**1. Build a Country Map Table**

The Country Map Table will have the country code and country name. Here’s how it can be structured:

| **CountryCode** | **CountryName** |
| --- | --- |
| 1 | India |
| 2 | USA |
| 3 | UK |
| 4 | Canada |
| 5 | Australia |
| ... | ... |

For our dataset, we can add all country codes and their corresponding countries in this table.

**2. Build a Calendar Table using the Column Datekey**

We will need to use the Datekey\_Opening field (which is in YYYY\_M\_D format) and extract various calendar attributes from it. Below are the columns we’ll add to the Calendar Table, using formulas where applicable:

**Columns to Add to Calendar Table:**

* **Year**: Extracted from the Datekey as the first part of the YYYY value.
* **Monthno**: Extracted from the MM value of the Datekey (e.g., 9 for September).
* **Monthfullname**: Full month name using the month number (e.g., "September").
* **Quarter**: This is based on the month number. The mapping is:
  + Q1: Jan-Mar
  + Q2: Apr-Jun
  + Q3: Jul-Sep
  + Q4: Oct-Dec
* **YearMonth**: A combination of year and abbreviated month name (e.g., 2013-Sep).
* **Weekdayno**: Numeric representation of the weekday (1 = Sunday, 2 = Monday, ..., 7 = Saturday).
* **Weekdayname**: The name of the weekday (e.g., "Sunday", "Monday").
* **FinancialMonth**: Based on fiscal year starting from April (FM1 for April, FM2 for May, ..., FM12 for March).
* **FinancialQuarter**: Based on the fiscal months:
  + FM1 to FM3 → FQ1
  + FM4 to FM6 → FQ2
  + FM7 to FM9 → FQ3
  + FM10 to FM12 → FQ4

Here’s a sample of the Calendar Table format:

| **Datekey\_Opening** | **Year** | **Monthno** | **Monthfullname** | **Quarter** | **YearMonth** | **Weekdayno** | **Weekdayname** | **FinancialMonth** | **FinancialQuarter** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2013\_9\_21 | 2013 | 9 | September | Q3 | 2013-Sep | 7 | Saturday | FM6 | FQ2 |
| 2016\_9\_10 | 2016 | 9 | September | Q3 | 2016-Sep | 6 | Friday | FM6 | FQ2 |

**3. Find the Number of Restaurants based on City and Country**

To find the number of restaurants grouped by city and country, we would count the unique RestaurantID for each combination of City and CountryCode.

**4. Number of Restaurants Opening Based on Year, Quarter, Month**

We can aggregate the number of restaurants based on their opening year, quarter, and month. This can be achieved by grouping by Year, Quarter, and Month in the Datekey\_Opening.

**5. Count of Restaurants Based on Average Ratings**

We can group restaurants by their **Rating** (possibly in a range, e.g., 1-1.99, 2-2.99, etc.) and count how many restaurants fall into each rating bucket.

**6. Create Buckets Based on Average Price and Count Restaurants in Each Bucket**

To group restaurants by their average price, we can define price buckets (e.g., 0-200 Rs., 201-400 Rs., 401-600 Rs., etc.) and count how many restaurants fall into each bucket.

This will group restaurants by price and show how many fall into each bucket.

**7. Percentage of Restaurants Based on "Has\_Table\_booking"**

To calculate the percentage of restaurants that offer table booking:

**8. Percentage of Restaurants Based on "Has\_Online\_delivery"**

**9. Develop Charts Based on Cuisines, City, and Ratings**

You can create the following types of charts to visualize the data:

* **Bar Chart** for the **Number of Restaurants by Cuisine**: This shows how many restaurants offer each type of cuisine.
* **Pie Chart** for **Restaurants by City**: Shows the proportion of restaurants in different cities.
* **Scatter Plot** for **Ratings vs. Average Cost for Two**: This can show if higher-rated restaurants tend to have higher costs.
* **Stacked Bar Chart** for **Restaurants by Rating and City**: Shows how ratings are distributed across different cities.

These charts can help you understand the distribution of cuisines, cities, ratings, and other attributes across the restaurants.

**Summary:**

The above steps outline how to create the necessary tables, perform aggregation, and generate charts for analyzing restaurants. For each task:

1. **Calendar and Country Tables** are created for referencing.
2. **Aggregations** provide insights into the number of restaurants based on different parameters (e.g., city, rating, price range).
3. **Charts** help visualize trends and comparisons across different dimensions.