Tech Saksham

Case Study Report

Data Analytics with Power BI

“360-DEGREE BUSINESS ANALYSIS OF ONLINE DELIVERY APPS”

“DR. UMAYAL RAMANATHAN COLLEGE FOR WOMEN”

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ABSTRACT

This 360-degree business analysis, conducted within the Power BI environment, offers a comprehensive overview of online delivery apps. It encompasses market dynamics, customer behavior, operational efficiency, and financial performance. Utilizing Power BI's capabilities, businesses can extract actionable insights to enhance competitiveness, optimize operations, and drive growth in the ever-evolving landscape of online delivery services.

INDEX

Sr. No.	Table of Contents	Page No.
1	Chapter 1: Introduction	4
2	Chapter 2: Services and Tools Required	6
3	Chapter 3: Project Architecture	7
4	Chapter 4: Modeling and Result	9
5	Conclusion	15
6	Future Scope	16
7	References	17
8	Links	18

CHAPTER 1

INTRODUCTION

1.1 Problem Statement:

Online delivery apps face multifaceted challenges necessitating a comprehensive analysis. These include intense competition leading to price wars and thin margins, operational inefficiencies causing delays and service quality issues, labor-related complexities with gig economy workers, concerns about data privacy and cybersecurity, and the environmental impact of increased packaging waste and carbon emissions. Addressing these issues requires strategic repositioning, technological advancements, regulatory compliance, and a commitment to sustainability and social responsibility.

1.2 Proposed Solution:

The proposed 360-degree business analysis for online food delivery apps in Power BI aims to provide comprehensive insights into various facets of the business. It encompasses key metrics such as customer demographics, order trends, popular cuisines, delivery times, and customer feedback sentiment analysis. Utilizing Power BI's interactive dashboards and visualizations, stakeholders can track real-time performance, optimize marketing strategies, identify emerging market trends, enhance operational efficiency, and tailor services to meet customer preferences effectively. This holistic approach enables informed decision-making, fosters strategic growth, and ensures a competitive edge in the dynamic online food delivery

1.3 Feature:

- **Data Integration:** Power BI allows seamless integration of various data sources, including transactional data, customer feedback, market trends, and operational metrics, enabling a comprehensive analysis of online delivery apps.

- **Interactive Dashboards:** Power BI offers interactive dashboards and visualizations, enabling stakeholders to explore and analyze data dynamically, facilitating better decision-making.

- **Advanced Analytics:** With Power BI's advanced analytics capabilities, businesses can perform predictive analysis, sentiment analysis, and anomaly detection to uncover insights and anticipate market trends.

- **Scalability:** Power BI is highly scalable, capable of handling large volumes of data, making it suitable for analyzing vast amounts of information generated by online delivery apps.

1.4 Advantages:

- **Real Time Monitoring:** Businesses can monitor key metrics in real-time through Power BI dashboards, allowing for timely interventions and adjustments to operations and strategies.

- **Improved Efficiency:** By analyzing operational processes and identifying bottlenecks, businesses can streamline operations, reduce costs, and improve overall efficiency.

- **Competitive Advantage:** Leveraging Power BI for 360-degree business analysis provides businesses with a competitive edge by enabling them to stay ahead of market trends, understand customer needs, and optimize resources effectively.

1.5 Scope

1. **Market Analysis:** Evaluate market trends, competitor performance, and emerging opportunities to identify areas for growth and strategic positioning.

2. **Customer Insights:** Understand customer behavior, preferences, and satisfaction levels to tailor marketing strategies and improve user experience.

3. **Operational Efficiency:** Analyze key performance indicators (KPIs) such as order fulfillment time, delivery accuracy, and driver efficiency to optimize operational processes and enhance service quality.

4. **Financial Performance:** Assess revenue trends, cost structures, and profitability metrics to identify areas for cost optimization and revenue maximization.

CHAPTER 2

SERVICES AND TOOLS REQUIRED

2.1 Services Used:

There are numerous benefits of online food delivery service, such as

- Audiences can make orders from anywhere else.
- The online delivery service saves time from the customer side.
- Restaurants can collect better customer data.
- Most restaurants offer online **food delivery 24 hours**. That's why customers can make **late night food delivery orders**.

2.2 Tools and Software used

Tools:

- **DAX (Data Analysis Expressions):** DAX is a formula language used in Power BI for creating calculated columns, measures, and calculated tables. It enables users to perform complex calculations and aggregations on data within Power BI reports and dashboards.

- **Power Query:** Power Query is a data connectivity and preparation tool in Power BI that allows users to connect to and import data from different sources, including databases, Excel files, CSV files, and online services. It provides capabilities for data extraction, transformation, and loading (ETL), making it easier to integrate data from multiple sources into Power BI for analysis.

- **Power BI Service:** Power BI Service is a cloud-based platform for publishing, sharing, and collaborating on Power BI reports and dashboards. It enables users to securely share insights with stakeholders, schedule data refreshes, and access reports and dashboards from anywhere using a web browser or mobile device.

Software Requirements:

1. **Power BI Desktop:** The primary software tool for creating interactive reports, dashboards, and visualizations by connecting to various data sources and performing data analysis.

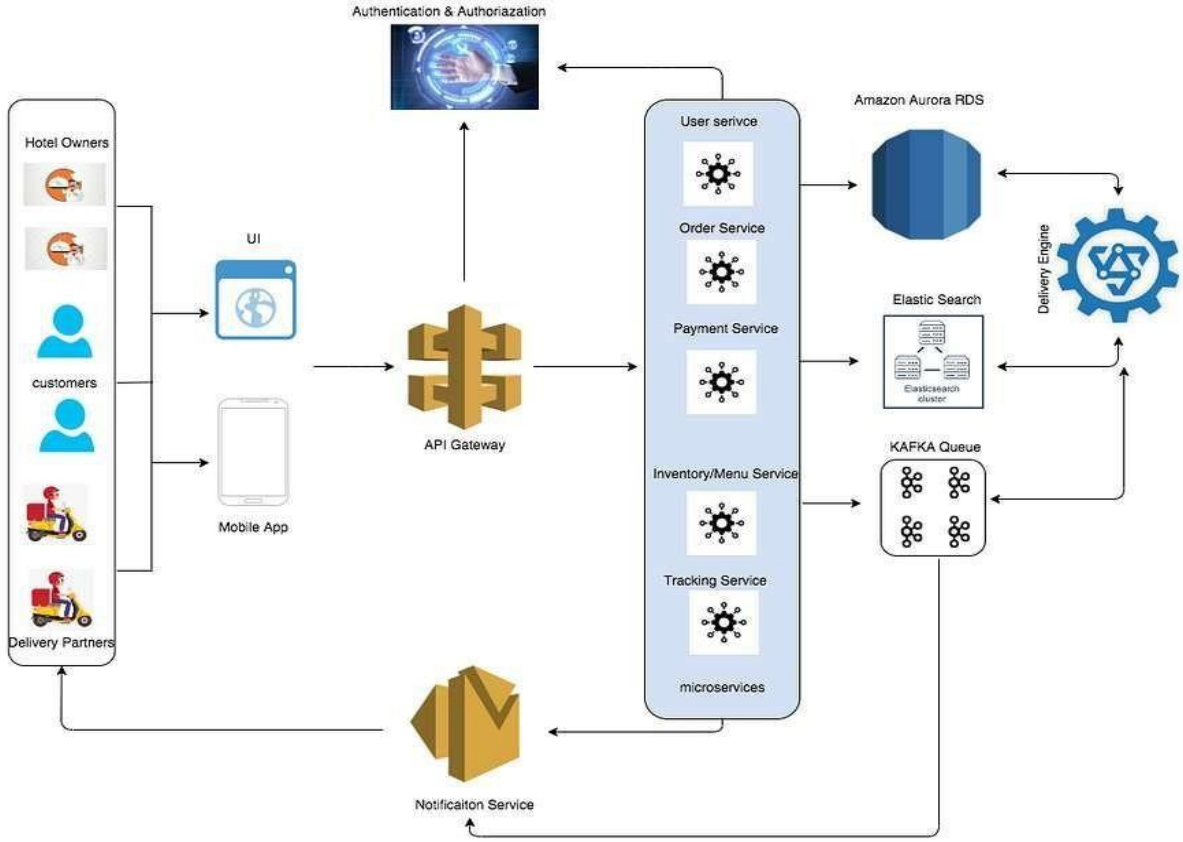
2. **Microsoft Excel:** Often used alongside Power BI for data preparation, manipulation, and initial analysis before importing into Power BI for more advanced visualization and reporting.

3. **SQL Server Management Studio (SSMS):** Used for managing and querying SQL databases where transactional data related to online delivery apps may be stored, enabling data extraction and transformation for analysis in Power BI.

CHAPTER 3

PROJECT ARCHITECTURE

3.1 Architecture



Here’s a high-level architecture for the project:

1. **Data Storage**: Food delivery apps use databases to store data about users, restaurants, orders, and more.
2. **Data Processing**: Food delivery apps can use data to help improve customer satisfaction, build brand image, and increase sales.
3. **Machine Learning**: Food delivery apps use machine learning to improve their algorithms, which can help users get a more personalized experience. For example, Zomato uses machine learning to automate menu digitization, create personalized restaurant listings, and predict food preparation times.
4. **Data Visualization**: The processed data and the results from the predictive models are visualized in real-time using Power BI. Power BI allows you to create interactive dashboards that can provide valuable insights into the data.
5. **Data Access**: The dashboards created in Power BI can be accessed through Power BI Desktop, Power BI Service (online), and Power BI Mobile.

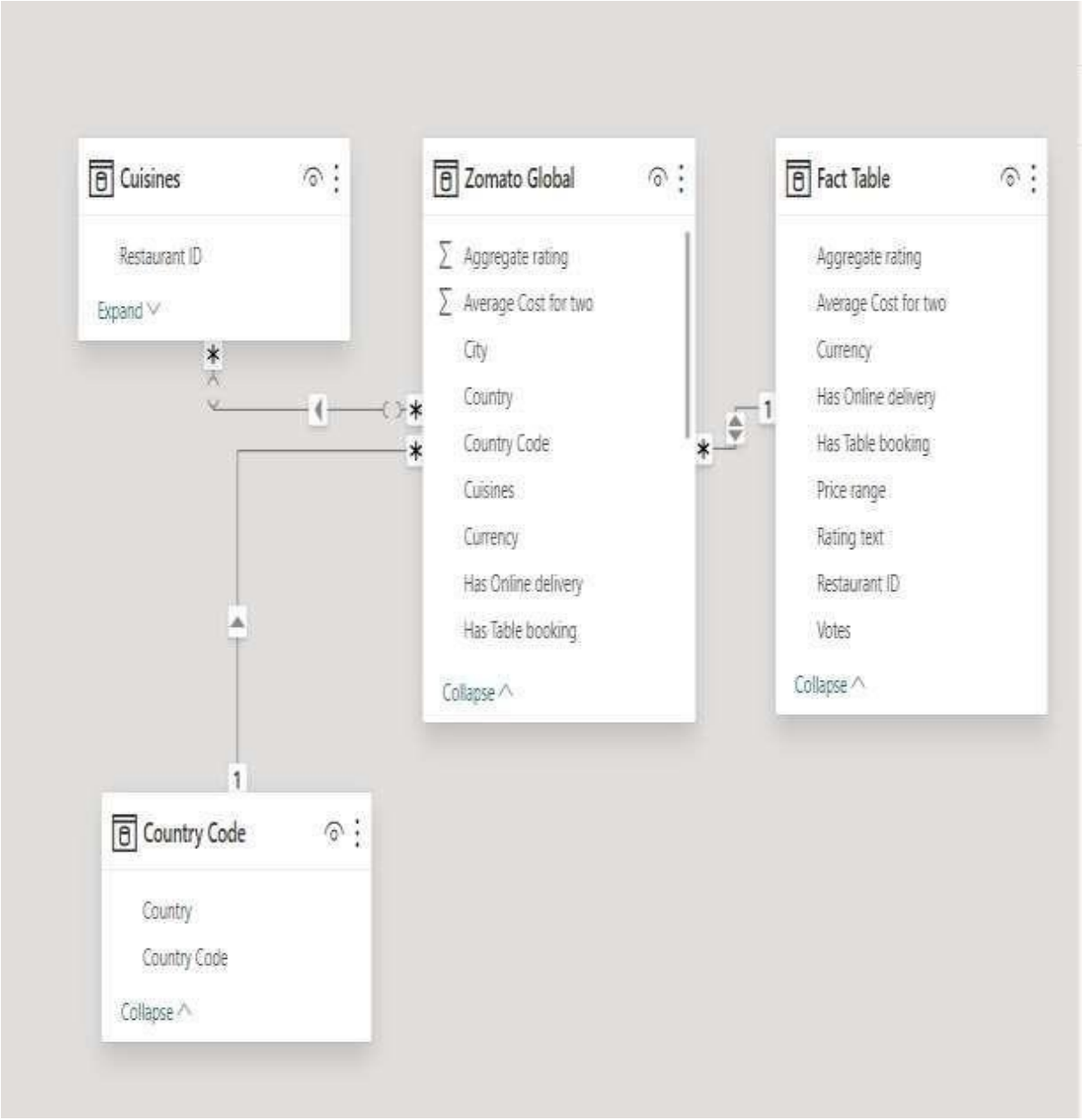
This architecture provides a comprehensive solution for real-time analysis of food delivery apps. However, it's important to note that the specific architecture may vary depending on the food delivery connection, specific requirements, and budget. It's also important to ensure that all tools and services comply with relevant data privacy and security regulations.

CHAPTER 4

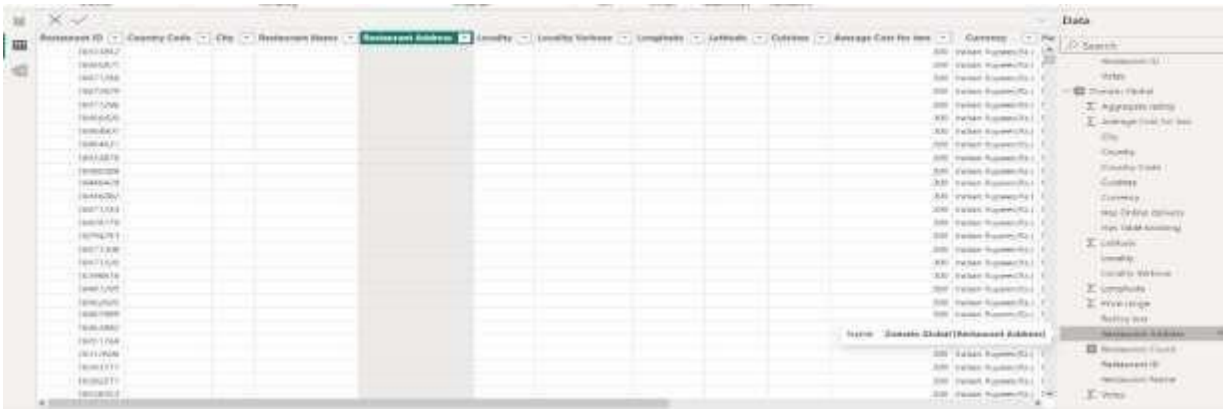
MODELING AND RESULT

Manage relationship

The "cuisines" file will be used as the main connector as it contains most key identifier (Restaurant ID, Fact table and Zomato global) which can be uses to relates the 4 data files together. The "country code" file is use to link the client profile geographically with "Zomato global"



Country Code	Country
94	Indonesia
191	Sri Lanka
214	UAE
1	India
30	Brazil
14	Australia
208	Turkey
189	South Africa
216	United States
215	United Kingdom
162	Phillipines
166	Qatar
37	Canada
148	New Zealand
184	Singapore



Report view

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

Country Code	Country	Continent
94	Indonesia	Asia
191	Sri Lanka	Asia
214	UAE	Asia
1	India	Asia
30	Brazil	Asia
14	Australia	Oceania
208	Turkey	Asia
189	South Africa	Africa
216	United States	SAM
215	United Kingdom	Europe
162	Phillipines	Asia
166	Qatar	Asia
37	Canada	NAM
148	New Zealand	Oceania
184	Singapore	Asia

Modelling for Gender and Age data

Notice that the Gender and age of the client are missing from the data. These can be formulated from the birth number YYMMDD where at months (the 3rd and 4th digits) greater than 50 means that client is a Female. We can create a column for Gender.

For birthday, we need to reduce the birth month of the female by 50 and then change the date format to DD/MM/YYYY adding 1900 to the year.

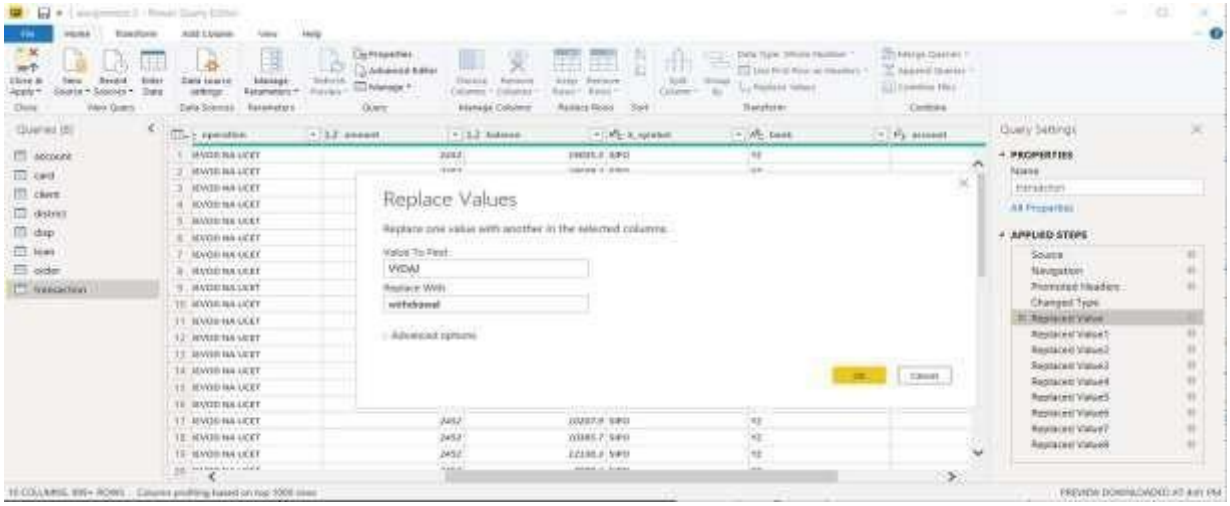
For Age, we shall assume it is year 1999 as explain previously and use it to minus from the birth year.

```
1  age = 1999 -RIGHT(client[Birthday],4)
```

client_id	birth_number	district_id	Gender	Birthday	age	age (groups)
2	450204	1	M	04/02/1945	54	36 -54 Baby Boomers

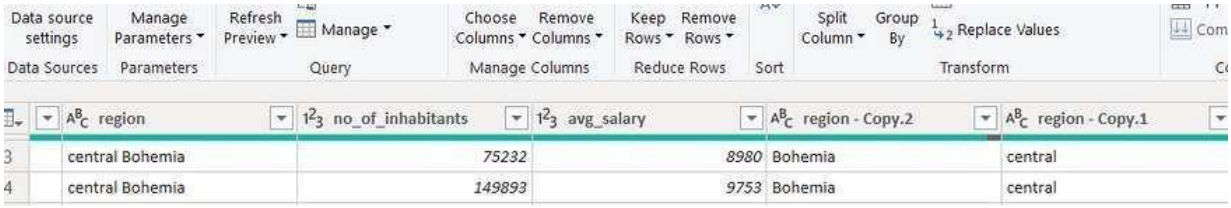
Replacing values

Set some fields to English for easy understanding, we replace values to English with the Power Query Editor.

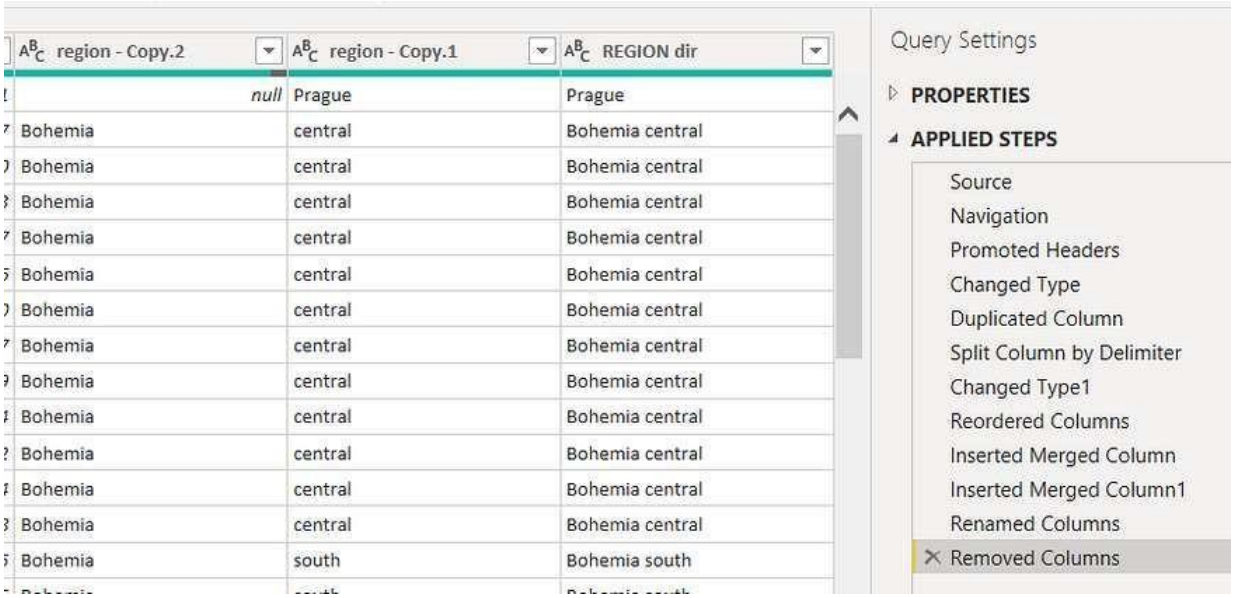


Changing the order of Region name at Power Query

Duplicate the “district /region” then split column using space as delimiter.



Then merge column by Region and direction. Refer to applied steps for details.



Grouping of age by ranges

As the customers’ age ranges from 12 to 88, we shall group them into different generation age range for easier profiling, we will group the ages into 5 groups.

The Gen Y are youths,

Gen X are young working adults, some starting their families

Baby Boomer are working adults with families.

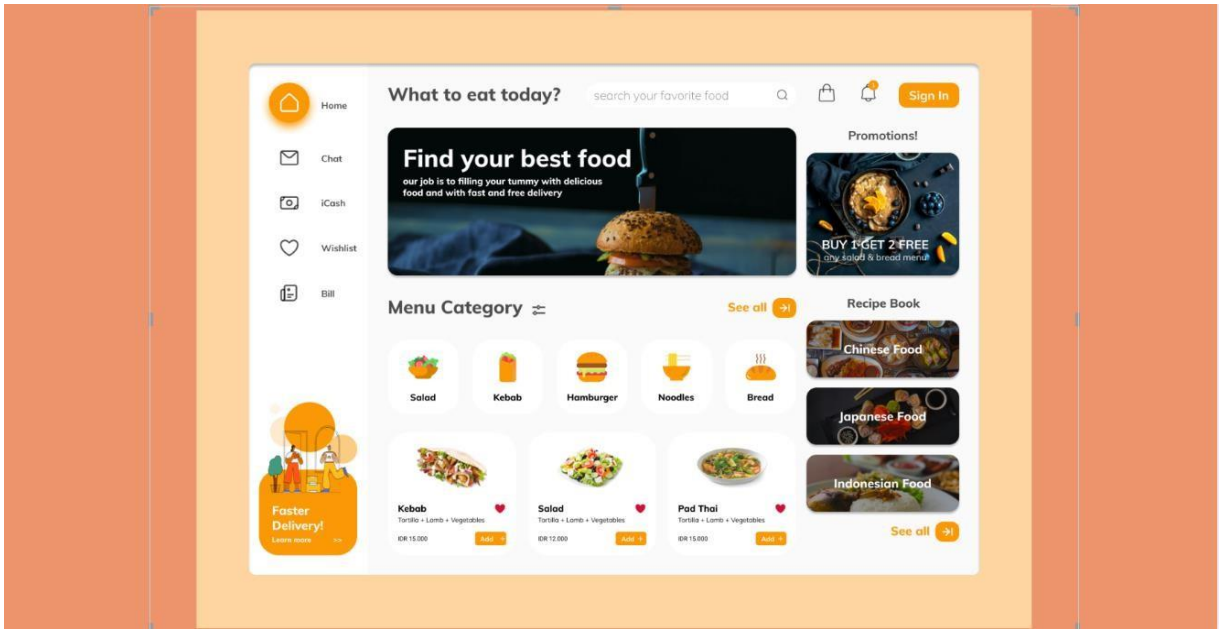
The silent Generations some are working and retired, living on pensions.

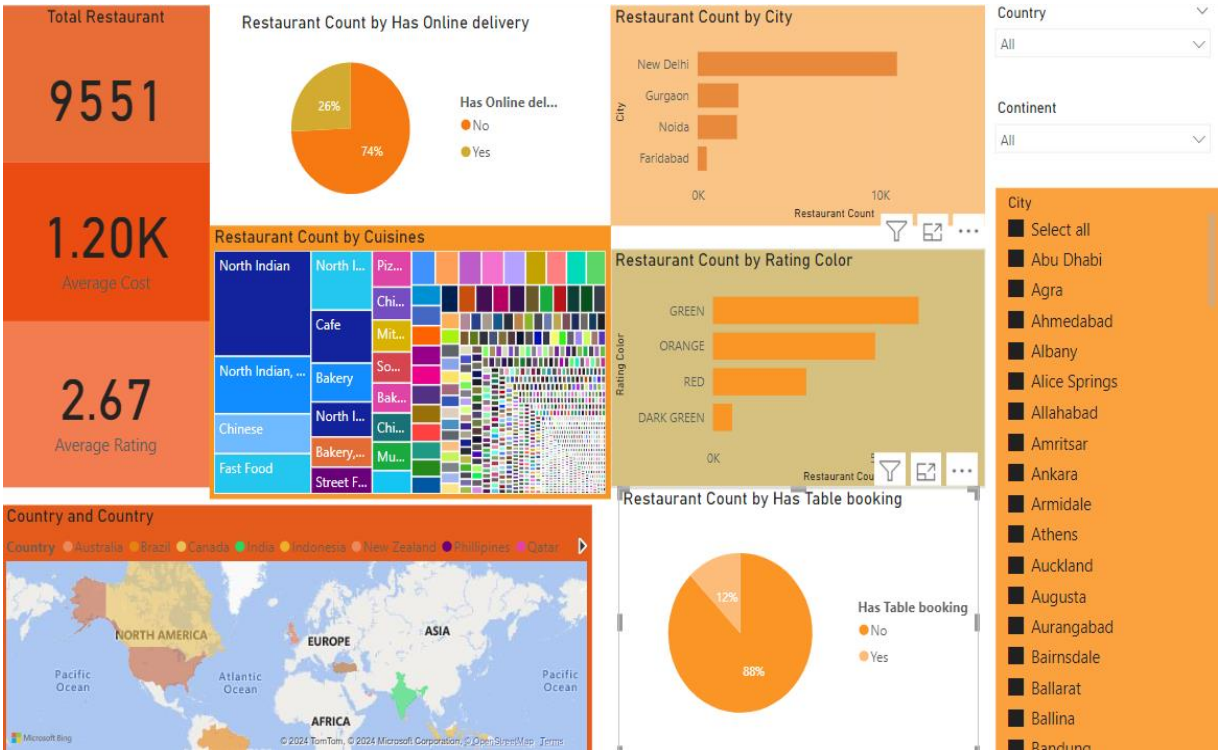
The greatest Generation, retired elderly living on pensions.

Values of such as “account Id” have also been set as Text.

And District name have been categorized as place to be use for the map to show the sum of the inhabitants in each region.

Dashboard





CONCLUSION

In conclusion, the implementation of a 360-degree business analysis for online food delivery apps in Power BI offers significant strategic advantages. By harnessing the power of data analytics, stakeholders gain valuable insights into customer behavior, operational efficiency, and market trends. This enables informed decision-making, targeted marketing initiatives, and operational optimizations, ultimately driving customer satisfaction, revenue growth, and competitive advantage in the dynamic online food delivery landscape. With Power BI's robust visualization tools and real-time reporting capabilities, businesses can adapt swiftly to changing market dynamics, capitalize on emerging opportunities, and position themselves for sustained success in the digital era of food delivery.

FUTURE SCOPE

For future enhancements of the 360-degree business analysis for online food delivery apps in Power BI, integration with artificial intelligence and machine learning algorithms could be pivotal. By incorporating AI-driven predictive analytics, the platform can anticipate customer preferences, optimize delivery routes in real-time, and forecast demand more accurately. Furthermore, enhancing the system with natural language processing capabilities would enable sentiment analysis of customer feedback, providing deeper insights into customer satisfaction and areas for improvement. Additionally, exploring data from emerging sources such as social media platforms and IoT devices could offer richer contextual insights for more informed decision-making. These advancements would empower businesses to stay ahead of market trends, enhance operational efficiency, and deliver personalized experiences to customers, thus solidifying their competitive edge in the online food delivery industry .

REFERENCES

1. https://cuzegbu.medium.com/ux-case-study-food-delivery-app-design-2a001c78db96
2. https://bootcamp.uxdesign.cc/ux-case-study-online-food-delivery-aac10a67d2e

LINK

https://github.com/pands18/360-degree-business-analysis-of-Food-Delivery-Apps

