

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

This abstract presents a comprehensive overview of a 360-degree business analysis conducted on online delivery apps utilizing Power BI. The analysis delves into various facets including user engagement, sales trends, geographical distribution, and customer feedback. Through interactive visualizations and data-driven insights, this study offers a holistic understanding of the app's performance and market dynamics. Key metrics such as order frequency, customer demographics, and delivery efficiency are examined to optimize operational strategies and enhance user experience. By leveraging Power BI's robust analytics capabilities, stakeholders gain actionable insights to streamline processes, identify growth opportunities, and mitigate operational challenges. The integration of real-time data feeds allows for dynamic monitoring and agile decision-making, ensuring adaptability in a rapidly evolving market landscape. This research serves as a valuable resource for businesses seeking to optimize their online delivery services and stay competitive in the digital marketplace.

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CHAPTER 1

INTRODUCTION

1.1 Problem Statement

The problem statement addressed in this study revolves around the need for comprehensive business analysis within the online delivery app sector. Despite the proliferation of such platforms, businesses face challenges in understanding their performance metrics holistically. Issues include fragmented data sources, lack of real-time insights, and difficulty in identifying key areas for improvement. Without a centralized analytical approach, decision-making becomes reactive rather than proactive, hindering operational efficiency and growth potential. Thus, there is a pressing need to implement robust analytics solutions like Power BI to empower businesses with actionable insights and facilitate informed decision-making processes.

1.2 Proposed Solution

The proposed solution entails implementing a 360-degree business analysis framework utilizing Power BI within online delivery app operations. By integrating data from various sources including sales transactions, customer feedback, and operational metrics, this solution offers a comprehensive view of the business landscape. Power BI's advanced analytics capabilities enable real-time data processing, interactive visualization, and predictive modeling to uncover actionable insights. Through customizable dashboards and automated reporting, stakeholders gain a deeper understanding of performance metrics and market trends. Additionally, the solution facilitates agile decision-making by providing timely alerts and recommendations based on key performance indicators. By leveraging Power BI's flexibility and scalability, businesses can optimize processes, enhance user experience, and capitalize on growth opportunities in the competitive online delivery market.

1.3 Feature

- **Comprehensive Data Integration:** The solution seamlessly integrates data from multiple sources including sales transactions, customer feedback, delivery performance, and user engagement metrics, providing a holistic view of the business operations.
- **Real-Time Analytics:** Utilizing Power BI's capabilities, the solution enables real-time data processing, allowing stakeholders to monitor key performance indicators and market trends as they unfold, facilitating agile decision-making and proactive interventions.
- **Predictive Modeling and Recommendations:** Leveraging advanced analytics functionalities, the solution employs predictive modeling techniques to forecast trends and recommend actionable insights
- **Interactive Visualization:** Through customizable dashboards and interactive visualizations, users can explore data dynamically, gaining deeper insights into sales patterns, customer behaviour, geographical distribution, and operational efficiency, thus facilitating informed decision-making processes.

1.4 Advantages

- **Enhanced Decision-Making:** By providing a comprehensive overview of business operations and market trends, the solution empowers stakeholders to make informed decisions quickly and confidently, leading to more effective strategies and improved outcomes.
- **Improved Operational Efficiency:** With real-time analytics and automated reporting, businesses can identify bottlenecks, streamline processes, and optimize resource allocation, resulting in increased productivity and cost savings across the delivery app ecosystem.
- **Enhanced Marketing Strategies:** Through granular insights into customer demographics and purchasing behaviour, businesses can tailor marketing campaigns, maximizing effectiveness and achieving higher conversion rates.
- **Proactive Issue Resolution:** Real-time monitoring and alerts enable businesses to promptly identify and address operational issues, minimizing disruptions and upholding customer trust, leading to improved brand loyalty and long-term success.

- **Better User Experience:** Through insights into customer preferences, feedback, and behaviour, businesses can tailor their services to meet user expectations, enhance satisfaction, and foster loyalty, ultimately driving higher retention rates and user engagement.

1.5 Scope

The scope of this study encompasses a comprehensive analysis of online delivery apps, focusing on key aspects such as user engagement, sales trends, operational efficiency, and market dynamics. It involves the utilization of Power BI as the primary analytics tool to integrate, visualize, and interpret data from various sources. The scope extends to examining customer demographics, geographical distribution, and feedback to gain insights into user behaviour and preferences. Additionally, the study aims to identify opportunities for optimization and growth within the competitive landscape of the online delivery market. By exploring trends and patterns, the research endeavours to provide actionable recommendations to stakeholders for enhancing business performance and improving the overall user experience.

CHAPTER 2

SERVICES AND TOOLS REQUIRED

2.1 Services Used

- **Data Integration Services:** Utilizing Power BI's data integration capabilities, this study incorporates information from diverse sources such as sales databases, customer feedback platforms, and operational systems, ensuring a comprehensive dataset for analysis.
- **Visualization Services:** Leveraging Power BI's visualization tools, the study creates interactive dashboards and reports to present insights effectively. These visualizations allow stakeholders to explore data dynamically, facilitating deeper understanding and informed decision-making.
- **Predictive Analytics Services:** By employing Power BI's advanced analytics functionalities, this study conducts predictive modeling to forecast trends and recommend actionable insights. These predictive analytics services enable businesses to anticipate future market dynamics and proactively adapt strategies to stay ahead in the competitive landscape.
- **Geographic Analysis Services:** Through Power BI's mapping and geospatial analysis capabilities, this study examines the geographical distribution of customers, delivery routes, and demand patterns, providing insights into localized trends and opportunities for market expansion or optimization of delivery logistics.
- **Customer Segmentation Services:** Leveraging Power BI's segmentation tools, the study categorizes customers based on various criteria such as purchasing behavior, demographics, and order frequency, enabling targeted marketing strategies, personalized promotions, and tailored service offerings to different customer segments

2.2 Tools and Software used

Tools:

- **Power BI:** As the primary analytics tool, Power BI is utilized for data integration, visualization, and analysis. Its features include data connectors, interactive dashboards, and predictive analytics capabilities, making it a comprehensive solution for business intelligence.
- **SQL Server:** SQL Server may be employed for data storage and management, especially for large datasets or complex relational databases. It provides robust data handling capabilities and can integrate seamlessly with Power BI for efficient data processing.
- **Excel:** Excel can complement Power BI for certain tasks such as data preprocessing, advanced calculations, or creating supplementary reports. It offers flexibility and familiarity to users for tasks that require manual data manipulation or custom analysis.
- **Azure SQL Database:** Azure SQL Database can be used as a data source to store and manage large volumes of transactional data from online delivery apps. Power BI can directly connect to Azure SQL Database to retrieve and analyze this data, providing real-time insights into sales, orders, and customer interactions.
- **Azure Machine Learning:** Azure Machine Learning can complement Power BI by offering advanced predictive analytics capabilities. By integrating Azure Machine Learning models with Power BI, businesses can forecast demand, predict customer behavior, and optimize delivery routes, enhancing decision-making processes and operational efficiency within online delivery apps.

Software Requirements:

- **Power BI Desktop:** This is essential for creating interactive visualizations, building data models, and conducting analysis. Power BI Desktop is available for free download from the Microsoft website.
- **Power BI Service:** Power BI Service is a cloud-based platform for sharing and collaborating on reports created in Power BI Desktop. It requires a subscription, although there is also a free tier available with limited features.

- **Data Sources:** Power BI can connect to a wide range of data sources including Excel files, databases (such as SQL Server, MySQL, Oracle), cloud services (such as Azure, Google Analytics, Salesforce), and many others. Access to the relevant data sources is necessary for importing data into Power BI for analysis and visualization.
- **Internet Connectivity:** Internet connectivity is required for downloading Power BI Desktop, accessing cloud-based data sources, and publishing reports to Power BI Service for sharing with others.

CHAPTER 3

PROJECT ARCHITECTURE

3.1 Architecture

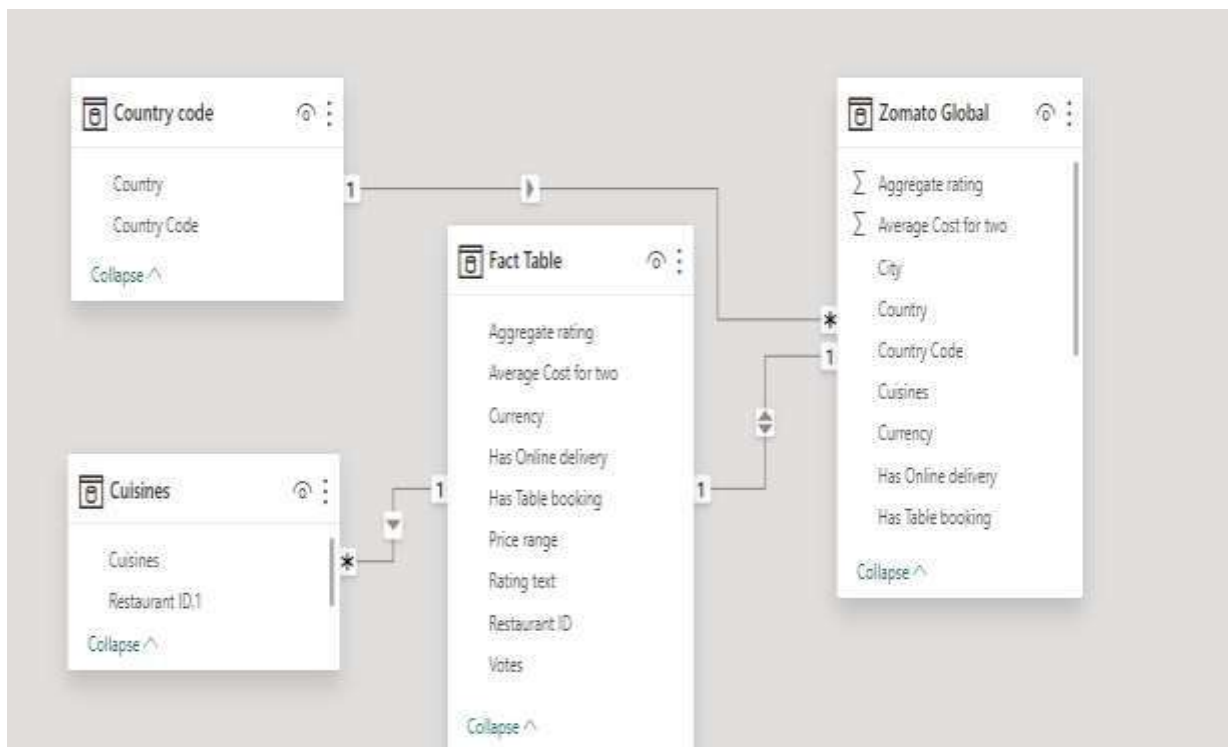
1. **Data Sources:** The architecture starts with various data sources such as databases (SQL Server, MySQL), cloud services (Azure, Google Analytics), Excel files, and other data repositories.
2. **Data integration Layer:** This layer involves extracting data from diverse sources and transforming it into a format suitable for analysis. Tools like SQL Server Integration Services (SSIS) or Azure Data Factory may be used for this purpose.
3. **Data Storage:** Data is stored in a centralized repository, which could be a data warehouse, data lake, or a combination of both. SQL Server, Azure SQL Data Warehouse, or Azure Blob Storage are commonly used for data storage.
4. **Power BI Service:** Reports developed in Power BI Desktop can be published to the Power BI Service, a cloud-based platform. Power BI Service allows for sharing, collaboration, and distribution of reports within the organization.
5. **End Users:** End users access reports and dashboards through the Power BI Service web interface or mobile app. They can interact with the visualizations, apply filters, and gain insights from the data.
6. **Optional On-premise Gateway:** In cases where data sources are located on-premises and behind a firewall, an On-Premise Gateway may be deployed. This gateway facilitates secure data transfer between on-premises data sources and Power BI Service.

CHAPTER 4

MODELING AND RESULT

Manage relationship

Managing relationships in Power BI involves creating, editing, and deleting relationships between tables based on common fields. This is done in the "Model" view, where users can visually establish connections by dragging fields between tables. Relationships can be edited to adjust properties such as cardinality and cross-filter direction to ensure accurate data analysis. Users can also manage active and inactive relationships and resolve any errors or inconsistencies in the data model using diagnostic tools provided by Power BI



This is the Manage relationships for the given Data about Business Analysis of Online Delivery Apps Using Power BI

×

Manage relationships

Active	From: Table (Column)	To: Table (Column)
<input checked="" type="checkbox"/>	Zomato Africa (Restaurant ID)	KPIs (Restaurant ID)
<input checked="" type="checkbox"/>	Zomato Asia (Restaurant ID)	KPIs (Restaurant ID)
<input checked="" type="checkbox"/>	Zomato Europe (Restaurant ID)	KPIs (Restaurant ID)
<input checked="" type="checkbox"/>	Zomato NAM (Restaurant ID)	KPIs (Restaurant ID)
<input checked="" type="checkbox"/>	Zomato Oceania (Restaurant ID)	KPIs (Restaurant ID)
<input checked="" type="checkbox"/>	Zomato SAM (Restaurant ID)	KPIs (Restaurant ID)

New...

Autodetect...

Edit...

Delete

Close

Create Relationship:

Here, We create relationship between Zomato Africa and Zomato Asia by using restaurant ID, Country Code, City, Restaurant Name and address etc.,

Create relationship

Select tables and columns that are related.

Zomato Africa

Restaurant ID	Country Code	City	Restaurant Name,Address	Locality
18395463	189	Cape Town	The Butcher's Wife,15 Belgravia Road, Athlone, Cape T...	Athlone
18337845	189	Cape Town	Coco Safar,Ground Floor, Cavendish Square, Claremont...	Cavendish Square, C
6401732	189	Cape Town	La Parada,107 Bree Street, CBD, Cape Town	CBD

Zomato Asia

Restaurant ID	Country Code	City	Restaurant Name,Address	Locality	Localit
306531	1	New Delhi	PM 2 AM Food Bank,1st Floor, Alaknanda Market, Alak...	Alaknanda	Alaknar
18354658	1	New Delhi	Punjabi Chaap Corner,Shop 6, GF, Plot 2, NRI Colony, AI...	Alaknanda	Alaknar
18311953	1	New Delhi	Lemon Chick,7 & 11, G-1, Raj Tower 1, Alaknanda Shop...	Alaknanda	Alaknar

Cardinality

One to one (1:1)

Cross filter direction

Both

☒ Make this relationship active

☐ Apply security filter in both directions

☐ Assume referential integrity

It is a table transform column types by promoted headers, restaurant ID, Country code, City, Restaurant Name, Address, Locality, Locality Verbose, Longitude, Latitude, Cuisines.

✕

✓

fx

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}})

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

Here, We removed Columns and Changed types for city, Restaurant Name, Address, Locality, Longitude, Latitude.

✕

✓

fx

= Table.RemoveColumns("#Changed Type",{"City", "Restaurant Name,Address", "Locality", "Longitude", "Latitude"})

	1 ² ₃ Restaurant ID	1 ² ₃ Country Code	A ^B _C Locality Verbose	A ^B _C Cuisines
1	6900714	215	Alum Rock, Birmingham	Fast Food
2	6900883	215	Brindleyplace, Birmingham	Cafe, British
3	6900374	215	Brindleyplace, Broad Street, Birmingham	British, Steak
4	6900224	215	Bullring Shopping Centre, Southside, Birmingham	Thai
5	6900160	215	Bullring Shopping Centre, Southside, Birmingham	Burger, American
6	6900050	215	Bullring Shopping Centre, Southside, Birmingham	Italian
7	6900724	215	City Centre, Birmingham	Latin American
8	6901081	215	City Centre, Birmingham	Italian
9	6900674	215	Colmore Business District, Birmingham	Contemporary

It is a table transform column types by promoted headers, restaurant ID, Country code, City, Restaurant Name, Address, Locality, Locality Verbose, Longitude, Latitude, Cuisines.

X
✓
fx

```
= 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}})
```

	1 ² ₃ Restaurant ID	1 ² ₃ Country Code	A ^B _C City	A ^B _C Restaurant Name,Address
1	6317637	162	Makati City	Le Petit Souffle,Third Floor, Century City Mall, Kalayaan Avenue, Pobl...
2	6304287	162	Makati City	Izakaya Kikufuji,Little Tokyo, 2277 Chino Roces Avenue, Legaspi Village.
3	6300002	162	Mandaluyong City	Heat - Edsa Shangri-La,Edsa Shangri-La, 1 Garden Way, Ortigas, Manda.
4	6318506	162	Mandaluyong City	Ooma,Third Floor, Mega Fashion Hall, SM Megamall, Ortigas, Mandalu.
5	6314302	162	Mandaluyong City	Sambo Kojin,Third Floor, Mega Atrium, SM Megamall, Ortigas, Mandal.
6	18189371	162	Mandaluyong City	Din Tai Fung,Ground Floor, Mega Fashion Hall, SM Megamall, Ortigas, .

This is another table transform column types based on restaurant Id, average cost of two, Currency, has table booking, Has online delivery, Price range, aggregating range etc,.

X
✓
fx

```
= 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}})
```

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

Replace Values:

Here, We replace values by replacing one value with another in the selected columns.
Typing address in values to find and name in replace with boxes.

Replace Values

Replace one value with another in the selected columns.

Value To Find

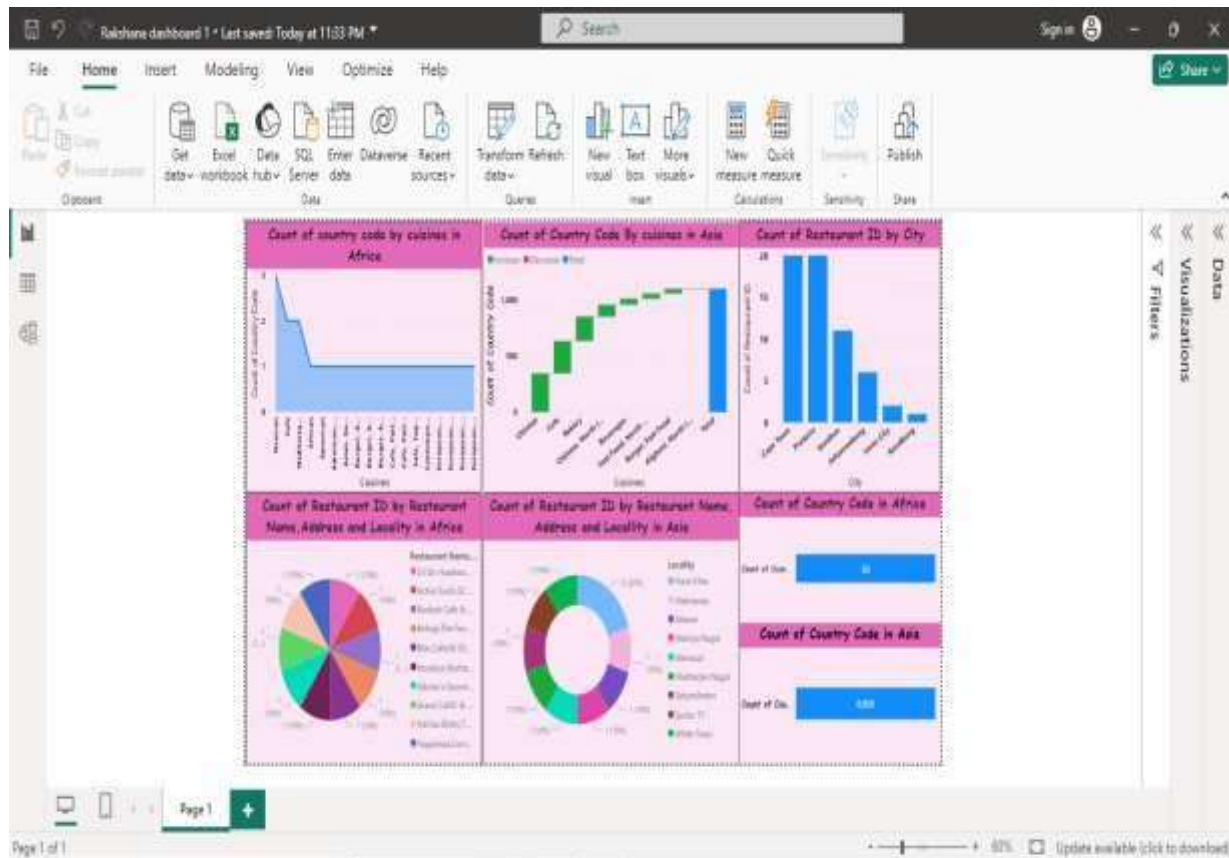
Replace With

▸ Advanced options

OK

Cancel

Dashboard:



CONCLUSION

In conclusion, leveraging Power BI for analysing online delivery app data offers a transformative approach to understanding and optimizing business operations. By integrating data from various sources like sales transactions, customer feedback, and operational metrics, Power BI enables businesses to gain comprehensive insights into user behaviour, market trends, and operational efficiency. Through interactive visualizations and real-time analytics, stakeholders can make informed decisions, streamline processes, and enhance the overall user experience. With its intuitive interface and robust analytical capabilities, Power BI empowers online delivery apps to stay agile, competitive, and responsive to evolving market demands, ultimately driving growth and success in the digital marketplace. This enables stakeholders to derive meaningful insights, make informed decisions, and drive business growth. Through proactive management of relationships and resolution of any errors or inconsistencies, Power BI empowers users to harness the full potential of their data for driving organizational success.

FUTURE SCOPE

Looking towards the future, the utilization of Power BI in online delivery apps presents a vast array of opportunities for advancement. Integrating predictive analytics and AI-driven insights promises to revolutionize demand forecasting, inventory management, and personalized user experiences. Further innovations may include IoT integration for real-time delivery tracking and temperature control, while augmented reality visualization could offer immersive data exploration. Additionally, blockchain integration may enhance supply chain transparency and security. As Power BI evolves, expanding data sources to include social media and geospatial data will enable more comprehensive analysis. Ultimately, the future holds the promise of a data driven ecosystem that fosters efficiency, innovation, and competitiveness in the online delivery industry. Moreover, the adoption of predictive maintenance techniques using IoT sensors could optimize fleet management and reduce downtime, leading to cost savings and improved service reliability. Collaborative features within Power BI may also evolve, enabling seamless teamwork and knowledge sharing among stakeholders for more effective collaboration and innovation.

REFERENCES

<https://blog.devops.dev/case-study-on-zomato-data-analysis-by-using-power-bicf798cd9c72>

LINKS