Tech Saksham

Case Study Report

Data Analytics with Power BI

360-Degree Business Analysis of Zomato Delivery App using Power BI

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ABSTRACT

In today's dynamic digital realm, the food delivery sector witnesses fierce competition, with platforms like Zomato striving for supremacy through data-driven insights. The initiative, "360-degree Business Analysis of Zomato Delivery App using Power BI," aims to equip Zomato with robust data analysis and visualization tools. Leveraging Power BI's advanced functionalities, the project aims to delve deep into Zomato's extensive data repositories, extracting actionable insights on customer behavior, market dynamics, and operational efficiency. By scrutinizing vital metrics such as order volumes, delivery locations, favored cuisines, and customer feedback, the project endeavors to furnish Zomato with strategic insights for optimizing operations, enhancing customer satisfaction, and sustaining its competitive edge. This endeavor amalgamates data analytics and visualization techniques to empower Zomato in making informed decisions, thereby fueling its digital evolution and fostering innovation in the realm of online food delivery services.

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CHAPTER 1

INTRODUCTION

In the dynamic realm of online food delivery, harnessing actionable insights from data is crucial for companies like Zomato to refine operations and elevate customer satisfaction. Utilizing advanced analytics tools like Power BI provides a strategic edge, empowering organizations to delve deep into their data reservoirs and efficiently extract valuable insights. With competition escalating in the online food delivery arena, Zomato acknowledges the significance of embracing a comprehensive approach to business analysis. This approach is essential for staying ahead of the curve and effectively addressing evolving customer preferences and demands.

1.1 Problem Statement:

Amid the fiercely competitive online food delivery sector, Zomato confronts the formidable task of dissecting extensive data volumes to attain a nuanced

understanding of its operational landscape. Conventional data analysis approaches frequently prove inadequate in furnishing a panoramic perspective of pivotal indicators like order volumes, customer inclinations, and market dynamics. This deficiency impedes Zomato's capacity to pinpoint avenues for expansion, refine service provisions, and augment overall operational efficacy. Furthermore, the absence of real-time analytical capabilities compounds the dilemma, resulting in deferred decision-making processes and overlooked prospects for strategic endeavors. Addressing these challenges is paramount for Zomato to sustain its competitive edge and drive continual growth in the dynamic online food delivery arena.

1.2 Proposed Solution:

Zomato can address these challenges by leveraging Power BI. The platform offers real-time data analysis, enabling insights into key metrics like order volumes and customer preferences. Its intuitive interface allows dynamic exploration of data, facilitating informed decision-making. Power BI's scalability ensures adaptability to evolving business needs, empowering Zomato to sustain its competitive edge and enhance customer experiences in the online food delivery sector.

1.3 Feature

1. Immediate Analysis:

The dashboard provides immediate analysis of Zomato's delivery app data, enabling users to monitor key metrics and trends in real time. This functionality facilitates prompt decision-making by delivering current information on aspects such as order volumes, delivery durations, and customer feedback.

2. Client Segmentation:

Users can categorize Zomato clients based on different criteria such as location, order frequency, cuisine preferences, and expenditure patterns. This segmentation allows for targeted marketing strategies and customized suggestions, empowering Zomato to tailor promotions and services to specific client groups.

3. Trend Identification:

The dashboard detects and illustrates trends in customer behavior, restaurant popularity, and delivery trends. By examining these patterns, Zomato gains insights into shifting market dynamics and consumer tastes. This data is crucial for adjusting business approaches, introducing new features, and maintaining a competitive edge.

4. Proactive Analysis:

By leveraging historical data and predictive analytics methods, the dashboard forecasts future trends in customer demand, restaurant performance, and market opportunities. This proactive analysis enables Zomato to engage in forward-thinking planning and strategy formulation, anticipating market shifts and positioning itself for sustained growth and success.

5. Operational Efficiency Enhancement:

Through in-depth analysis and visualization of operational data, the dashboard aids Zomato in identifying inefficiencies and bottlenecks in its delivery processes. This insight allows for targeted improvements and resource allocation, ultimately optimizing operational efficiency and enhancing overall service quality.

1.4 Advantages

The Power BI dashboard provides Zomato with a 360-degree business analysis, offering stakeholders a comprehensive view of its delivery app data and facilitating insights into various facets of the business. This holistic perspective supports enhanced decision-making by empowering Zomato's leaders with real-time analysis, predictive analytics, and trend identification. Such capabilities optimize operational efficiency and resource allocation. Moreover, the customer segmentation features enable targeted marketing campaigns, enhancing engagement and loyalty while maximizing marketing ROI. Zomato leverages trend analysis and predictive analytics to anticipate market trends and future demand, facilitating proactive strategic planning and business expansion. By utilizing advanced analytics tools like Power BI, Zomato gains a competitive advantage in the online food delivery market, ensuring superior services and experiences for customers and partners. Additionally, the dashboard aids in identifying inefficiencies, streamlining processes, and optimizing resource utilization, thereby improving operational performance and achieving cost savings.

1.5 Scope

The project aims to develop a customized Power BI dashboard for analyzing Zomato's delivery app data, integrating multiple data sources to provide a comprehensive view of business operations. Interactive features allow users to explore key metrics and trends dynamically. Beyond visualization, predictive and prescriptive analytics will forecast future trends and offer actionable recommendations to optimize operations and marketing strategies. Ultimately, the project seeks to empower Zomato stakeholders with timely insights for strategic decision-making, enhancing operational efficiency, and maintaining competitiveness in the online food delivery market.

CHAPTER 2

SERVICES AND TOOLS REQUIRED

2.1 Services Used

- **Data Collection and Storage Services:**

  Azure Data Factory or AWS Glue: Utilized for orchestrating and automating the collection, ingestion, and transformation of data from various sources such as transaction records, customer feedback, and market demographics.

  Azure Blob Storage or AWS S3: Employed for storing the integrated data securely and cost-effectively, providing scalable and reliable storage solutions.

- **Data Processing Services:**

  Azure Stream Analytics or AWS Kinesis Data Analytics: Utilized for processing and analyzing real-time streaming data from Zomato's delivery app, enabling quick insights extraction and decision-making based on the latest information.

- **Machine Learning Services:**

  Azure Machine Learning or AWS SageMaker: Leveraged for building predictive models based on historical data from Zomato's delivery app, enabling forecasting and predictive analytics to anticipate future trends in customer demand, restaurant performance, and market opportunities.

  By leveraging these services, the project aims to establish a robust data infrastructure and analytical framework that supports real-time analysis, predictive modeling, and actionable insights generation for Zomato stakeholders. This enables informed decision-making, strategic planning, and business growth in the competitive online food delivery market.

2.2 Tools and Software Used:

➢ Tools:

- **Power BI:** The primary tool for this project is Power BI, which will be utilized to develop interactive dashboards for real-time visualization of Zomato's delivery app data.
- **Power Query:** This tool serves as a data connection technology, allowing users to discover, connect, combine, and refine data from various sources such as transaction records, customer feedback, and market demographics.

➢ Software Requirements:

- **Power BI Desktop:** This Windows application is essential for creating reports and designing interactive dashboards that will be published to Power BI.
- **Power BI Service:** This online Software as a Service (SaaS) platform is used for publishing reports, creating new dashboards, and sharing insights with stakeholders within Zomato.
- **Power BI Mobile:** The mobile application enables users to access reports and dashboards on the go, providing flexibility and accessibility for stakeholders to stay updated with real-time insights from Zomato's delivery app data.

CHAPTER 3

PROJECT ARCHITECTURE

3.1 Architecture

- **Data Collection:**
  - Utilize web scraping techniques or access Zomato's API to collect comprehensive data on restaurants, customer reviews, ratings, and other relevant information.
  - Gather demographic data from open data platforms or government databases to enrich the analysis.
- **Data Storage:**
  - Store collected data securely in a cloud-based storage solution such as Azure Blob Storage or AWS S3.
  - Organize data into structured formats conducive to analysis, ensuring efficient data retrieval and management.
- **Data Processing:**
  - Preprocess and clean the collected data using tools like Python or Azure Databricks to ensure data quality and consistency.
  - Perform data transformations, filtering, and aggregation to prepare the data for analysis.
- **Machine Learning:**
  - Implement machine learning algorithms to analyze Zomato's delivery app data and derive predictive insights.
  - Train models to forecast customer preferences, restaurant performance, and market trends, aiding in strategic decision-making.

- **Data Visualization:**
  - Utilize Power BI for data visualization, creating interactive dashboards and reports to present insights derived from the analyzed data.
  - Incorporate a variety of visualization techniques such as charts, graphs, maps, and tables to effectively communicate findings to stakeholders.
- **Data Access:**
  - Publish developed dashboards and reports to Power BI Service, allowing stakeholders to access and interact with them online.
  - Enable data access and exploration through Power BI Mobile, ensuring accessibility across various devices for on-the-go decision-making.

CHAPTER 4

MODELING AND RESULT

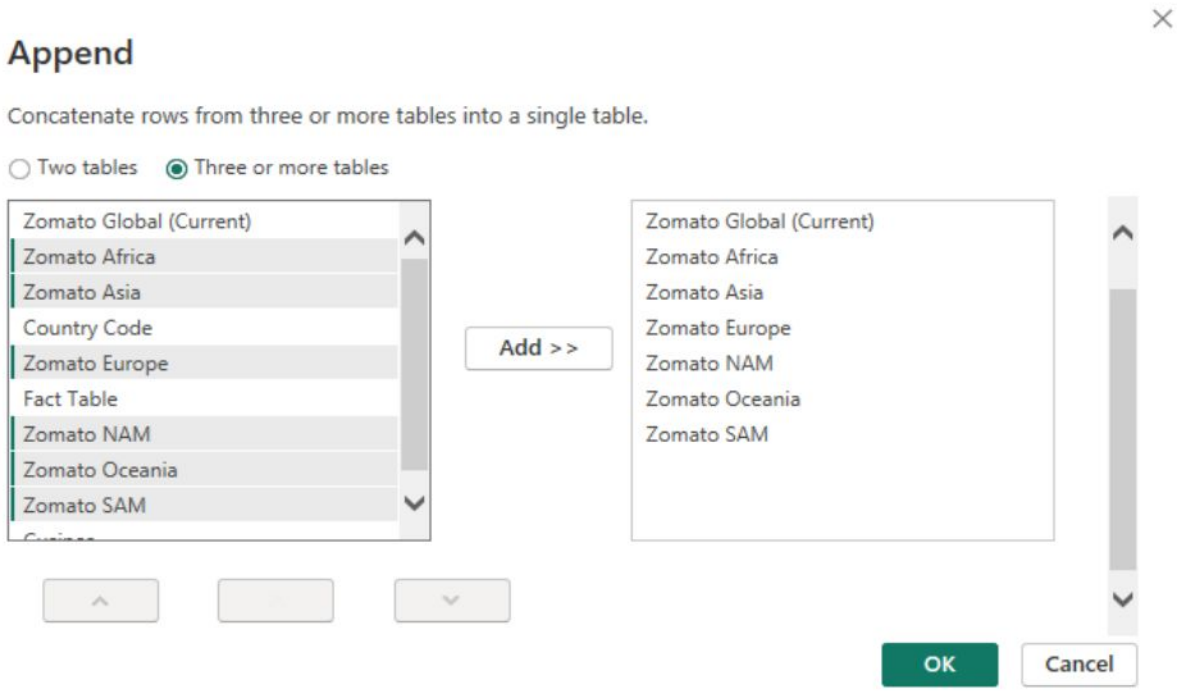
4.1 Modeling :

Query Editor

Begin by clicking on "Transform Data" to open the Power Query Editor.

In the Power Query Editor, navigate to "Append Queries" and select "Append Queries as New."

Choose two or more tables from the available options, focusing only on Zomato countries' data.



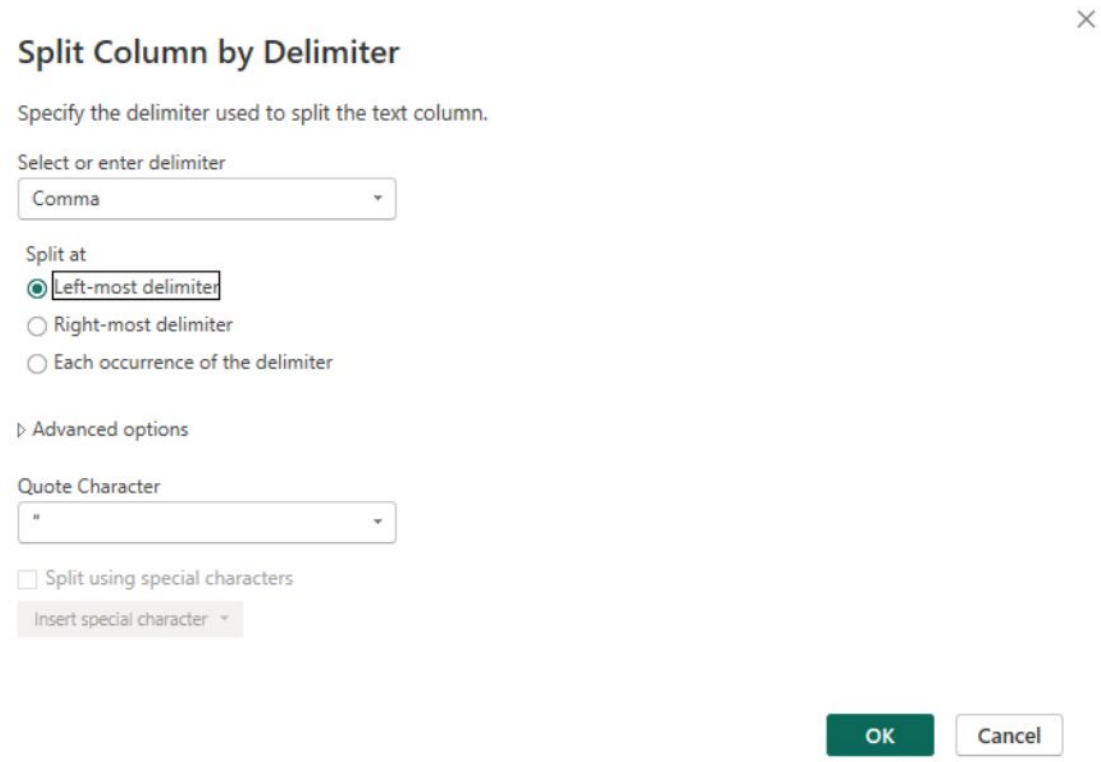
Append the selected tables and rename the resulting table as "Zomato Global.

Split Columns:

Next, split the "Restaurant Name" and "Address" columns into two separate columns.

Select the column, click on "Split Column," choose "By Delimiter," and enter a comma as the delimiter

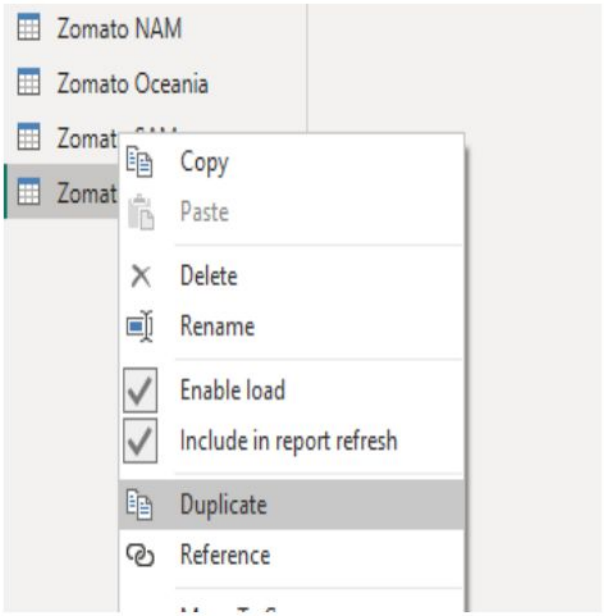
Split at the left-most delimiter occurrence and click "OK" to create two new columns (Restaurant Name, Address.1 , Restaurant Name, Address.2).

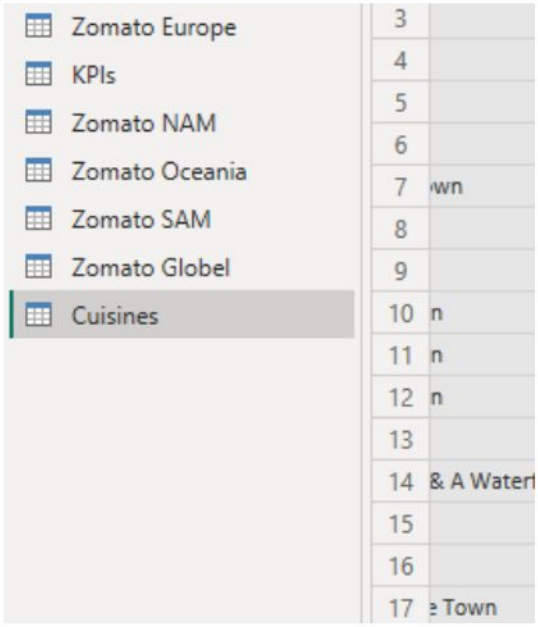


Rename the columns as "Restaurant Name" and "Restaurant Address."

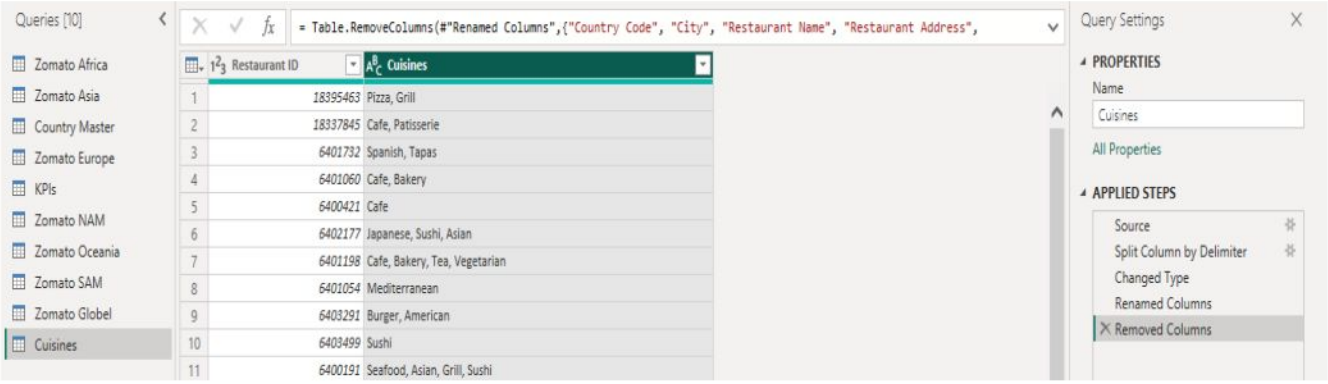
Create Cuisines Table:

Duplicate the "Zomato Global" table and rename it as "Cuisines."



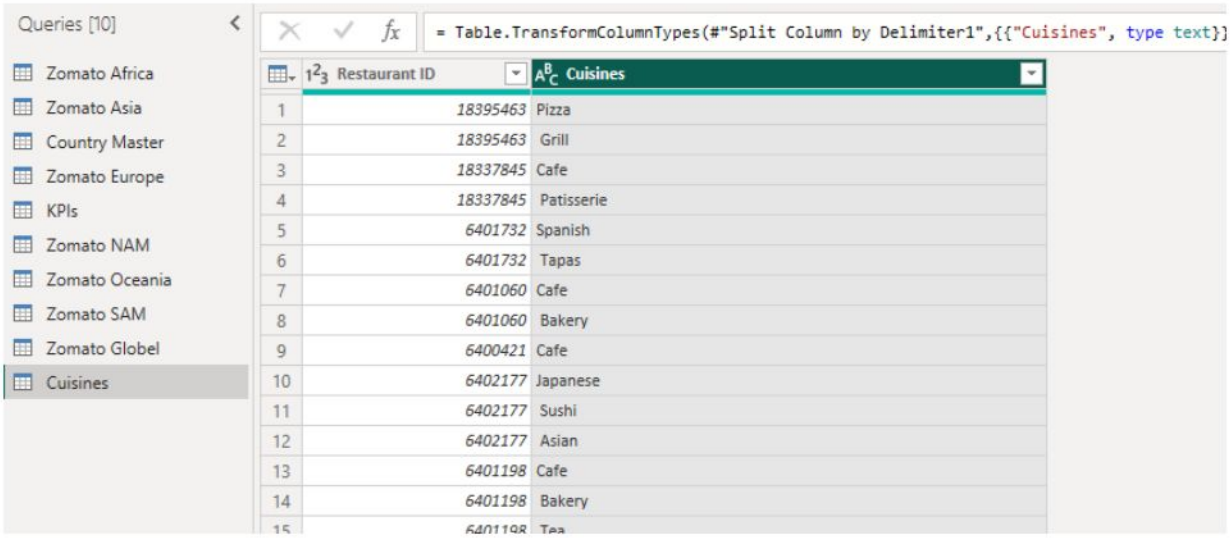


Remove all columns except "Restaurant ID" and "Cuisines."

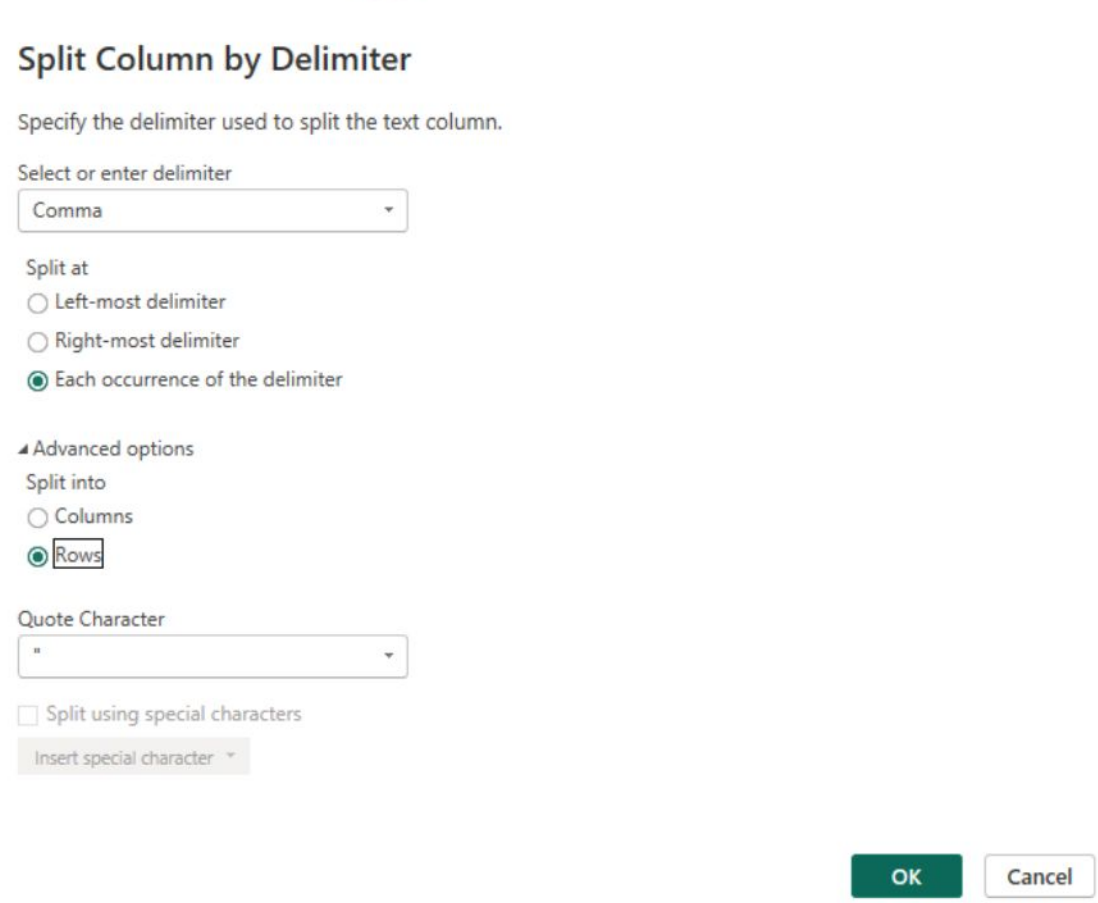


Split Cuisines Column:

Select the "Cuisines" column, click on "Split Column," choose "By Delimiter," and select each occurrence of the delimiter.



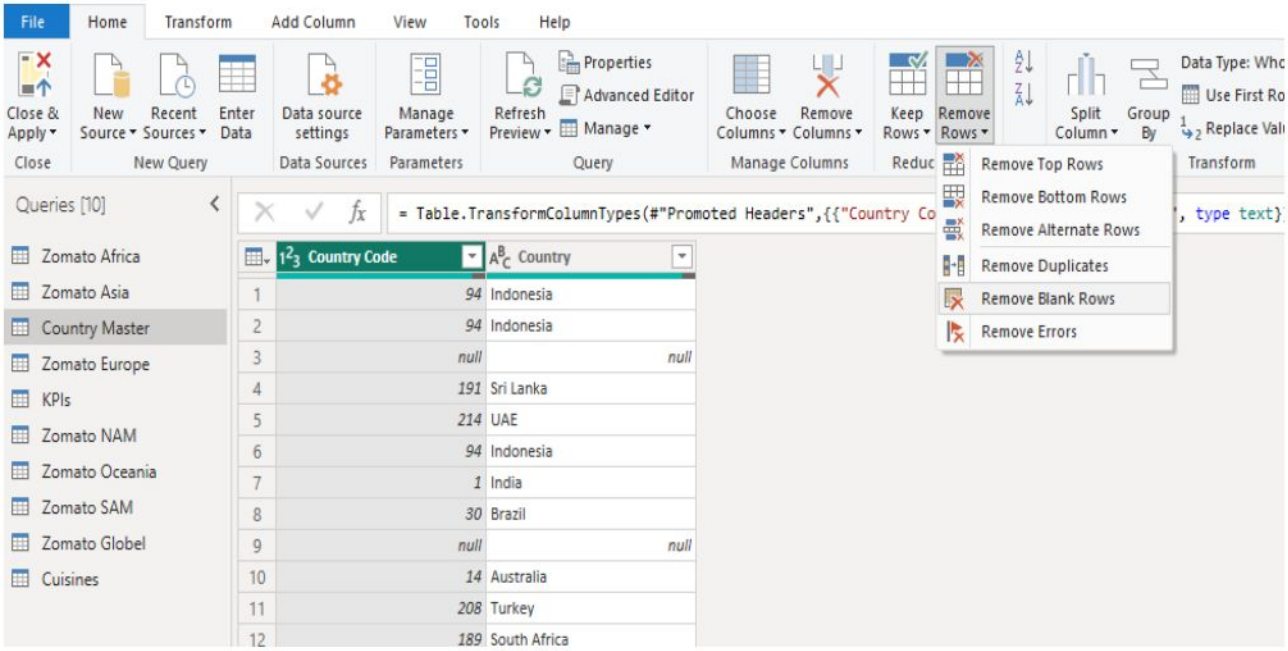
In advanced options, split into rows and click "OK."



Prepare Country Master Data:

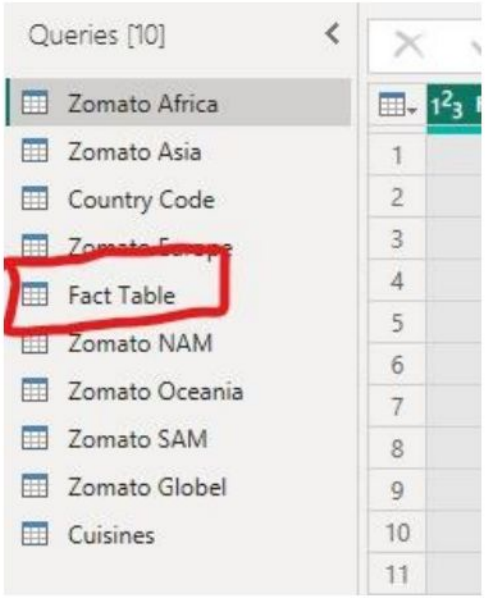
Select the "Country Master" from the queries list and rename the column as "Country Code."

Remove any blank rows in the column by selecting "Remove Rows" and choosing "Remove Blank Rows."



Prepare KPI's Data:

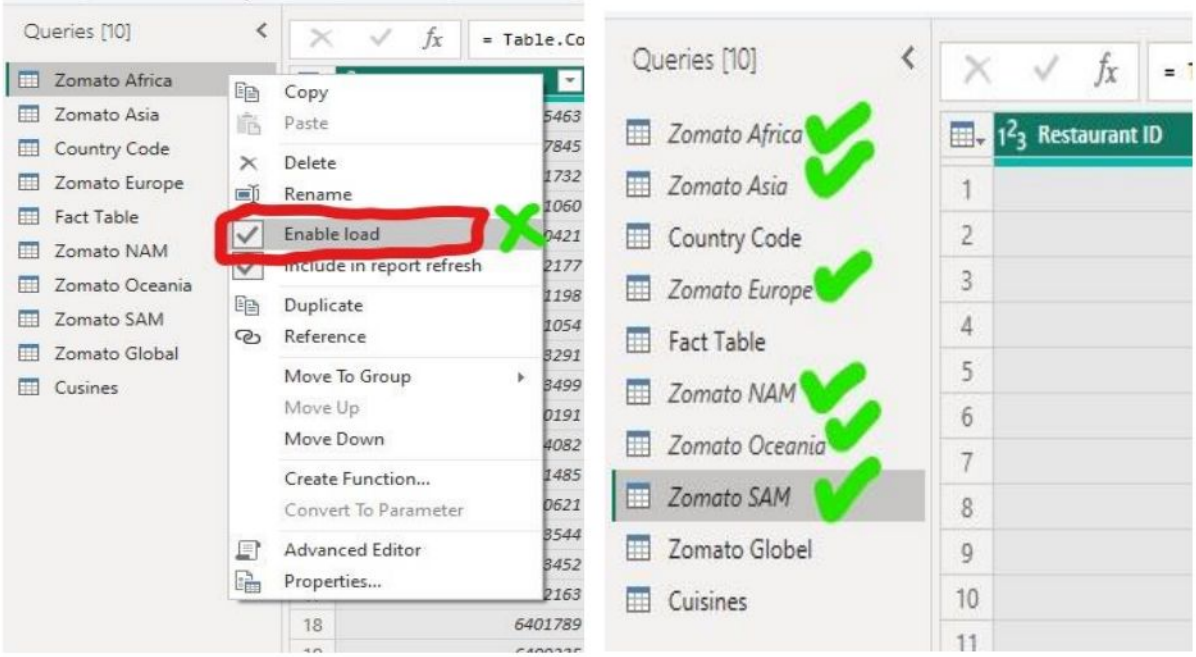
Select the "KPI's" table from the queries list and rename it as "Fact Table."



Disable Load for Country Names:

Since the Zomato Global data already includes all countries, disable the load for the "Country" table.

Right-click on the table, uncheck "Enable Load," and click "Continue" to apply the changes. The country names will appear in italic font



⇨ Close and Apply:

Finally, click on "Close and Apply" to save the changes and apply them to your Power BI model.

4.2 Model View:

Here's the content written in a properly formatted manner:

Table Display:

- In the model view, you will see four tables: "Country Code," "Zomato Global," "Fact Table," and "Cuisines."

Establishing Relationships:

- Establish relationships between the tables to enable seamless data integration.
- Link the "Country Code" table to the "Zomato Global" table by arranging the "Country Code" column in both tables.
- Link the "Zomato Global" table to the "Fact Table" by arranging the "Restaurant ID" column in both tables.
- Link the "Cuisines" table to the "Zomato Global" table by arranging the "Cuisines" column in both tables.

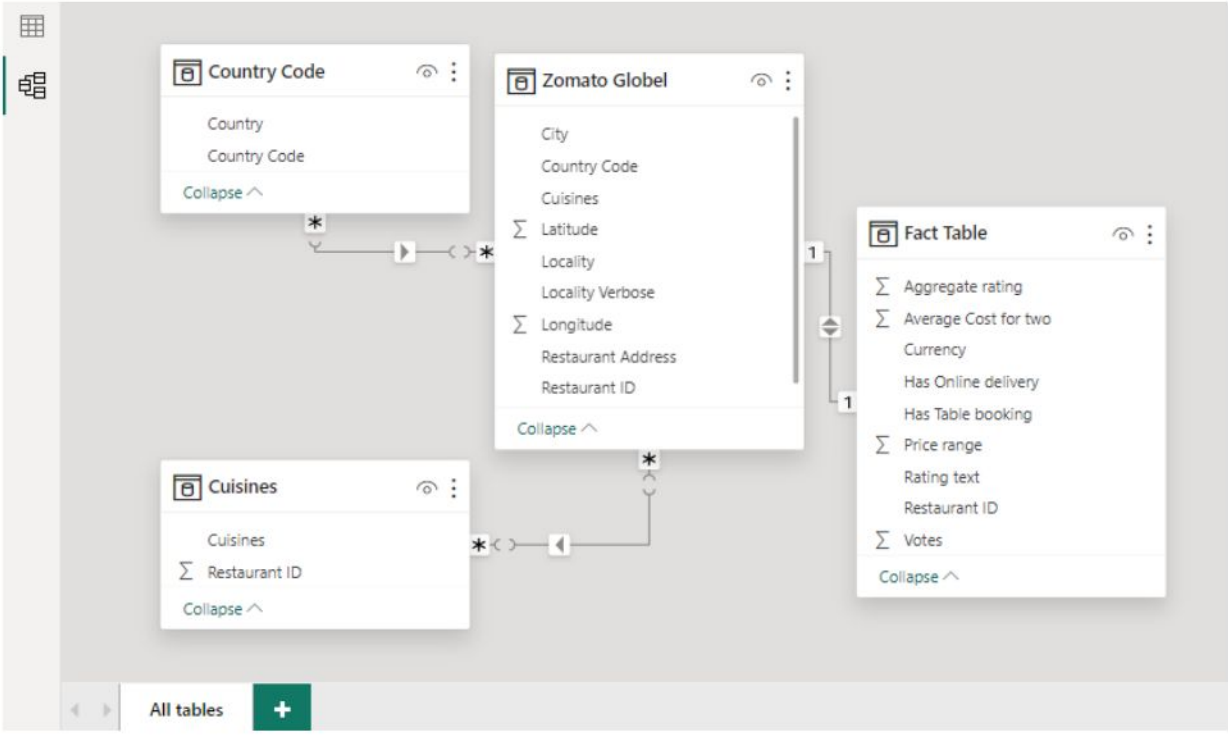


Table View Manuipulation and Measure Creation

In the table view of Power BI, we'll perform several functions and manipulations to enhance the data representation:

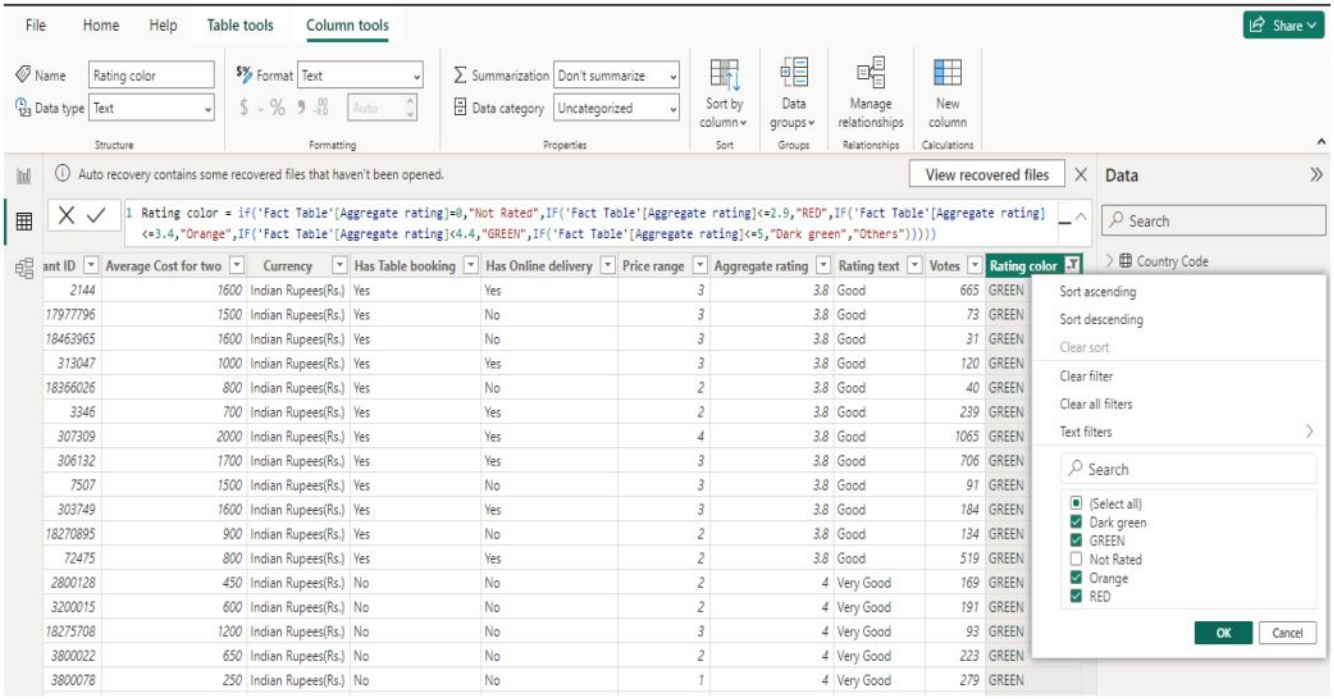
Creating "Rating Color" Column in Fact Table:

Click on the "Fact Table" and create a new column named "Rating Color."

Use the following formula to determine the rating color based on the aggregate rating:

```
Rating color = IF('Fact Table'[Aggregate rating] = 0, "Not Rated",
                IF('Fact Table'[Aggregate rating] <= 2.9, "RED",
                 IF('Fact Table'[Aggregate rating] <= 3.4, "Orange",
                  IF('Fact Table'[Aggregate rating] < 4.4, "GREEN",
                   IF('Fact Table'[Aggregate rating] <= 5, "Dark green", "Others")))))
```

Press Enter to create the new column for the rating color.

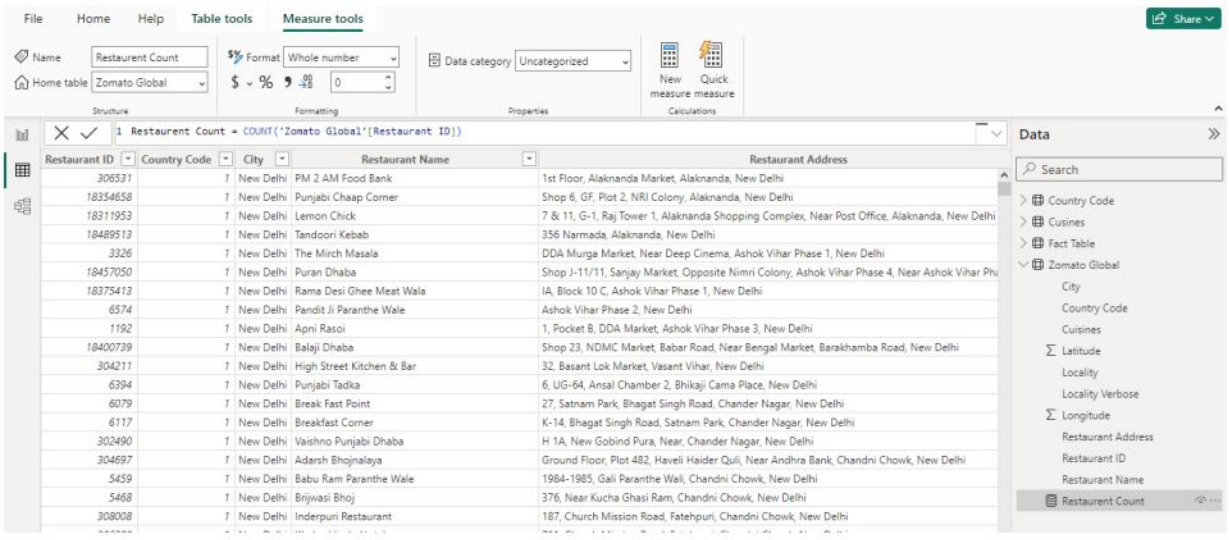


Creating "Continent" Column in Country Code Table:

Click on the "Country Code" table and create a new column named "Continent."

Use the SWITCH function to assign continent names based on the country code:

Continent = SWITCH('Country Code'[Country Code],189, "Africa",215, "Europe",37, "NAM",216, "SAM",14, "Oceania",148, "Oceania","Asia")



Press Enter to create the new column for the continent.

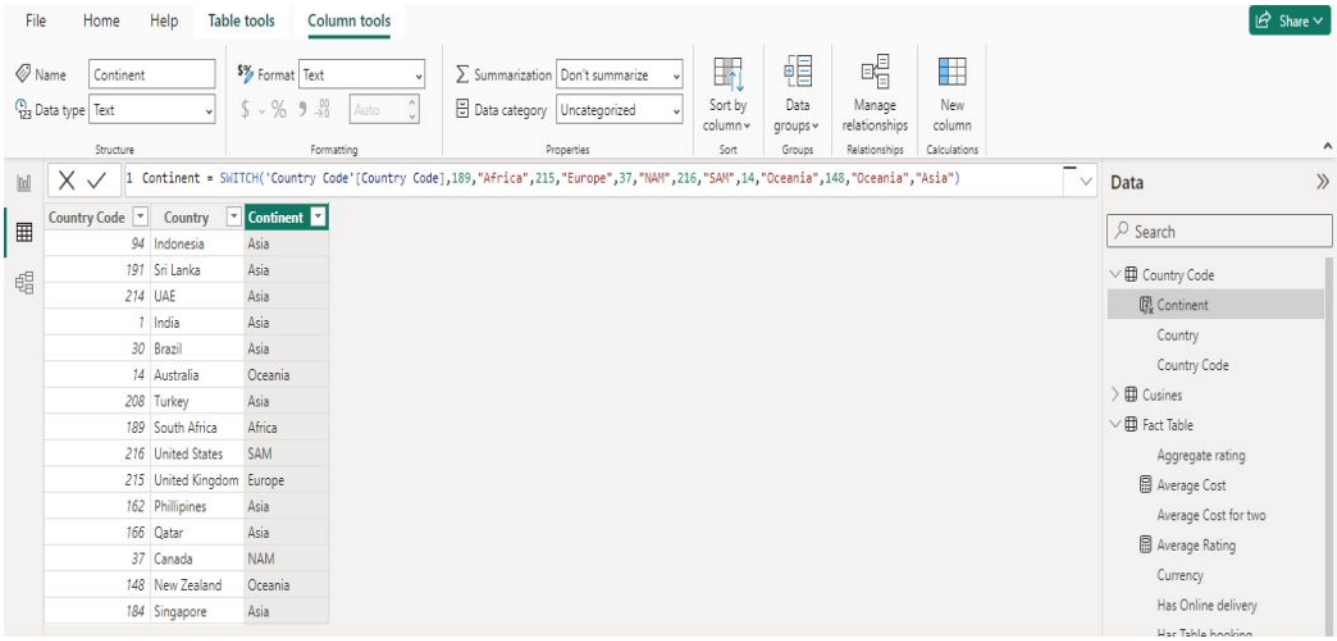
Creating Measures:

Right-click on the "Zomato Global" table and select "New Measure."

Name the measure "Restaurant Count" and use the formula:

```
Restaurant Count = COUNT('Zomato Global'[Restaurant ID])
```

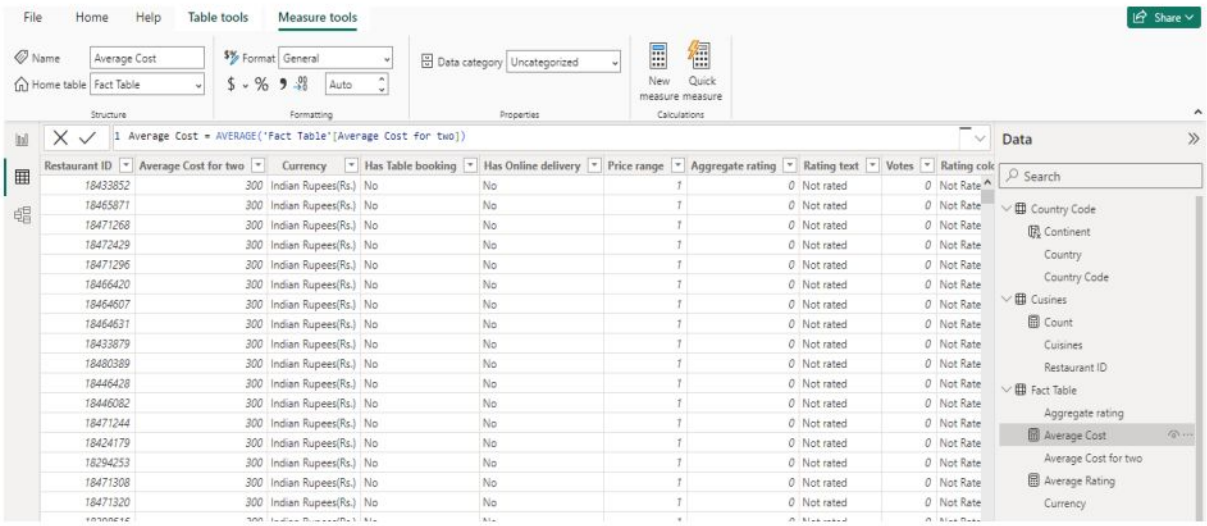
Press Enter to create the measure.



Similarly, create the following measures for the "**Fact Table**":

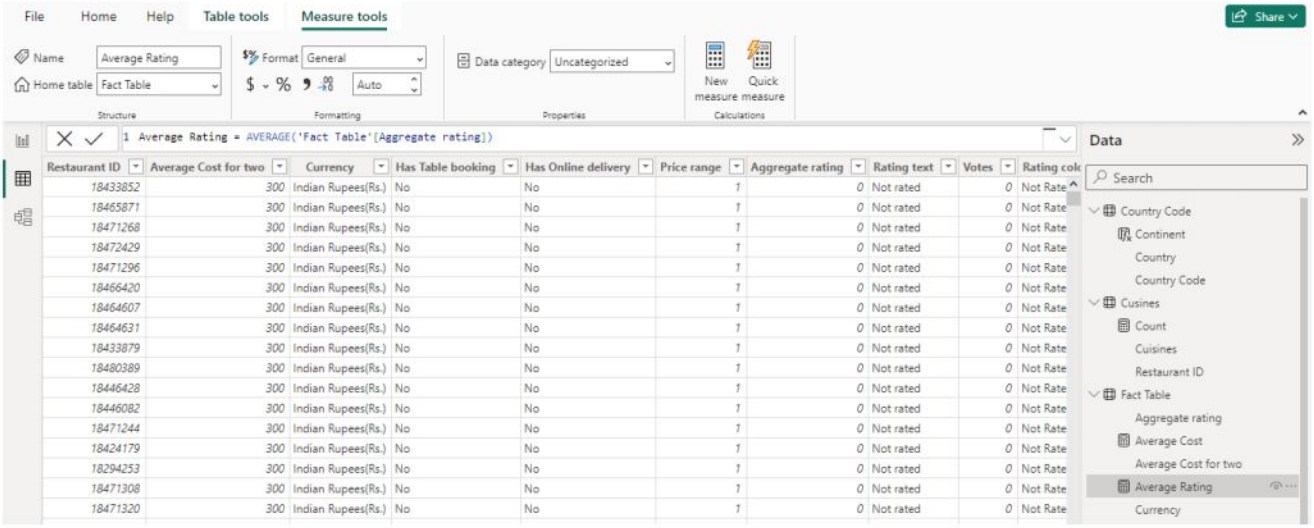
"Average Cost" using the formula:

```
Average Cost = AVERAGE('Fact Table'[Average Cost for two])
```



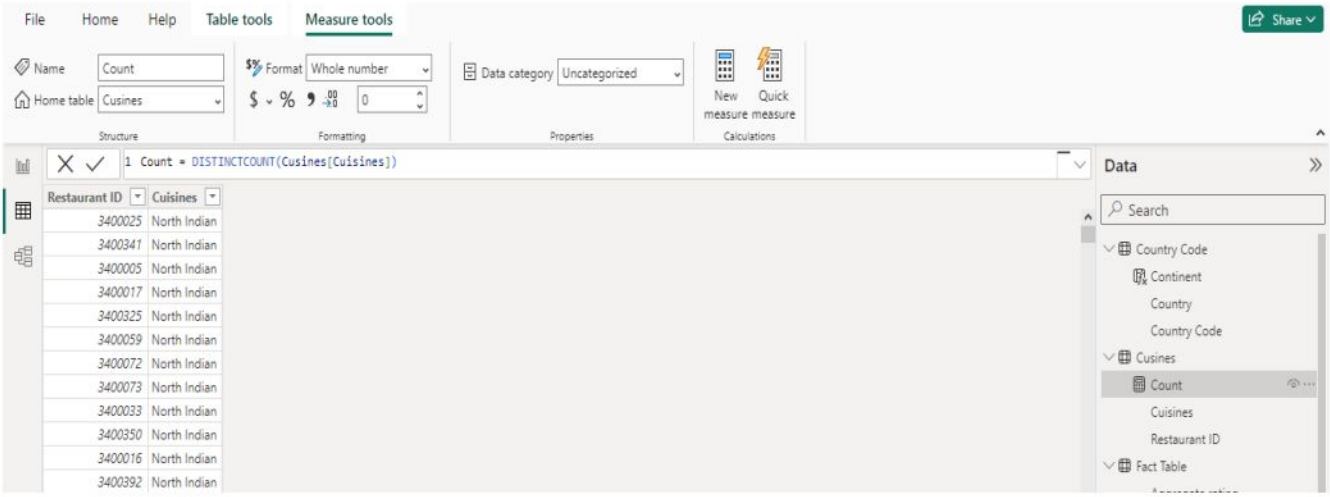
"Average Rating" using the formula:

Average Rating = AVERAGE('Fact Table'[Aggregate rating])



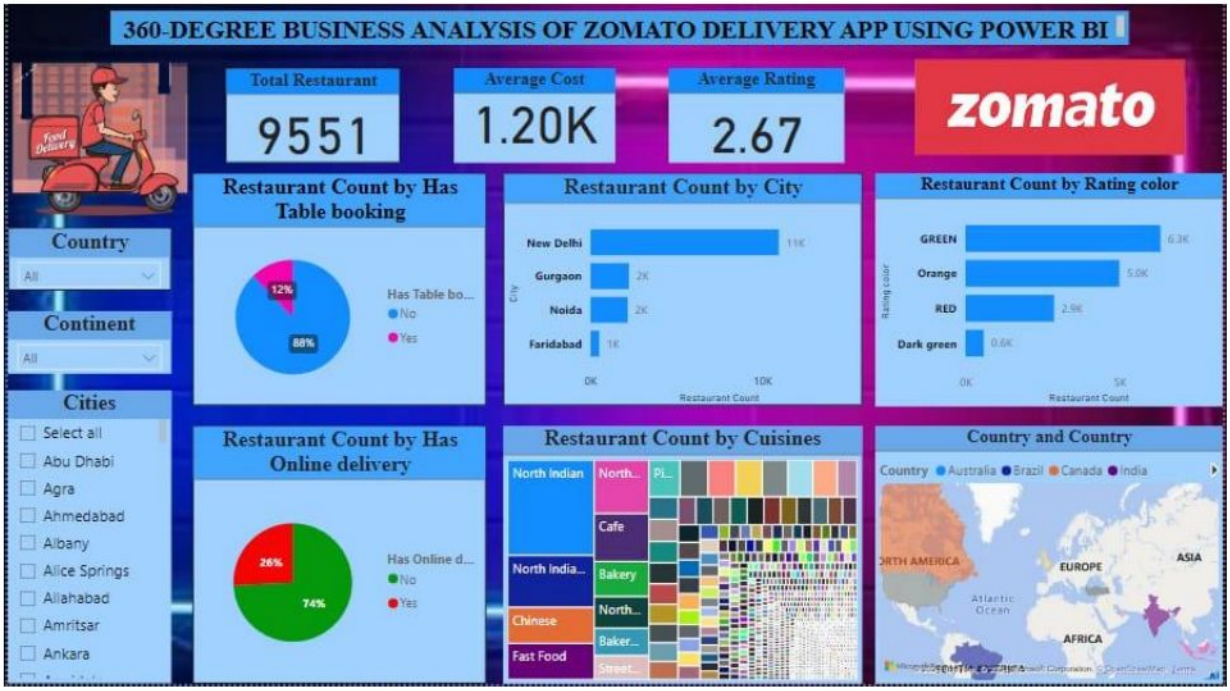
Also, create a measure for the "**Cuisines**" table named "Count" with the formula:

Count = DISTINCTCOUNT(Cuisines[Cuisines])



Press Enter after entering each formula to create the respective measures.

4.2 RESULT / DASHBOARD



CONCLUSION

In conclusion, the development of a tailored Power BI dashboard for analyzing Zomato's delivery app data represents a significant step towards enhancing the company's operational efficiency and competitiveness in the online food delivery market. By integrating multiple data sources and incorporating interactive features, the dashboard provides stakeholders with a comprehensive view of business operations and enables dynamic exploration of key metrics and trends. Moreover, the inclusion of predictive and prescriptive analytics capabilities empowers decision-makers with insights to anticipate future trends and optimize operational processes and marketing strategies. Ultimately, the project's goal is to equip Zomato with the tools necessary to drive strategic decision-making, foster growth, and meet the evolving needs of customers and partners in the digital age.

FUTURE SCOPE

The future scope of Power BI is imbued with boundless potential, poised to revolutionize the landscape of data-driven decision-making. As analytics and machine learning continue to evolve, Power BI stands at the forefront of innovation, offering unparalleled opportunities for organizations to harness data for strategic insights and competitive advantage. One of the most promising avenues lies in the integration of predictive analytics capabilities, enabling organizations to anticipate future trends and customer behaviors with unprecedented accuracy. By analyzing historical data patterns, Power BI could empower businesses to proactively address customer needs, driving heightened satisfaction and loyalty.

Moreover, Power BI's seamless integration with diverse data sources paves the way for a more comprehensive understanding of business operations. By incorporating data from a myriad of sources including IoT devices, social media platforms, and cloud databases, organizations can gain deeper insights into their operations and customer interactions. However, in light of escalating data privacy and security concerns, future iterations of Power BI projects must prioritize the implementation of robust data governance frameworks. Ensuring stringent data protection measures will be essential to secure the handling of sensitive information and maintain compliance with regulatory requirements.

Looking ahead, the integration of real-time data streams holds immense promise for Power BI projects. By leveraging real-time data feeds, organizations can access up-to-the-minute insights, enabling agile decision-making and rapid response to evolving market dynamics. This real-time capability has the potential to fundamentally transform the way businesses interact with their data, fostering a culture of agility and adaptability in an increasingly dynamic business environment.

In conclusion, the future trajectory of Power BI is characterized by its capacity to drive innovation, agility, and actionable insights. By harnessing the platform's advanced analytics, seamless data integration, and real-time capabilities, organizations can unlock new horizons for growth, efficiency, and sustained competitive advantage in the digital era.

REFERENCES

https://learn.techsaksham.org/

https://portal.naanmudhalvan.tn.gov.in/

LINKS

https://github.com/chinnasamy-c/power-bi