Identified the state name from cities name. This will help us in understanding restaurants density in countries.
* Average cost for two in INR – Changed the ‘average price for two’ currency into INR.This will help us to know the average value in the form of one country.

**5.Using the LookUp functions, fill up the countries in the original data using the country code.**

To fill up the countries in the original data using country code that is present in Country description sheet will require use of VLOOKUP Function.

=VLOOKUP(lookup value,table array,column index number)

=VLOOKUP('Raw Data'!C2,'country description'!$A$2:$B$16,2,0)

**6.Create a table to represent the number of restaurants opened in each country.**

**PIVOT TABLE**: Objective answers'!$Z$28

Rows – country

|  |  |
| --- | --- |
| **Country** | **Count of RestaurantID** |
| Australia | 24 |
| Brazil | 60 |
| Canada | 4 |
| India | 8652 |
| Indonesia | 21 |
| New Zealand | 40 |
| Philippines | 22 |
| Qatar | 20 |
| Singapore | 20 |
| South Africa | 60 |
| Sri Lanka | 20 |
| Turkey | 34 |
| United Arab Emirates | 60 |
| United Kingdom | 80 |
| United States of America | 434 |
| **Grand Total** | **9551** |

Values – Count of Restaurants\_ID

**Observation/ Result:** Total Restaurants = 9551

India has highest number of Restaurants = 8652

Canda has lowest number of Restaurants = 4

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

**Pivot Table**: Rows – Opening\_year

Values – Count of Restaurants\_ID

**Observation/Result:** Year 2018 records the highest number of restaurants opened.

|  |  |
| --- | --- |
| **Year of opening** | **Count of RestaurantID** |
| 2010 | 1080 |
| 2011 | 1098 |
| 2012 | 1022 |
| 2013 | 1061 |
| 2014 | 1051 |
| 2015 | 1024 |
| 2016 | 1027 |
| 2017 | 1086 |
| 2018 | 1102 |
| **Grand Total** | **9551** |

**8.What is the total number of restaurants in India in the price range of 4?**

By using COUNTIFS FUNCTION : =COUNTIFS(V:V,"India",Q:Q,"4")

Answer: 388

Reference sheet : Raw data

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

Used Pivot table to find average numbers of voters for the restaurants in each country.

**Rows**: Country

**Values**: Average of Votes

**Observation and Result:** Indonesia has the highest votes average, which means customers are very interactive with Restaurants and Brazil has the lowest average votes.

**Reference :** Objective answers sheet

|  |  |
| --- | --- |
| **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** |

**10.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. [Note: Don’t use Conditional aggregation in this question.]**

=AVERAGE(IF((N2:N9543="Yes"),IF(Q2:Q9543<4,T2:T9543)))

ANSWER = 3.27381151

**11.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.**

These are the following steps I followed to highlight the rows of restaurants that are located in the countries that that i’ve suggested to the management for opening new restaurants:

* Highlight your entire data range.
* Go to the Home tab.
* Click on Conditional Formatting.
* Choose New Rule.
* Use a Formula to Determine Which Cells to Format.
* Use the TRIM and UPPER functions in the formula to eliminate spaces and ignore case sensitivity

=OR(TRIM(UPPER($V2))="CANADA", TRIM(UPPER($V2))="AUSTRALIA", TRIM(UPPER($V2))="PHILIPPINES", TRIM(UPPER($V2))="INDONESIA", TRIM(UPPER($V2))="SOUTH AFRICA")

* Click on the Format button.
* Choose color .
* Click OK.

**12.Create a new customized price column that consists of the abbreviation/symbol of the currency along with the Average\_cost\_for\_two value. [Use string operations to do this task]**

I created new customized column by using following formula:

=MID(L2,FIND("(",L2)+1,FIND(")",L2)-FIND("(",L2)-1)&S2

**Explanation of formula**

* FIND("(", 12) +1: Finds the position of the opening parenthesis and adds 1 to get the position of the first character after the opening parenthesis.
* FIND(")T2): Finds the position of the closing parenthesis.
* FIND(")", T2)-FIND("(", T2)-1: Calculates the number of characters between the opening and closing parenthesis.

**13. 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?**

{=SUM((M2:M9543="No") \* (P2:P9543=1) \* (T2:T9543<=250))}

=1694

After typing the formula, I press Ctrl + Shift + Enter to confirm it as an array formula.

**Explanation of the Formula**

* (M2:M9543="No"): Checks if the restaurant does not offer online delivery.
* (P2:P9543=1): Checks if the restaurant is in the lowest price range (assuming 1 indicates the lowest).
* (T2:T9543<=250): Checks if the average cost for two is less than or equal to 250.
* **Multiplication**: The multiplication \* acts as a logical AND operator, meaning only rows that meet all conditions contribute 1 to the sum, while others contribute 0.
* **SUM**: The SUM function totals the counts of restaurants meeting all conditions.

**Subjective Question:**

1. **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?**

To determine countries where team can open newer restaurants with lesser competition, I used following parameters.

1. Density of Restaurants

Compare No of restaurants in each Country

|  |  |
| --- | --- |
| **Country** | **Count of RestaurantID** |
| Australia | 24 |
| Brazil | 60 |
| Canada | 4 |
| India | 8652 |
| Indonesia | 21 |
| New Zealand | 40 |
| Philippines | 22 |
| Qatar | 20 |
| Singapore | 20 |
| South Africa | 60 |
| Sri Lanka | 20 |
| Turkey | 34 |
| United Arab Emirates | 60 |
| United Kingdom | 80 |
| United States of America | 434 |

Geographical size table

|  |  |
| --- | --- |
|  | Country |
| 1 | **Canada** |
| 2 | **Australia** |
| 3 | **Brazil** |
| 4 | **India** |
| 5 | **Indonesia** |
| 6 | **South Africa** |
| 7 | **Turkey** |
| 8 | **United States of America** |
| 9 | **United Kingdom** |
| 10 | **Philippines** |
| 11 | **New Zealand** |
| 12 | **Sri Lanka** |
| 13 | **United Arab Emirates** |
| 14 | **Qatar** |
| 15 | **Singapore** |

**Observation**

* **Canada:**  Largest in size and it has only 4 restaurants. Thus, the competition is less.
* **Australia:**  2nd largest country and has only 24 restaurants.
* **Indonesia:** It has 21 restaurants only i.e. less number of restaurants opened here as compared to area. So here is opportunity to think about opening newer restaurants.
* **South Africa:**  this country is larger in size than many other countries and it has only 60 restaurants.
* **Philippines :**  It has only 22 restaurants .

1. **Average rating in Countries**

It is important to see the current rating of restaurants to make the marketing strategies and analyse the performance.

* Low Rating: There need to be improvements.

Example - Australia, Canada

* High Rating: Such countries hold high market demand.

Example – Indonesia, Philippines

1. **Average Number of votes**

Countries with high number of average voting have high chances of customers interaction which is good in terms of stable ratings marketing demand. Rating with fewer votes have more susceptible to fluctuations.

* Low average number of voting: Australia, Canada
* High average number of voting : Indonesia, Philippines, South Africa

|  |  |  |
| --- | --- | --- |
| **Country** | **Average of Rating** | **Average of Votes** |
| Australia | 3.658333333 | 111.4166667 |
| Canada | 3.575 | 103 |
| Indonesia | 4.295238095 | 772.0952381 |
| Philippines | 4.468181818 | 407.4090909 |
| South Africa | 4.21 | 315.1666667 |

**Observation:**

* Australia and Canada have slightly low rating and low customers interaction. So both these country hold high chances of improvements.
* Indonesia, Philippines and South Africa have good rating and more customers interaction. So here is high chances of market demand.

**2.Come up with the names of States and cities in the suggested countries suitable for opening restaurants.**

* To come up with the name of cities and states, I observed number of restaurants in suggested country and their respective cities. So, Countries and cities having less number of restaurants and good rating have high potential of expanding restaurants.
* I have highlighted all the cities name present in suggested countries.

|  |  |  |
| --- | --- | --- |
| **Row Labels** | **Average of Rating** | **Count of RestaurantID** |
| **Australia** | **3.658333333** | **24** |
| Armidale | 3.5 | 1 |
| Balingup | 3.2 | 1 |
| Beechworth | 4.6 | 1 |
| Dicky Beach | 3.6 | 1 |
| East Ballina | 4.1 | 1 |
| Flaxton | 3.5 | 1 |
| Forrest | 3.7 | 1 |
| Hepburn Springs | 3.8 | 2 |
| Huskisson | 4.1 | 1 |
| Inverloch | 3.7 | 1 |
| Lakes Entrance | 3.8 | 1 |
| Lorn | 3.6 | 1 |
| Macedon | 3.5 | 1 |
| Mayfield | 2.9 | 1 |
| Middleton Beach | 3.8 | 1 |
| Montville | 2.4 | 1 |
| Palm Cove | 4.4 | 1 |
| Paynesville | 2.6 | 1 |
| Penola | 3.4 | 1 |
| Phillip Island | 3.7 | 1 |
| Tanunda | 4.4 | 1 |
| Trentham East | 4.1 | 1 |
| Victor Harbor | 3.6 | 1 |
| **Canada** | **3.575** | **4** |
| Chatham-Kent | 3.7 | 1 |
| Consort | 3 | 1 |
| Vineland Station | 4.3 | 1 |
| Yorkton | 3.3 | 1 |
| **Indonesia** | **4.295238095** | **21** |
| Bandung | 4.2 | 1 |
| Bogor | 3.85 | 2 |
| Jakarta | 4.35625 | 16 |
| Tangerang | 4.3 | 2 |
| **Philippines** | **4.468181818** | **22** |
| Makati City | 4.65 | 2 |
| Mandaluyong City | 4.625 | 4 |
| Pasay City | 4.366666667 | 3 |
| Pasig City | 4.633333333 | 3 |
| Quezon City | 4.8 | 1 |
| San Juan City | 4.25 | 2 |
| Santa Rosa | 3.8 | 2 |
| Tagaytay City | 4.5 | 1 |
| Taguig City | 4.525 | 4 |
| **South Africa** | **4.21** | **60** |
| Cape Town | 4.11 | 20 |
| Inner City | 4.9 | 2 |
| Johannesburg | 4.2 | 6 |
| Pretoria | 4.19 | 20 |
| Randburg | 4.3 | 1 |
| Sandton | 4.3 | 11 |

Pivot Table : Rows-Country , City

Values- Average rating

**3.According to the countries you suggested, what is the current quality regarding ratings for restaurants that are open there?**

|  |  |
| --- | --- |
| **Country** | **Average of Rating** |
| Australia | 3.658333333 |
| Canada | 3.575 |
| Indonesia | 4.295238095 |
| Philippines | 4.468181818 |
| South Africa | 4.21 |

**Observation:**

* Philippines has the highest average rating, and Canada has the lowest average rating.
* Countries having the highest average rating, suggesting that the quality of restaurants in these countries is high.
* Canada and Australia have relatively lower average rating as compared to other countries listed, indicating that restaurants quality is not high and here it need to be improvement.

**4.Also, what is the current expenditure on food in the suggested countries, so we can keep our financial expenditure in control**?

I created Pivot table + Chart

Rows- Country

Values – Average of average cost for two in INR

|  |  |
| --- | --- |
| **Country** | **Average of Average\_Cost\_in\_INR** |
| Australia | 1326.991667 |
| Canada | 2211.25 |
| Indonesia | 1368.236842 |
| Philippines | 2329.886364 |
| South Africa | 1888.8 |

Observation:

1. **Philippines (₹2329.89) and Canada (₹2211.25)** have the **highest average cost** for dining. This indicates that consumers in these countries are likely spending more on meals, which suggests:

* We can afford to spend more on premium services in these regions, such as better quality ingredients, larger marketing campaigns, or upscale dining experiences.
* These markets may sustain **higher price points** for menu items and services, allowing us to invest more without risking financial strain.

1. **Australia (₹1326.99) and Indonesia (₹1368.23)** have moderate average costs compared to the other countries. In these regions:

* We need to focus on maintaining cost-efficiency and budget friendly. These markets likely demand more value-for-money services, meaning We should control its operational costs.

**5.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.**

* These are the restaurants that are low rated:

|  |  |  |
| --- | --- | --- |
| **Restaurants name** | **Average of Rating** | **Count of Votes** |
| Consort Restaurant | 3 | 1 |
| Pier 70 | 2.6 | 1 |
| Poets Cafe | 2.4 | 1 |
| Star Buffet | 2.9 | 1 |

* These are the high rated restaurants that are our biggest competitor :

|  |  |  |
| --- | --- | --- |
| **Restaurants name** | **Average of Rating** | **Count of Votes** |
| Balay Dako | 4.5 | 1 |
| Bridge Road Brewers | 4.6 | 1 |
| Cube - Tasting Kitchen | 4.9 | 1 |
| Culture Club - Bar De Tapas | 4.5 | 1 |
| Gemelli Cucina Bar | 4.8 | 1 |
| Harissa Bistro | 4.5 | 1 |
| Hobing Korean Dessert Cafe | 4.5 | 1 |
| Izakaya Kikufuji | 4.5 | 1 |
| Jarryds | 4.8 | 1 |
| Kloof Street House | 4.5 | 1 |
| Kream | 4.7 | 1 |
| Le Petit Souffle | 4.8 | 1 |
| Licorish Bistro | 4.6 | 1 |
| Locavore | 4.8 | 1 |
| Marble | 4.5 | 1 |
| NIU by Vikings | 4.7 | 1 |
| Ooma | 4.9 | 1 |
| Restaurant Mosaic @ The Orient | 4.9 | 1 |
| Sambo Kojin | 4.8 | 1 |
| Silantro Fil-Mex | 4.85 | 2 |
| Spiral - Sofitel Philippine Plaza Manila | 4.9 | 1 |
| Sushi Masa | 4.9 | 1 |
| Talaga Sampireun | 4.9 | 3 |
| The Creamery | 4.5 | 1 |
| The Food Hall by Todd English | 4.5 | 1 |
| Toodz House | 4.6 | 1 |
| Union Deli | 4.6 | 1 |
| Urbanologi | 4.9 | 1 |

Explanation :

* I created pivot table in feedback sheet.
* Rows- Restaurants Name

Values- Average rating, Count of Votes

Filter- Country, Rating

* In low rated restaurants name I applied filter on rating and select rating between 1-2 and 2-3.
* In high rated restaurants name I applied filter on rating and select rating >=4.5
* **Observation and Importance of analysis between high rated restaurants and low rated restaurants.**
* Identifying the top-rated restaurants helps me to understand which establishments dominate the market. By analysing their ratings, votes, and customer preferences. This is crucial for benchmarking and creating competitive strategies.
* Knowing which restaurants have low ratings (1-2, 2-3) allows me to pinpoint underserved markets or poorly performing competitors. This can indicate opportunities for improvement in those areas.
* By locating highly rated restaurants by city wise using a Pivot Table, I can avoid oversaturated markets.
* If there are regions where competitors are consistently rated poorly, I may have an opportunity to step in and dominate by offering better services, quality, or price.

**6.Which cuisines should we focus on in the newer restaurants to get better feedback? Does the choice of cuisines affect the restaurant ratings?**

To determine which cuisines to focus on for newer restaurants and to I analyse the relationship between cuisine types and restaurant ratings and Votes .

**Pivot table + chart :** Reference Subjective answers sheet row 42

* Rows: Cuisines
* Values: Average of rating, Count of Votes
* Filter: Country

Created another column to categorize feedback based on ratings (e.g., Excellent, Good, Average, Poor) for easy analysis.

Formula: =IF(U2:U9543>= 4, "Excellent", IF(U2:U9543>= 3, "Good", IF(U2:U9543 >= 2, "Average", "Poor")))

Explanation:

* 4 and above: "Excellent"
* 3 to 3.99: "Good"
* 2 to 2.99: "Average"
* Below 2: "Poor"

Observation:

* After analysing the average ratings by cuisine and count of votes, I Consider cuisines with both high ratings and a significant number of votes as they indicate popularity.
* Cuisines which have rating greater than 4 and Count of votes is more than or equal to 2 .

|  |  |  |
| --- | --- | --- |
| Indian, Street Food | 4.65 | 2 |
| Japanese, Korean | 4.6 | 2 |
| Mediterranean | 4.45 | 2 |
| Mexican | 4.3 | 3 |
| American | 4.26 | 5 |
| Italian | 4.25 | 2 |

Yes, the choice of cuisines does affect restaurant ratings. Our analysis indicates that certain cuisines consistently receive higher average ratings, suggesting a strong correlation between cuisine type and customer satisfaction. For example, cuisines like Italian and Japanese often rank higher than others, reflecting consumer preferences and dining experiences. Additionally, restaurants with popular cuisines tend to attract more votes, further reinforcing their ratings. This insight highlights the importance of selecting the right cuisine when considering new restaurant openings, as it can significantly impact overall performance and customer feedback.

**7.According to our current data, should we go for online delivery and table booking? Does that affect the customer’s ratings?**

I created two pivot table

|  |  |
| --- | --- |
| **Has online delivery** | **Average of Rating** |
| No | 2.754309859 |
| Yes | 3.288004896 |

**Table 1:**

Rows – Has\_online\_delivery

Values – Average of rating

|  |  |
| --- | --- |
| **Has Table booking** | **Average of Rating** |
| No | 2.809686644 |
| Yes | 3.482556131 |

**Table 2:**

Rows – Has\_Table\_booking

Values - Average of rating

**Conclusion:**

* Restaurants offering online delivery have a significantly higher average rating (3.29) compared to those without (2.75). This suggests that customers value the convenience of online delivery, and it correlates with better ratings.
* Similarly, restaurants that provide table booking options have a much higher average rating (3.48) compared to those that do not (2.81). This indicates that customers appreciate the ability to reserve tables, enhancing their overall dining experience.
* Both online delivery and table booking options appear to positively influence customer ratings. The data clearly shows that implementing these features can lead to higher customer satisfaction and better ratings, which are essential for attracting new customers and retaining existing ones.
* Based on these findings, I should prioritize expanding restaurant partnerships to include those offering online delivery and table booking. This strategy is likely to improve customer ratings and increase overall business performance.

**8.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?**

To determine if keeping the rates of cuisines higher will affect feedback, and to analyze the correlation between cuisine rates and ratings using I follows these steps:

* Create a Pivot Table

**Rows**: Cuisines

**Values**: Average\_Cost\_for\_two (set to average) and Rating (set to average)

* Correlation Analysis

Copy the average values from the Pivot Table into a new table.

In an empty cell, I use the CORREL function to calculate the correlation coefficient between average cost and average rating.

Formula: =CORREL(O28:O1853,N28:N1853) =0.077423927

* Visual Representation

Choose a scatter plot to visualize the relationship between average cost and average rating.

* Observation:
  + - A correlation coefficient close to 1 indicates a strong positive correlation, while a value close to -1 indicates a strong negative correlation. A value around 0 suggests no correlation.
    - Based on the correlation result and the visual representation, correlation is strong and positive, So I recommend that the team can keep the rates higher, as it seems to correlate with better feedback.

**9.What is the distribution of the number of restaurants of different price ranges in all the countries?**

To analyze the distribution of the number of restaurants across different price ranges in various countries I follows these steps:

**Step 1: Create a Pivot Table**

Rows – Country

Column – Price\_ range

Values - Restaurant ID

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Count of RestaurantID** | **Price\_range** |  |  |  |  |
| **Country** | **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** |

Step 2: Create a Pivot Chart

**Conclusion:**

* The total number of restaurants across all countries is 9,551, with India having the highest count at 8,652. This indicates a strong and diverse dining market in India, where affordability appears to be a key factor.
* **Price Range Distribution**:

Price Range 1 (Budget-Friendly):

India dominates this category with **4,295** restaurants, highlighting the demand for affordable dining options. Other notable countries include the **United States** (136) and **Australia** (4).

Price Range 2:

Again, India leads with **2,858** restaurants. Countries like **Brazil** (7) and **United Kingdom** (28) show moderate counts, suggesting opportunities for mid-range offerings.

Price Range 3:

India has **1,111** restaurants, while Brazil (16) and South Africa (39) demonstrate a mix of mid to high-end dining options.

Price Range 4 (Premium):

Brazil (35) and South Africa (60) indicate a growing market for premium dining, which is also evident in Turkey (34) and the UAE (60).

* Countries like **Turkey**, **South Africa**, and **Indonesia** exhibit a potential for growth in various price segments, particularly in mid to high-end offerings.
* Countries such as **Canada** and **Philippines** have lower total counts, especially in the higher price ranges, suggesting opportunities for Zomato to introduce new restaurant concepts.
* India stands out as a key market due to its vast number of budget-friendly restaurants, indicating a strong demand for affordable dining. The United States and Brazil also present significant opportunities, particularly in higher price ranges.

**10. 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]**

Approach for Identifying Countries/Cities for New Restaurant Openings

1. **Comparative Analysis of Restaurant Count**
   * + - * Evaluate the number of existing restaurants in each country relative to their size.
         * Canada: Large land area with only 4 restaurants, indicating minimal competition.
         * Australia: 4th largest country, only 24 restaurants, suggesting a potential market gap.
         * Indonesia: 21 restaurants, low compared to its size, presenting an opportunity for new entries.
         * South Africa: Larger than many countries but only 60 restaurants, indicating room for growth.
         * Philippines: Only 22 restaurants, suggesting less competition.
2. **Average Restaurant Ratings**
   * + - * Analyse current ratings to inform marketing strategies and operational improvements.

Low Ratings:

Australia and Canada show lower ratings, indicating a need for enhancements.

* High Ratings:

Indonesia and Philippines hold higher ratings, reflecting strong market demand.

1. **Average Number of Votes**

* Customer Interaction: High vote counts correlate with customer engagement and stable ratings.
* Low Average Votes:

Australia and Canada exhibit lower customer interaction, leading to potential fluctuations in ratings.

* High Average Votes:

Indonesia, Philippines, and South Africa have higher interaction, indicating consistent demand and stability.

**Observations**

* Improvement Potential: Australia and Canada present opportunities for enhancing service and offerings due to low ratings and interactions.
* Market Demand: Indonesia, Philippines, and South Africa show favourable conditions for new restaurant openings due to higher ratings and customer engagement.