Tech Saksham

Case Study Report

Data Analytics with Power BI

“360-Degree Business Analysis of Online Delivery Apps Using Power BI”

“Sivanthi Arts and Science College for Women”

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ABSTRACT

In the fast-paced landscape of online delivery apps,businesses face the challenge of optimizing operations,enhancing customer experience,and driving growth in a competitive environment. This paper presents a comprehensive approach to analyzing online delivery apps using Power BI, a powerful business intelligence tool. The analysis covers various aspect including sales, operations,customer analytics,marketing effectiveness,inventory management,financial performance,forcasting,and predictive analysis. By integrating data from multiples sources and visualizing key metrics through interactive dashboards, business can gain a holistic understanding of their operations and make data-driven decisions to improve efficiency, enhance customer satisfaction, and drive profitability.

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CHAPTER 1

INTRODUCTION

1.1 Problem Statement

The online delivery apps typically revolves around improving efficiency, user experience, and addressing logistical challenges such as delivery times, cost-effectiveness, and customer satisfaction. Additionally, issues like ensuring food safety, minimizing environmental impact, and optimizing route planning for delivery personnel are often part of the problem statement.

1.2 Proposed Solution

Design an intuitive interface for easy navigation and order placement. Utilize algorithms to suggest items based on user preferences and past orders. Implement a live tracking feature for orders, allowing users to monitor their delivery status. Offer various payment methods, including credit/debit cards, and cash on delivery. Enable users to provide feedback and ratings for restaurants and delivery services. Introduce promotional offers and discounts to incentivize users to order frequently. Provide efficient customers support through chat or phone for resolving queries and issues. Allow users to share their orders and experiences on social media platforms, increasing app visibility and engagement.

1.3 Feature

- **Real-Time Analysis:**

Develop interactive dashboards with real-time data updates to key performance indicators and track progress towards business goals.

- **Customer Segmentation:**

Segment customers based on demographics,order value, and loyalty to identify high-value customers and tailor marketing strategies.

- **Trend Analysis:**

Analyze trends in product /service popularity,customer preferences, and demand for specific offerings to optimize product/service offerings and marketing strategies.

- **Predictive Analysis:**

Utilize predictive models to forecast demand, predict customer churn, and anticipate market trends to make informed business decisions.

1.4 Advantages

Power BI allows you to integrate data from multiple sources, providing a holistic view of your online delivery business. This enables you to analyze various aspects such as customer behavior, delivery efficiency, inventory management, and sales performance all in one place. Power BI's powerful visualizations tools help in presenting complex data in an easy-to-understand format. Visual dashboards can display key metrics, trends, and patterns, enabling stakeholders to quickly grasp insights and make informed decisions. With Power BI's real time monitoring capabilities, you can track key performance indicators and metrics as they happen.This allows for timely interventions and adjustments to optimize operations and improve customer satisfaction.

1.5 Scope

Analyzing sales performance, revenue trends, and customer spending patterns to identify opportunities for revenue growth and optimization. Monitoring key operational metrics such as order processing times, delivery efficiency, and inventory turnover to streamline operations and reduce costs. Analyzing customer demographics, behavior, and preferences to personalize marketing efforts, and enhance overall satisfaction. Optimizing inventory levels, supplier performance, and logistics to ensure timely order fulfillment and minimize stockouts. Evaluating the effectiveness of marketing campaigns,promotions, and discounts through metrics such as conversion rates,ROI, and customer acquisition costs.

CHAPTER 2

SERVICES AND TOOLS REQUIRED

2.1 Services Used

- **Data Collection and Storage Services:**

  Online delivery apps need to collect and store customer data in real-time. This could be achieved through services like Azure Data Factory, Azure Event Hubs, or AWS Kinesis for real-time data collection, and Azure SQL Database or AWS RDS for data storage.

- **Data Processing Services:**

  Services like Azure Stream Analytics or AWS Kinesis Data Analytics can be used to process the real-time data.

- **Machine Learning Services:**

  Azure Machine Learning or AWS SageMaker can be used to build predictive models based on historical data.

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

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

1. **Data Collection**:

   Real-time customer data is collected from various sources like bank transactions, customer interactions, etc. This could be achieved using services like Azure Event Hubs or AWS Kinesis.

2. **Data Storage**:

   The collected data is stored in a database for processing. Azure SQL Database or AWS RDS can be used for this purpose.

3. **Data Processing**:

   The stored data is processed in real-time using services like Azure Stream Analytics or AWS Kinesis Data Analytics.

4. **Machine Learning**:

   Predictive models are built based on processed data using Azure Machine Learning or AWS SageMaker. These models can help in predicting customer behavior, detecting fraud, etc.

5. **Data Visualization**:

   The processed data and the results from the predictive models are visualized in real-time using PowerBI. PowerBI allows you to create interactive dashboards that can provide valuable insights into the data.

6. **Data Access**:

   The dashboards created in PowerBI can be accessed through PowerBI Desktop, PowerBI Service (online), and PowerBI Mobile.

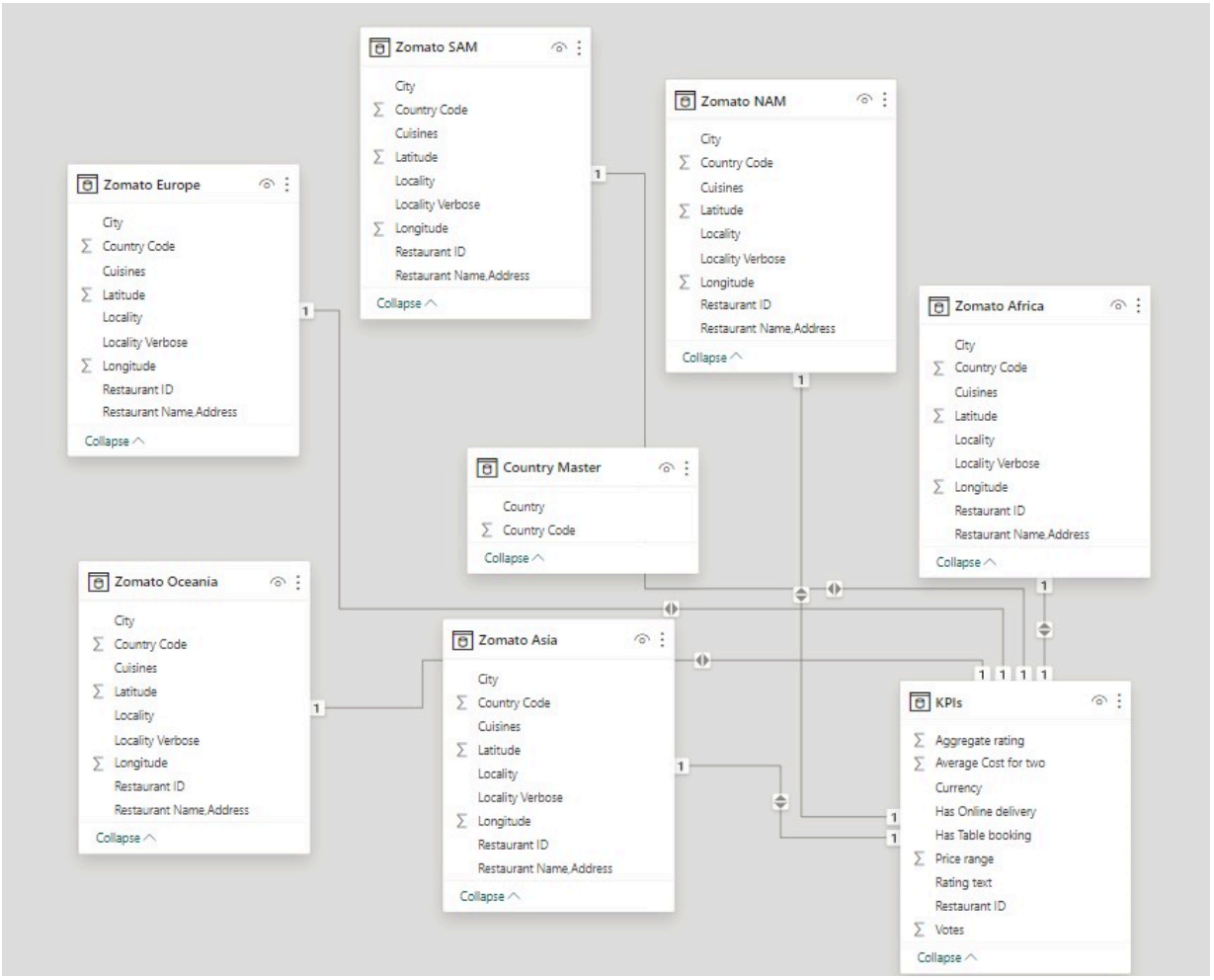
This architecture provides a comprehensive solution for real-time analysis of bank customers. However, it's important to note that the specific architecture may vary depending on the bank's existing infrastructure, specific requirements, and budget. It's also important to ensure that all tools and services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

CHAPTER 4

MODELING AND RESULT

Manage relationship

The "long data" file will be used as the main connector as it contains most key identifier (states, regions) which can be use to relates the 2 data files together. The State data file is use to link the client profile geographically with states.



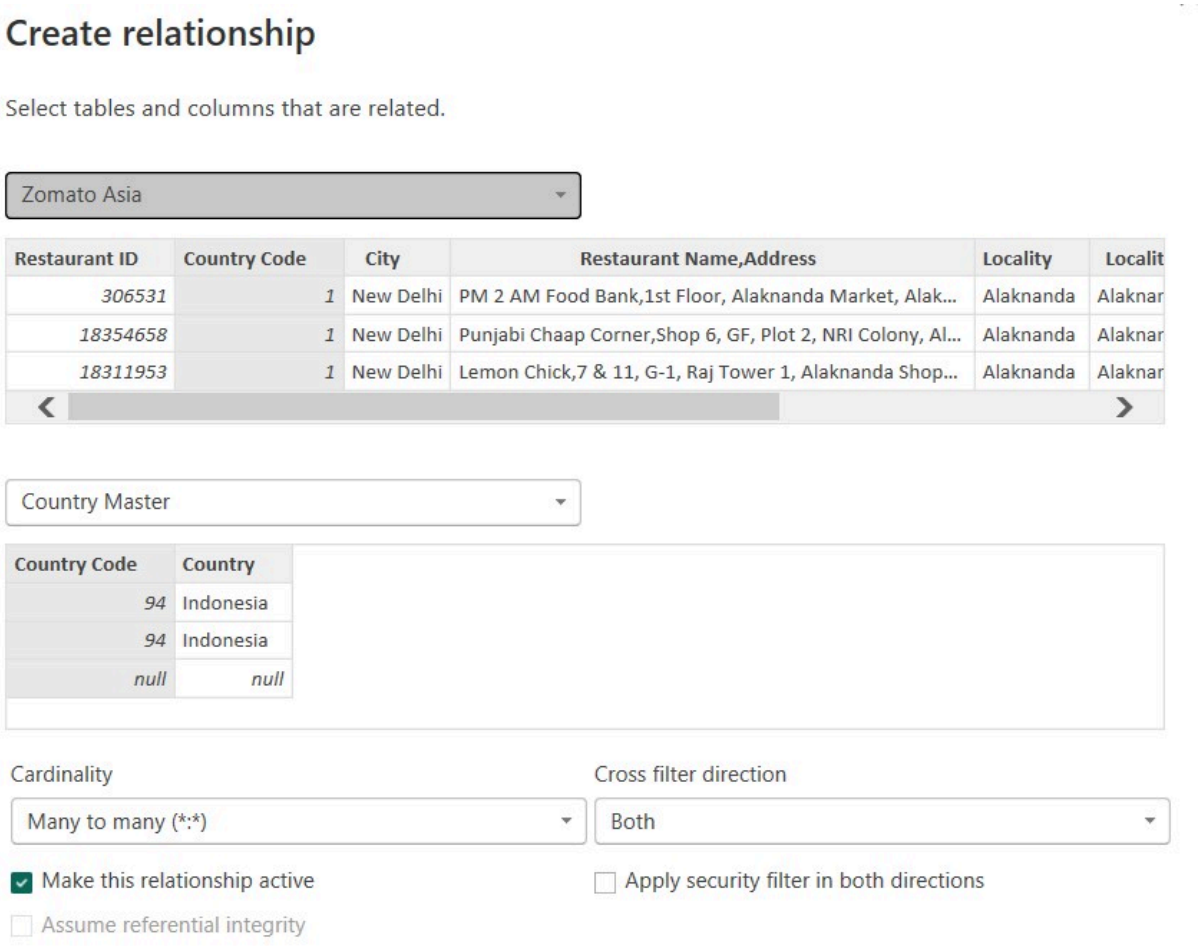
This is the manage relationship for the given data about business analysis of online delivery apps using Power BI.

Manage relationships

Active	From: Table (Column)	To: Table (Column)
☑	Zomato Africa (Restaurant ID)	KPIs (Restaurant ID)
☑	Zomato Asia (Country Code)	Country Master (Country Code)
☑	Zomato Asia (Restaurant ID)	KPIs (Restaurant ID)
☑	Zomato Europe (Restaurant ID)	KPIs (Restaurant ID)
☑	Zomato NAM (Restaurant ID)	KPIs (Restaurant ID)
☑	Zomato Oceania (Restaurant ID)	KPIs (Restaurant ID)
☑	Zomato SAM (Restaurant ID)	KPIs (Restaurant ID)

Create relationship

we create relationship between Zomato Asia and Country Master by using Restaurant ID, Country Code, City, Restaurant Name, Address, Locality and etc.



It is a table transform column types by promoted Headers, Restaurant ID,Country Code, City, Restaurant Name, Address, Locality, Locality Verbose, Longitude, Latitude, cuisines.

```
= Table.TransformColumnTypes(#"Promoted Headers",{{"Restaurant ID", Int64.Type}, {"Country Code", Int64.Type}, {"City", type text},
    {"Restaurant Name,Address", type text}, {"Locality", type text}, {"Locality Verbose", type text}, {"Longitude", type number},
    {"Latitude", type number}, {"Cuisines", type text}})
```

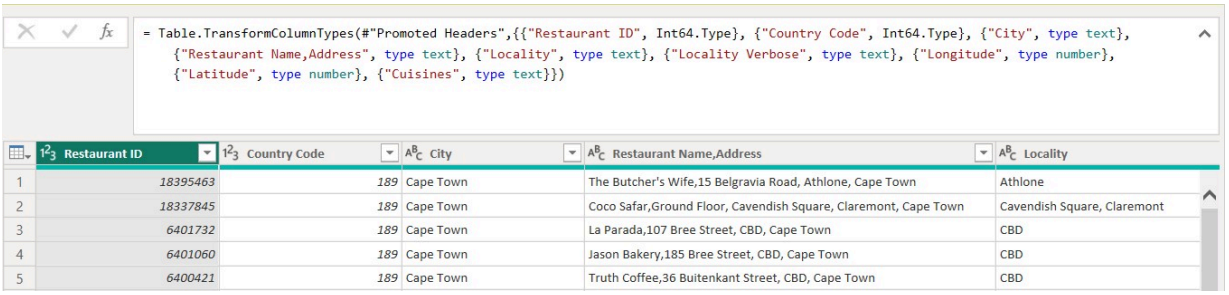
	Restaurant ID	Country Code	City	Restaurant Name,Address	Locality
1	16611114	14	Gympie	Whitebull Hotel,117 Marsh St, Armidale, NSW	Armidale
2	16608864	14	Taree	Taste of Balingup,63 South Western Hwy, Balingup, WA	Balingup
3	16604911	14	Geelong	Bridge Road Brewers,Old Coach House 50 Ford St, Beechworth, Beech...	Beechworth
4	16615894	14	Townsville	The Giggling Goat,14 Beerburrum St, Dicky Beach, QLD	Dicky Beach
5	16612028	14	Launceston	The Belle General,12 Shelly Beach Rd, East Ballina, NSW	East Ballina

Here we removed columns and changed types for Restaurant ID.

```
= Table.RemoveColumns(#"Changed Type",{"Restaurant ID"})
```

	Country Code	City	Restaurant Name,Address	Locality	Locality Verbose
1	215	Birmingham	Pepe's Piri Piri,254-256 Alum Rock Road, Alum Rock, Birmingham B8 3...	Alum Rock	Alum Rock, Birmingham
2	215	Birmingham	Ju Ju's Cafe,1 Canal Square, Brindleyplace, Birmingham B16 8EH	Brindleyplace	Brindleyplace, Birmingha
3	215	Birmingham	Bank,4 Brindleyplace, Brindleyplace, Birmingham B1 2JB	Brindleyplace, Broad Street	Brindleyplace, Broad Stre
4	215	Birmingham	Chaophraya,Middle Mall, Bullring Shopping Centre, Special street, Bull...	Bullring Shopping Centre, Southside	Bullring Shopping Centre,
5	215	Birmingham	Handmade Burger Co.,Unit 3, St Martin Square, Bullring Shopping Cent...	Bullring Shopping Centre, Southside	Bullring Shopping Centre,
6	215	Birmingham	Jamie's Italian,Middle Mall, Bullring Shopping Centre, Bullring, Birming...	Bullring Shopping Centre, Southside	Bullring Shopping Centre,
7	215	Birmingham	Bodega,12 Bennetts Hill, City Centre, Birmingham B2 5RS	City Centre	City Centre, Birmingham
8	215	Birmingham	San Carlo,4 Temple Street, City Centre, Birmingham B2 5BN	City Centre	City Centre, Birmingham
9	215	Birmingham	Purnell's,55 Cornwall Street, Colmore Business District, Birmingham B...	Colmore Business District	Colmore Business District

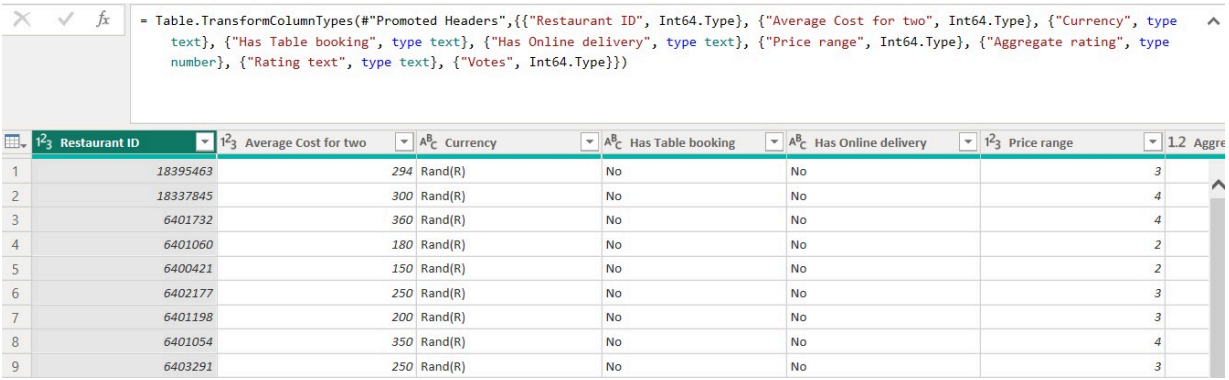
It is a table transform column types by promoted Headers, Restaurant ID,Country Code, City, Restaurant Name, Address, Locality, Locality Verbose, Longitude, Latitude, cuisines.



```
= Table.TransformColumnTypes(#"Promoted Headers",{{"Restaurant ID", Int64.Type}, {"Country Code", Int64.Type}, {"City", type text},
    {"Restaurant Name,Address", type text}, {"Locality", type text}, {"Locality Verbose", type text}, {"Longitude", type number},
    {"Latitude", type number}, {"Cuisines", type text}})
```

	Restaurant ID	Country Code	City	Restaurant Name,Address	Locality
1	18395463	189	Cape Town	The Butcher's Wife,15 Belgravia Road, Athlone, Cape Town	Athlone
2	18337845	189	Cape Town	Coco Safar,Ground Floor, Cavendish Square, Claremont, Cape Town	Cavendish Square, Claremont
3	6401732	189	Cape Town	La Parada,107 Bree Street, CBD, Cape Town	CBD
4	6401060	189	Cape Town	Jason Bakery,185 Bree Street, CBD, Cape Town	CBD
5	6400421	189	Cape Town	Truth Coffee,36 Buitenkant Street, CBD, Cape Town	CBD

It is a table transform column types by Restaurant ID, Average cost for two currency, Has table booking, Has online delivery, Price Range, Aggregation Rating, Rting Text, Votes.

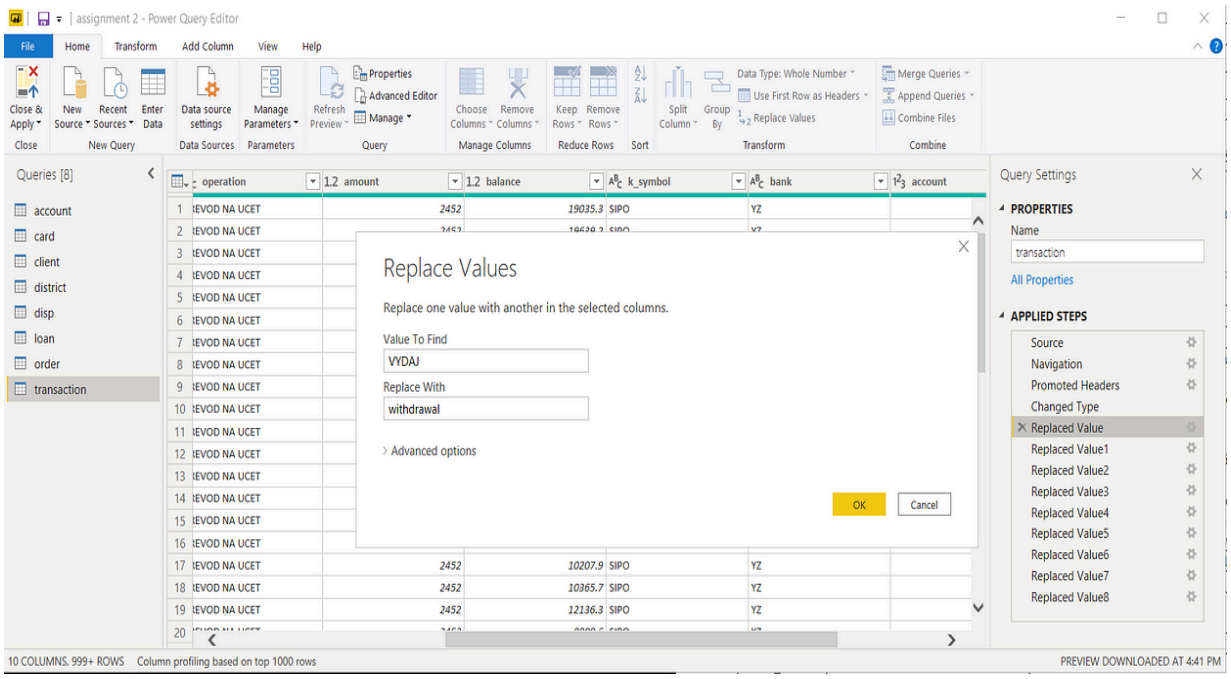


```
= Table.TransformColumnTypes(#"Promoted Headers",{{"Restaurant ID", Int64.Type}, {"Average Cost for two", Int64.Type}, {"Currency", type
    text}, {"Has Table booking", type text}, {"Has Online delivery", type text}, {"Price range", Int64.Type}, {"Aggregate rating", type
    number}, {"Rating text", type text}, {"Votes", Int64.Type}})
```

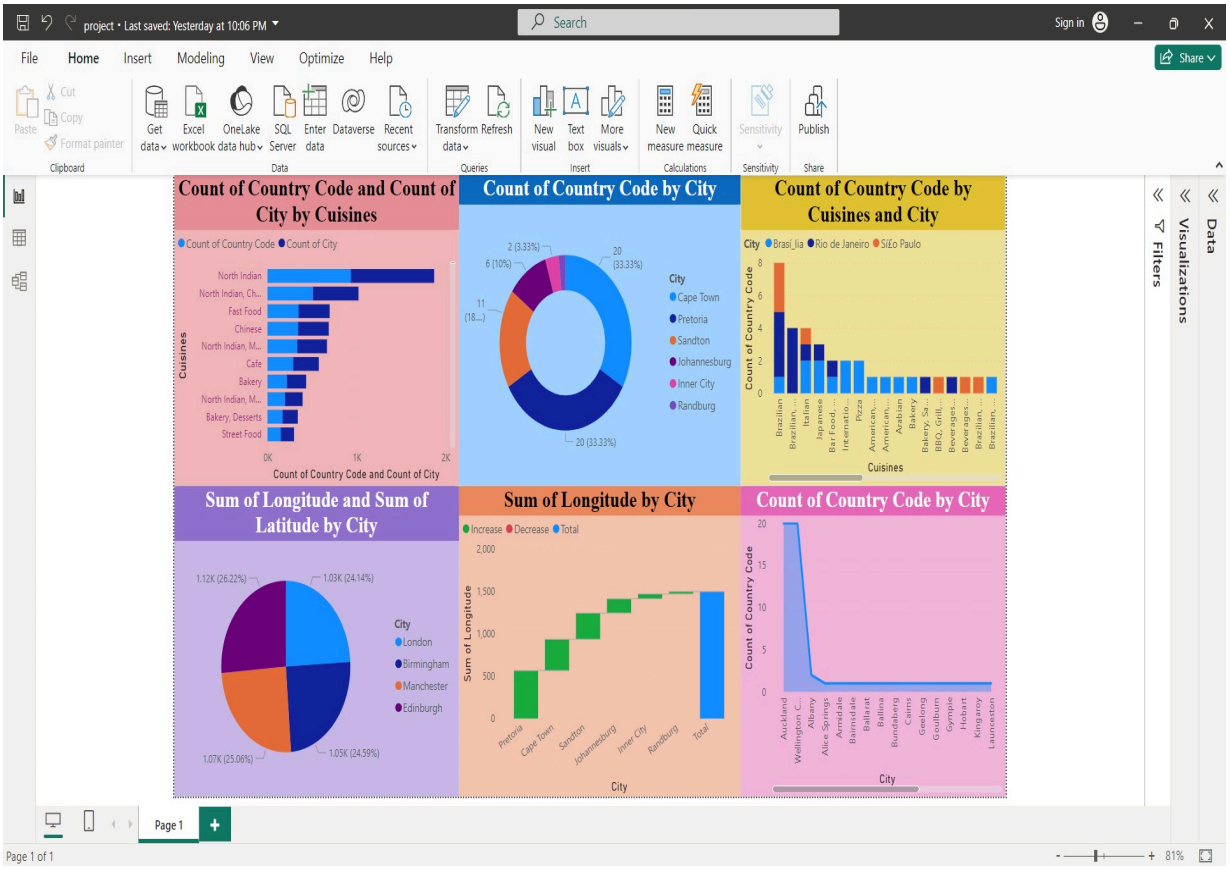
	Restaurant ID	Average Cost for two	Currency	Has Table booking	Has Online delivery	Price range	Aggre
1	18395463	294	Rand(R)	No	No	3	
2	18337845	300	Rand(R)	No	No	4	
3	6401732	360	Rand(R)	No	No	4	
4	6401060	180	Rand(R)	No	No	2	
5	6400421	150	Rand(R)	No	No	2	
6	6402177	250	Rand(R)	No	No	3	
7	6401198	200	Rand(R)	No	No	3	
8	6401054	350	Rand(R)	No	No	4	
9	6403291	250	Rand(R)	No	No	3	

Replacing values

Here we replace values by replacing one value with another in the selected columns.Typing Asa Norte in values to find and city in replace with boxes.



Dashboard



CONCLUSION

In conclusion ,the integration of Power BI for a 360-degree analysis of online delivery apps offers actionable insights that are instrumental in optimizing various facets of the business ,driving growth ,and staying ahead in a competitive market landscape .Moving forward,continual monitoring and adaptation based on data - driven insights will be paramount for sustained success in the dynamic online delivery industry. Identifying untapped market segments, potential partnership, and technological advancement can pave the way for future expansion and innovation.

FUTURE SCOPE

The future scope of this project is vast. With the advent of advanced analytics and machine learning, PowerBI can be leveraged to predict future trends based on historical data. Integrating these predictive analytics into the project could enable the online delivery apps to anticipate customer needs and proactively offer solutions. Furthermore, PowerBI's capability to integrate with various data sources opens up the possibility of incorporating more diverse datasets for a more holistic view of customers. As data privacy and security become increasingly important, future iterations of this project should focus on implementing robust data governance strategies. This would ensure the secure handling of sensitive customer data while complying with data protection regulations. Additionally, the project could explore the integration of real-time data streams to provide even more timely and relevant insights.

REFERENCES

https://medium.com/@dk870738/360-degree-business-analysis-of-zomato-using-power-bi-4e99c6e49dc9

LINK

