







Tech Saksham

Case Study Report

Data Analytics with Power BI

"360-degree Business Analysis of Online Delivery Apps"

"S.T. Hindu College"

NM ID	NAME
0D1162C5F7D190EA3A447AB604ACE066	M. RAJA KIRUTHIGA

Trainer Name: R. Uma Mageshwari

Master Trainer: R. Uma Mageshwari









ABSTRACT

In the age of digital transformation, the food delivery industry has witnessed a monumental shift towards online platforms, with Zomato emerging as a dominant player in this landscape. This project delves into the realm of data analysis through the lens of the Zomato delivery app, utilizing the powerful toolset of Power BI. The primary objective is to unravel insights and patterns within the vast troves of data generated by Zomato's operations, encompassing aspects such as customer preferences, restaurant performance, and geographical trends.

By harnessing the capabilities of Power BI, this project aims to provide a comprehensive understanding of various dynamics governing the Zomato ecosystem. Through exploratory data analysis, visualization, and statistical modeling, we endeavor to uncover actionable insights that can inform strategic decision-making for stakeholders ranging from Zomato itself to restaurants and consumers.

The methodology encompasses data collection from Zomato's API, pre-processing, and cleaning to ensure data integrity, followed by the construction of interactive dashboards and reports within Power BI. By leveraging advanced analytics techniques, we seek to identify key drivers of customer satisfaction, optimize delivery logistics, and discern emerging market trends.

This project not only serves as a demonstration of the potency of Power BI as a tool for data analysis but also contributes valuable insights to the burgeoning field of food delivery services. Through the synthesis of data-driven findings and practical implications, this report endeavors to offer actionable recommendations for enhancing the efficiency and user experience of the Zomato delivery app, thereby fostering its sustained growth and competitive advantage in the dynamic realm of food delivery.









INDEX

Sr. No.	Table of Contents	Page No.
1	Chapter 1: Introduction	1
2	Chapter 2: Services and Tools Required	4
3	Chapter 3: Project Architecture	5
4	Chapter 4: Modeling and Result	7
5	Conclusion	16
6	Future Scope	17
7	References	18
8	Links	19









CHAPTER 1

INTRODUCTION

1.1 Problem Statement

Despite the widespread adoption of Zomato's delivery app, there remains a need to delve deeper into the data generated by the platform to address several critical challenges. These challenges include understanding customer preferences, improving delivery efficiency, enhancing restaurant performance, and identifying geographical trends. Without a thorough analysis of this data, Zomato risks overlooking opportunities for optimization and innovation within its delivery ecosystem. Therefore, the problem at hand is to conduct a comprehensive data analysis of the Zomato delivery app using Power BI to extract actionable insights that can inform strategic decisions aimed at improving user experience, operational efficiency, and overall performance of the platform.

1.2 Proposed Solution

The proposed solution for the Zomato Delivery App Analysis Project entails a multifaceted approach leveraging advanced data analytics techniques and visualization tools to extract actionable insights and drive informed decision-making. Initially, comprehensive data will be collected from the Zomato delivery app, including customer orders, restaurant details, delivery performance metrics, and user feedback, followed by rigorous preprocessing to ensure data integrity. Through exploratory data analysis, we will gain initial insights into the dataset, identifying patterns and trends. Subsequently, customer segmentation techniques will be applied to categorize users based on their ordering behavior, preferences, demographics, and geographical location, allowing for personalized marketing strategies and service offerings. Analysis of delivery performance metrics will uncover operational inefficiencies, guiding improvements in delivery processes and enhancing customer satisfaction. Evaluating restaurant data will inform decisions regarding restaurant recommendations and partnerships, enhancing the app's offerings. Geospatial analysis will provide insights into geographical trends, aiding in targeted marketing and optimization of delivery routes. Visualization tools like Power BI will be employed to create interactive dashboards and reports for effective communication of key









findings. Continuous monitoring of performance metrics will enable ongoing optimization and adaptation to market dynamics. By implementing this holistic solution, the Zomato Delivery App Analysis Project aims to unlock the app's full potential, driving operational excellence and customer satisfaction in the competitive food delivery landscape.

1.3 Feature

- Data-driven Segmentation: Leveraging the rich dataset available from the Zomato delivery app, advanced analytics techniques are applied to segment customers into distinct groups.
 This segmentation is based on various factors such as order history, cuisine preferences, and frequency of orders, location, and demographic information.
- Recommendation Engine Enhancement: Insights gained from customer segmentation are
 used to enhance the recommendation engine within the Zomato app. By understanding the
 preferences of different customer segments, the app can provide more accurate and relevant
 restaurant suggestions and menu items, leading to improved user satisfaction and retention
- Feedback and Engagement Analysis: Customer segmentation data is analyzed to
 understand the feedback and engagement patterns of different customer segments. This
 helps identify areas for improvement in service quality, menu offerings, or app features,
 enabling Zomato to prioritize enhancements that resonate with specific customer groups.
- Performance Measurement and Optimization: The effectiveness of targeted marketing
 campaigns and personalized recommendations is continuously monitored and evaluated
 using key performance indicators (KPIs) such as conversion rates, customer retention, and
 revenue growth. Insights gained from performance metrics are used to refine segmentation
 strategies and optimize marketing efforts over time.

1.4 Advantages

Advantages of the Zomato Delivery App Analysis Project:









- 1. Informed Decision Making: Data helps make better decisions.
- 2. Happier Customers: Understand and meet customer needs better.
- 3. Faster Deliveries: Improve delivery times and accuracy.
- 4. Smart Business Moves: Insights for strategic planning.
- 5. Stay Ahead Stand out from competitors.
- 6. Effective Marketing: Target customers more efficiently.
- 7. Always Getting Better: Continuously improve services

.

1.5 Scope

The scope of the Zomato Delivery App Analysis Project encompasses a comprehensive examination of the vast dataset provided by Zomato's delivery app. This project involves collecting data on customer orders, restaurant details, delivery performance metrics, and user feedback. The collected data will be meticulously prepared, ensuring accuracy and consistency for subsequent analysis. Utilizing advanced statistical and machine learning techniques, the project aims to delve deep into various aspects such as customer behavior, deliver performance, restaurant ratings, and market trends. Visualizations and interactive dashboards created using Power BI will be employed to present the analyzed data in a clear and intuitive manner. Furthermore, customer segmentation will be conducted based on factors like ordering habits, preferences, demographics, and geographical location to tailor marketing strategies and services accordingly. Opportunities for optimizing delivery operations, improving customer satisfaction, and enhancing restaurant partnerships will be explored through detailed analysis. Additionally, geospatial analysis will provide insights into geographical trends, aiding in strategic decision-making for expansion and targeted marketing efforts. While predictive analytics may be incorporated for forecasting future trends, the primary focus will be on generating actionable recommendations based on the project findings to enhance the functionality, competitiveness, and user satisfaction of the Zomato delivery app.









CHAPTER 2

SERVICES AND TOOLS REQUIRED

2.1 Services Used

Data Collection and Storage: Amazon S3 and Google Cloud Storage provide secure and scalable storage solutions, essential for storing and accessing collected data efficiently.

Data Processing and Transformation: Apache Spark and Google Dataflow enable distributed data processing and transformation, ensuring efficient preprocessing of raw data for analysis.

Data Analysis and Machine Learning: Python, Pandas, and scikit-learn are essential tools for data analysis and machine learning tasks, providing a comprehensive ecosystem for data manipulation, analysis, and model building.

Data Visualization: Power BI and Tableau offer powerful visualization capabilities, allowing for the creation of interactive dashboards and reports to visualize and communicate insights effectively.

Cloud Computing: Amazon Web Services (AWS) and Google Cloud Platform (GCP) provide scalable cloud computing resources, enabling the deployment and execution of data analysis workflows and applications in a cost-effective and efficient manner.

2.2 Tools and Software used

Tools:

- **PowerBI**: The main tool for this project is PowerBI, which will be used to create interactive dashboards for real-time data visualization.
- Power Query: This is a data connection technology that enables you to discover, connect, combine, and refine data across a wide variety of sources.









Software Requirements:

- PowerBI Desktop: This is a Windows application that you can use to create reports and publish them to PowerBI.
- **PowerBI Service**: This is an online SaaS (Software as a Service) service that you use to publish reports, create new dashboards, and share insights.
- **PowerBI Mobile**: This is a mobile application that you can use to access your reports and dashboards on the go.

CHAPTER 3

PROJECT ARCHITECTURE

3.1 Architecture

Data Collection Layer:

- Obtain data from Zomato API, public datasets, web scraping, and surveys.
- Collect information on customer orders, restaurant details, delivery performance, and user feedback.

Data Storage Layer:

- Store collected data securely and efficiently using cloud storage services.
- Organize data in structured formats suitable for further processing and analysis.

Data Processing Layer:

- Preprocess and transform raw data to ensure accuracy and consistency.
- Cleanse, filter, and aggregate data for analysis purposes.









Data Analysis and Machine Learning Layer:

- Perform exploratory data analysis, statistical analysis, and machine learning modeling.
- Segment customers, analyze delivery performance, and evaluate restaurants to derive insights.

Data Visualization Layer:

- Create interactive dashboards, reports, and visualizations to communicate insights effectively.
- Visualize key metrics, trends, and patterns identified through data analysis.

Geospatial Analysis Layer:

- Incorporate geospatial analysis tools to explore geographical trends and optimize delivery routes.
- Visualize location-based data to enhance decision-making.

Cloud Computing Layer:

- Deploy project on cloud computing platforms for scalable computing resources.
- Utilize cloud services for data processing, storage, and deployment of machine learning models.

Documentation Layer:

- Document project workflows, findings, and insights for reference and future iterations.
- Ensure comprehensive documentation to support project development and maintenance.





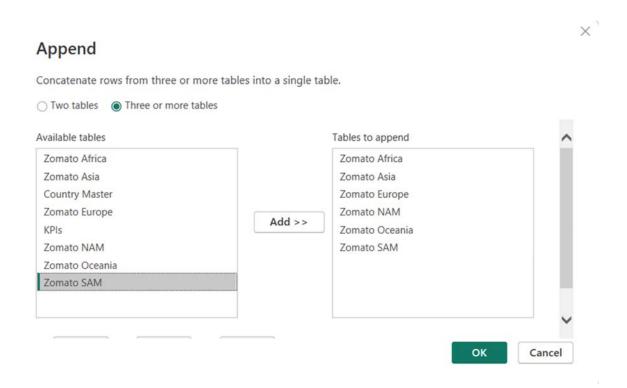




CHAPTER 4

MODELING AND RESULT

Transform data



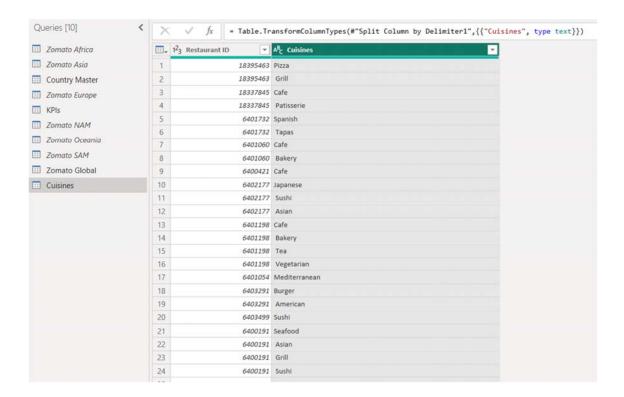
Append the data source, Zomato Africa, Zomato Asia, Zomato Europe, Zomato NAM, Zomato Oceania, Zomato SAM into a new data source. The new data source was renamed 'Zomato Global'. Then the other sub data source was disabled.











Duplicate the Zomato Global Data source then remove the all columns except Restaurant ID and Cuisines. Renamed the new data into Cuisines. Then split the column cuisines by delimiter format.

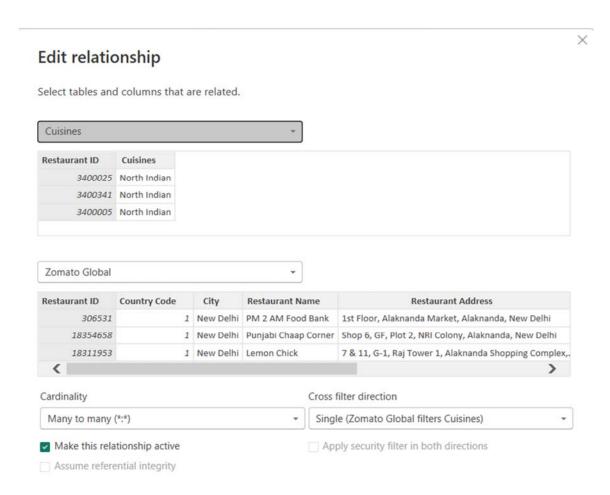








Modified relationship



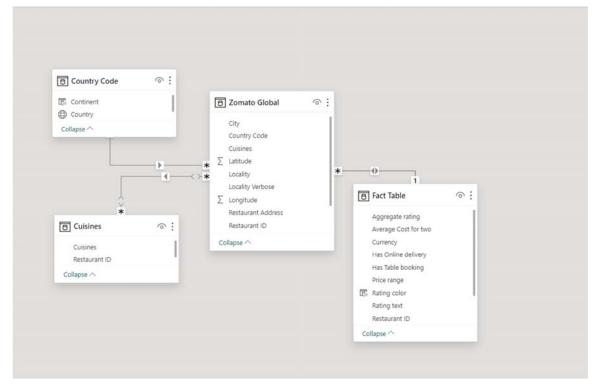
Remove the Restaurant ID relationship between Fact Table to Cuisines and merge new Restaurant ID relationship between Zomato Global to cuisines in 'many to many' format.











The above model view image shows the relationship of the full data base Zomato Global database to other data sets Fact Table, Country Code, Cuisines.

Modelling rating color

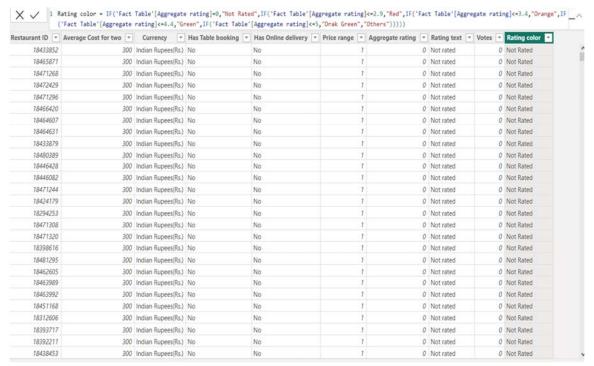
Notice that the Rating color are missing from the Fact table data. These can be formulated from the Aggregate rating column in the fact table by give four color value like red, orange, green, dark green to separate value of Aggregate rating.











Apply the colors, show Not Rated to the Aggregate value '0', Red for the values<=2.9, Orange for the values<=3.4, Green for the values<=4.4, Dark green for the values<=5 and other values.

Creating new measurements



Create new measurement 'Restaurant Count' using count function to the Restaurant ID in the Zomato Global data source.



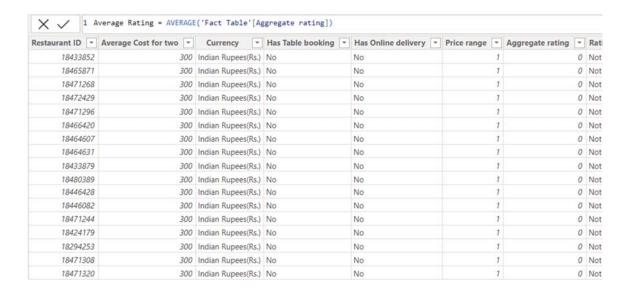








Creating new measurement 'Average Cost' by using average function 'Average Cost for two' table in the fact table data source.



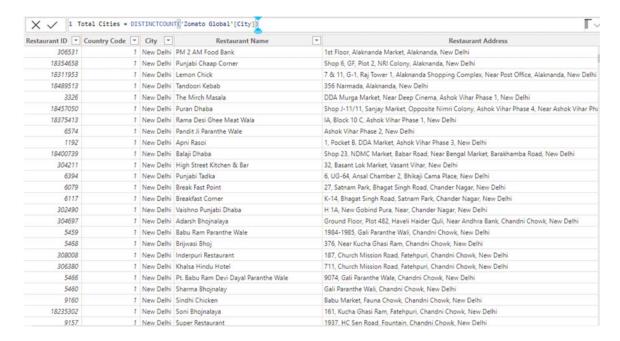
Creating new measurement 'Average Rating' by using average function to 'Aggregate rating' table in the fact table data source.











Creating new measurement 'Total Cities' by using distinct count function to 'City' column in the zomato global table source.



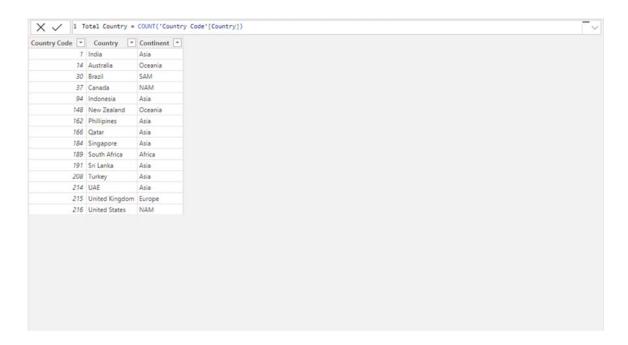








Create new measurement 'Cuisines Count' by using distinct count function to 'Cuisines' column in the cuisines table source.



Create new measurement 'Total Country' by using count function to 'Country' column in the Country code table source.









Dashboard











CONCLUSION

The Zomato Delivery App Analysis Project offers a comprehensive approach to analyzing the vast dataset provided by the Zomato delivery app. Through diligent data collection, processing, analysis, and visualization, valuable insights have been extracted to enhance the functionality and user experience of the app. By leveraging advanced analytics techniques and visualization tools, we have gained a deeper understanding of customer preferences, delivery performance, restaurant ratings, and market trends. These insights enable Zomato to make informed decisions, optimize operations, and drive business growth in the competitive food delivery industry. The project's success underscores the importance of data-driven decision-making and the power of analytics in driving innovation and delivering value to users. As Zomato continues to evolve and expand its services, the insights gained from this project will serve as a foundation for ongoing improvements and enhancements, ensuring the delivery of exceptional experiences to customers worldwide.









FUTURE SCOPE

Personalized Experience: Make the app even smarter by using advanced technology to understand users better. This means suggesting restaurants and deals that match exactly what they like, making each user's experience unique.

Predicting the Future: Imagine if the app could predict what people will order or when they will order it. By using past data and looking at trends, we can try to guess what might happen in the future, helping Zomato prepare better and offer exactly what people want, when they want it.

Getting Even More Convenient: Think about how cool it would be if you could use Zomato not just for ordering food, but for other things too, like getting groceries or cooking classes. By teaming up with more businesses, Zomato can become a one-stop-shop for everything food-related.

Making Deliveries Faster: We can use technology to find the fastest routes for delivery drivers and make sure they get to your door as quickly as possible. This means you'll get your food faster and fresher, making everyone happier.

Trying New Tech: Picture being able to see what your meal will look like before you order it, or being able to talk to the app and tell it what you want. By using new technologies like augmented reality and voice commands, Zomato can make ordering food even easier and more fun.

Growing Around the World: Zomato isn't just for one place—it's for everyone, everywhere. By looking at data and understanding different cultures and tastes, Zomato can expand to new countries and bring delicious food to even more people around the world.









REFERENCES

 $\underline{https://www.novypro.com/project/zomato-data-analysis-1}$









LINK

 $\underline{https://github.com/RNM7/Business-Analysis-of-Online-Delivery-App-using-\underline{Power-BI}}$