**Objective questions and answers**

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

Ans: Some of the cells in the Cuisines column are empty. I deleted the rows of the empty cells because we can’t predicate or make mathematical calculations about the cuisines the particular restaurants are offering also these restaurants are all from the United States of America, and compared to the total number of restaurants in the United States these restaurants are very less.

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

Ans: I inserted a column to the right of the column named CountryCode, named it CountryName and filled it by using the VLOOKUP function (formula: =VLOOKUP($C2,'country description'!$A$2:$B$16,2,) with the data provided in the sheet named country description.

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

Ans: I inserted a pivot table with the CountryName column in the Rows field and the RestaurantID column name in the Values field and aggregated the count of the column RestaurantID.

|  |  |
| --- | --- |
| **Country Name** | **Count of Restaurants** |
| 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 | 425 |
| **Grand Total** | **9542** |

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

Ans: By using the Text to Columns feature I split the Datekey\_Opening column into Year, Month and Day columns then I inserted a pivot table with the Year column in the Rows field and RestaurantID column in the Values field and aggregated the count of the column RestaurantID of the pivot table. Next, I inserted a column chart to represent the pivot table with the Year on the X-axis and the Count of Restaurants opened on the Y-axis.

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

Ans: I calculated the counted restaurants in India in the price range of 4 with the COUNTIFS formula by putting the CountryName column as criteria range 1 and India as criteria and Price\_range column as criteria range 2 and 4 as criteria. The total number of restaurants in India in the price range of 4 is 388.

1. According to the data, what is the average number of voters for the restaurants in each country?

Ans: I inserted a pivot table with the CountryName column in the Rows field and the Votes column in the Values field then aggregated the average of the Votes column. Next, I inserted a bar chart to represent the pivot table with the average of votes on the X-axis and countries on the Y-axis.

**Subjective questions and answers**

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

Ans: I inserted a pivot table with the CountryName column in the rows field and the RestaurantID and Rating columns in the columns field and aggregated the count of the RestaurantID column and average of the Rating column.

The total number of restaurants in India and The United States of America is 8652 and 425 respectively these are very high when compared to the total number of restaurants in other countries which have less than 100 and below. So, I filtered India and the United States of America by applying a values filter to the pivot table with the condition of less than 100. I would like to suggest Sri Lanka, Brazil, Australia, Canada and Singapore as these countries have less than 4 ratings. Also, I would like to suggest Indonesia, New Zealand, Philippines, Qatar, South Africa, Turkey and the United Arab Emirates as these all are tourist places and people will be visiting these countries regularly from outside. Hence there will always be a need for new restaurants and hotels in these countries.

To visualize these metrics, I used a clustered column chart because this will show the total number of restaurants and the respective average rating for each country.

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

Ans: I inserted a pivot table with the CountryName column in the rows field and the RestaurantID and Rating columns in the columns field and aggregated the count of the RestaurantID column and Max of the Rating column. I filtered India, The United Kingdom and the United States of America by applying a values filter to the pivot table with the condition of less than 80.

Australia, Brazil, Canada, New Zealand and the United Arab Emirates have an equal number of restaurants not including Australia these countries also have similar ratings for the restaurants in the cities of these countries so I am suggesting that any city from these countries is better to open a new restaurant but for Australia, the Montville city is having 2.4 ratings so I would be a better option to consider this city for opening a restaurant.

Qatar, Singapore and Sri Lanka have only one city in their list of cities having restaurants opened which is Doha, Singapore and Colombo respectively.

In Indonesia, four cities have opened restaurants, one of four is Jakarta which has 16 restaurants opened when compared to the remaining three there is a very high difference, Bandung have only one, Bogor and Tangerang have 2 restaurants open in each city.

Any city in the Philippines is the best city to open a restaurant because the cities of the Philippines have a similar number of restaurants.

The cities Inner City, Johannesburg and Randburg in South Africa are suggested cities to open new restaurants because when compared these cities have only a single-digit number of restaurants opened.

Turkey have only two cities which are Ankara and ÛÁstanbul. We can consider both these cities for opening a new restaurant.

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

Ans: I calculated the average rating for each country which is in between the range of 3.6 to 4.5 which is a very good rating scale. The total sum of the average of the ratings is around 4.1 which means the quality of the ratings for restaurants that are open in the countries that I suggested is very good.

|  |  |
| --- | --- |
| **Country Name** | **Average of Rating** |
| Australia | 3.7 |
| Brazil | 3.8 |
| Canada | 3.6 |
| Indonesia | 4.3 |
| New Zealand | 4.3 |
| Philippines | 4.5 |
| Qatar | 4.1 |
| Singapore | 3.6 |
| South Africa | 4.2 |
| Sri Lanka | 3.9 |
| Turkey | 4.3 |
| United Arab Emirates | 4.2 |
| **Grand Total** | **4.1** |

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

Ans: In the Raw Data spreadsheet, the values of the Average\_Cost\_for\_two column are according to the currencies of the respective countries. I converted all the values to INR so that I could evaluate and input the prices of the restaurants correctly by adding the currency conversion rates of individual countries in the country description spreadsheet and then I added a new column as Average\_Cost\_for\_two\_in\_INR at the end of the Raw Data spreadsheet, using the IF function. Then I inserted a pivot table with a CountryName column in the Rows field and an Average\_Cost\_for\_two\_in\_INR column in the Columns field and aggregated the Average of the Average\_Cost\_for\_two\_in\_INR column. The average of average cost for two varies from country to country so we have to put different limits for all the countries.

The table below provides the average of average cost for two in INR for individual countries, Turkey has a very low cost and the Philippines has a very high cost, we can consider the average of these values which is 3297 as the current expenditure on food for two people for keeping our financial expenditure in control.

1. 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: The list of the restaurants with the above 4 ratings is very large but this means these are not very tough competitors to us because if we can provide the quality and quantity with good ambience then we can easily rule out all these restaurants.

And coming to the restaurants with 1-2 are mentioned below

Sandubas Cafí© from Brasí\_lia, Quiosque Chopp Brahma from Rio de Janeiro, Cantinho da Gula, Divino Fogí£o and Super Grill from Sí£o Paulo, all are from Brazil which means only Brazil has restaurants with low ratings.

The restaurants with 2-3 are mentioned below

Star Buffet from Mayfield city, Poets Cafe from Montville city, Pier 70 from Paynesville city from Australia, Chez Michou from Brasí\_lia city from Brazil, Consort Restaurant from Consort City from Canada, De Fontein Belgian Beer Cafe from Auckland City from New Zealand, Makansutra Gluttons Bay from Singapore City from Singapore, Elite Indian Restaurant and Queen's Cafe from Colombo City from Sri Lanka, Pizza Hut from Sharjah city from United Arab Emirates.

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

Ans: World Cuisine, Sunda, Indonesian, Deli, Italian, Bakery, Healthy Food, Hawaiian, Mughlai, Lucknowi, German, Contemporary, Continental, European, Asian, Indian, Caribbean, Seafood, Southern, Breakfast, Burger, Bar Food, Steak, American, BBQ, Sandwich, Burger, Grill, Coffee and Tea, Filipino, Mexican, French, Japanese, Desserts, Pizza, International, Mediterranean, North Indian, Middle Eastern, Beverages, Chinese, Dim Sum, Indian Japanese the fore mentioned cuisines are top rated cuisines, we should consider few of them for our newly opening restaurants.

Additionally, we can also serve the local cuisines of the particular cities of the countries from the suggested like a fusion of cuisines so that we can attract the foreign people who are visiting the country for tourism.

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

Ans: The restaurants with no online delivery and table booking have mixed ratings from 1 to 4.9 and the restaurants with online delivery and table booking have only ratings from 4 to 4.9 this could mean that the restaurants with online delivery and table booking provide more satisfying customer service. It is advisable to start the new restaurants with online delivery and table booking.

1. 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: As per the data the correlation between the rate of cuisines and ratings is 0.46 which means less than 50% so there is less chance of the ratings being affected when the rate of cuisines is increased.

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

Ans: The distribution of the number of restaurants of different price ranges in all the countries is as below

|  |  |
| --- | --- |
| **Country Name** | **Count of Restaurants in Price Range of 1** |
| Australia | 4 |
| Brazil | 2 |
| India | 4295 |
| New Zealand | 3 |
| United Kingdom | 4 |
| United States of America | 130 |
| **Grand Total** | **4438** |

|  |  |
| --- | --- |
| **Country Name** | **Count of Restaurants in Price Range of 2** |
| Australia | 14 |
| Brazil | 7 |
| Canada | 3 |
| India | 2858 |
| Indonesia | 1 |
| New Zealand | 4 |
| Philippines | 1 |
| Qatar | 1 |
| Singapore | 1 |
| South Africa | 4 |
| Sri Lanka | 6 |
| Turkey | 11 |
| United Arab Emirates | 9 |
| United Kingdom | 28 |
| United States of America | 165 |
| **Grand Total** | **3113** |

|  |  |
| --- | --- |
| **Country Name** | **Count of Restaurants in Price Range of 3** |
| Australia | 5 |
| Brazil | 16 |
| India | 1111 |
| Indonesia | 20 |
| New Zealand | 17 |
| Philippines | 12 |
| Qatar | 5 |
| Singapore | 5 |
| South Africa | 17 |
| Sri Lanka | 11 |
| Turkey | 18 |
| United Arab Emirates | 29 |
| United Kingdom | 32 |
| United States of America | 107 |
| **Grand Total** | **1405** |

|  |  |
| --- | --- |
| **Country Name** | **Count of Restaurants in Price Range of 4** |
| Australia | 1 |
| Brazil | 35 |
| Canada | 1 |
| India | 388 |
| New Zealand | 16 |
| Philippines | 9 |
| Qatar | 14 |
| Singapore | 14 |
| South Africa | 39 |
| Sri Lanka | 3 |
| Turkey | 5 |
| United Arab Emirates | 22 |
| United Kingdom | 16 |
| United States of America | 23 |
| **Grand Total** | **586** |