Tech Saksham

Case Study Report

Data Analytics with Power BI

“360-DEGREE BUSINESS ANALYSIS OF ONLINE DELIVERY APPS USING POWER BI”

“AVS COLLEGE OF ARTS AND SCIENCE”

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ABSTRACT

This 360-degree business analysis leverages Power BI to delve into the multifaceted landscape of online delivery apps. By harnessing data from various sources such as transaction records, customer feedback, market trends, and competitor analysis, this analysis provides a comprehensive overview of the online delivery ecosystem. Key aspects covered include order fulfillment rates, delivery times, customer satisfaction scores, revenue growth, market share, and competitor performance metrics. Through interactive dashboards and visualizations, stakeholders gain insights into critical KPIs, customer segmentation, predictive analytics, and geospatial analysis. These insights empower decision-makers to optimize operations, enhance customer experiences, and drive strategic initiatives for sustainable growth and competitive advantage. The analysis identifies and addresses common challenges in food delivery, such as delivery delays, order accuracy, high service fees, limited restaurant selection, food quality, environmental impact, and labor issues. By understanding these challenges and implementing data-driven solutions, online delivery apps can streamline operations, improve efficiency, and foster stronger relationships with customers and partners. Overall, this 360-degree business analysis provides a comprehensive framework for evaluating and optimizing online delivery apps, enabling stakeholders to navigate the dynamic landscape of the food delivery industry effectively.

INDEX

CHAPTER 1

INTRODUCTION

1.1 Problem Statement

The problem in food delivery can vary depending on different factors, but some common issues includes mainly delivery delays. Customers often experience delays in receiving their orders, leading to dissatisfaction and sometimes cold or stale food upon arrival. Secondly, Order Accuracy. There are incorrect orders or missing items can occur, leading to frustration for customers and additional costs for restaurants due to refunds or re-deliveries. Some food delivery platforms charge high commission fees to restaurants, impacting their profitability and potentially leading to increased prices for customers. In some areas, customers may have limited options for restaurants available for delivery, leading to dissatisfaction and reduced usage of food delivery services. Food quality may deteriorate during the delivery process, affecting the overall customer experience and perception of the restaurant's brand. The packaging used for food delivery can contribute to environmental waste, especially if it's non-recyclable or excessive. Delivery drivers may face issues such as low wages, lack of benefits, and long hours, leading to turnover and potential disruptions in service.

1.2 Proposed Solution

Addressing these problems requires collaboration between food delivery platforms, restaurants, and customers to improve efficiency, transparency, and overall satisfaction with the food delivery experience. This may involve implementing technology solutions for better order tracking and communication, optimizing delivery routes to reduce delays, and promoting sustainable packaging practices. Additionally, addressing labor issues and ensuring fair compensation for delivery drivers is crucial for maintaining a reliable and efficient food delivery ecosystem. The proposed solution for conducting a 360-degree business analysis of online delivery apps using Power BI involves several key steps:

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1.3 Feature

1. **Data Collection and Integration**: Gather data from multiple sources including transaction records, customer feedback, market research, and competitor analysis. Integrate this data into a centralized database or data warehouse for analysis.

2. **Data Cleaning and Preparation:** Cleanse and preprocess the collected data to ensure accuracy and consistency. Handle missing values, remove duplicates, and standardize formats to prepare the data for analysis.

3. **Data Modeling:** Design a comprehensive data model that captures the key aspects of the online delivery business, including customers, orders, deliveries, products, and performance metrics. Define relationships between different data entities to enable meaningful analysis.

4. **Dashboard Development:** Develop interactive dashboards and visualizations using Power BI to present the analyzed data in a clear and intuitive manner. Incorporate features such as filters, slicers, and drill-downs to enable users to explore the data and gain insights easily.

5. **Key Performance Indicators (KPIs):** Identify and track relevant KPIs such as order fulfillment rates, delivery times, customer satisfaction scores, revenue growth, market share, and competitor performance metrics. Visualize these KPIs on the dashboards to monitor performance and identify areas for improvement.

6. **Customer Segmentation:** Segment customers based on demographics, purchasing behavior, and preferences to tailor marketing strategies and improve customer retention. Analyze customer segmentation data to identify high-value customer segments and target them effectively.

7. **Predictive Analytics:** Utilize predictive analytics techniques to forecast future trends, demand patterns, and customer behavior. Develop predictive models to optimize inventory management, staffing levels, and marketing campaigns for better business outcomes.

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8. **Geospatial Analysis:** Incorporate geospatial analysis to visualize delivery routes, customer distribution, and market coverage. Analyze geospatial data to optimize delivery logistics, identify underserved areas, and plan expansion strategies effectively.

9.**Executive Summary and Recommendations:** Summarize key findings and insights derived from the analysis in an executive summary. Provide actionable recommendations for improving business performance, enhancing customer experiences, and driving strategic initiatives based on the insights generated.

10. **Iterative Improvement:** Continuously monitor and evaluate the effectiveness of the proposed solutions. Iterate on the analysis based on feedback and evolving business needs to ensure ongoing optimization and success.

By following this proposed solution, online delivery apps can conduct a comprehensive 360-degree business analysis using Power BI to drive data-driven decision-making and strategic planning for sustainable growth and competitive advantage.

1.4 Advantages

Using Power BI for a 360-degree business analysis of online delivery apps offers several advantages:

1. **Data Integration:** Power BI allows you to easily integrate data from various sources such as sales, customer feedback, delivery times, and inventory levels, providing a comprehensive view of your business operations.

2. **Interactive Dashboards:** Create interactive dashboards that provide real-time insights into key performance indicators (KPIs) such as order volume, delivery efficiency, customer satisfaction, and revenue trends.

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3. **Predictive Analytics:** Utilize Power BI's predictive analytics capabilities to forecast demand, identify potential delivery bottlenecks, and optimize resource allocation.

4. **Geospatial Analysis:** Visualize delivery routes, hotspots for orders, and areas with high demand using Power BI's geospatial analysis tools, allowing you to optimize delivery routes and allocation of resources.

5. **Customer Segmentation:** Segment customers based on their ordering patterns, preferences, and feedback, enabling targeted marketing campaigns and personalized experiences.

6. **Cost Optimization:** Analyze cost drivers such as delivery fees, fuel expenses, and labor costs to identify areas for cost optimization and efficiency improvements.

7. **Performance Monitoring:** Set up alerts and notifications to monitor performance against predefined targets and take proactive actions to address any deviations.

8. **Competitive Benchmarking:** Compare your performance metrics against competitors in the online delivery space to identify areas where you can gain a competitive advantage.

By leveraging Power BI for a 360-degree business analysis, online delivery apps can gain actionable insights to optimize operations, improve customer satisfaction, and drive business growth.

1.5 Scope

The scope of a 360-degree business analysis of online delivery apps using Power BI typically encompasses various aspects of the business operations and performance. Here's an outline of the key areas within the scope:

1. **Order Management:** Analyzing order volume, types of orders (e.g., food, groceries), peak hours, and average order value.

2. **Delivery Efficiency:** Evaluating delivery times, route optimization, delivery distances, and driver performance metrics.

3. **Customer Satisfaction:** Gathering and analyzing customer feedback, ratings, reviews, and complaints to assess satisfaction levels and identify areas for improvement.

4. **Revenue Analysis:** Examining revenue trends, sources of revenue (e.g., delivery fees, commissions), customer lifetime value, and average revenue per user.

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5. **Inventory Management:** Monitoring inventory levels, stockouts, reorder points, and inventory turnover to ensure timely fulfillment of orders.

6. **Cost Analysis:** Analyzing cost drivers such as delivery fees, fuel expenses, labor costs, and overhead expenses to identify opportunities for cost optimization.

7. **Marketing Effectiveness:** Assessing the impact of marketing campaigns, promotions, and discounts on order volume, customer acquisition, and retention.

8. **Competitive Analysis:** Comparing performance metrics against competitors in terms of market share, delivery speed, customer satisfaction, and pricing strategies.

9. **Predictive Analytics:** Utilizing predictive models to forecast demand, predict customer behavior, and anticipate market trends to make informed decisions.

10. **Geospatial Analysis:** Visualizing delivery routes, hotspots for orders, and areas with high demand using geospatial analysis tools to optimize delivery logistics.

11. **Regulatory Compliance:** Ensuring compliance with regulations related to food safety, data privacy, labor laws, and licensing requirements.

12. **Performance Monitoring:** Setting up performance metrics, KPIs, and dashboards to track progress towards business objectives and goals.

13. **Operational Efficiency:** Identifying bottlenecks, inefficiencies, and areas for process improvement to enhance overall operational efficiency.

14. **Risk Management:** Identifying potential risks and vulnerabilities such as cybersecurity threats, supply chain disruptions, and market volatility.

By analyzing these key areas, businesses can gain comprehensive insights into their online delivery operations and make data-driven decisions to optimize performance, enhance customer satisfaction, and achieve business objectives.

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CHAPTER 2

SERVICES AND TOOLS REQUIRED

2.1 Services Used

- **Data Collection and Storage Services**: Banks 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.

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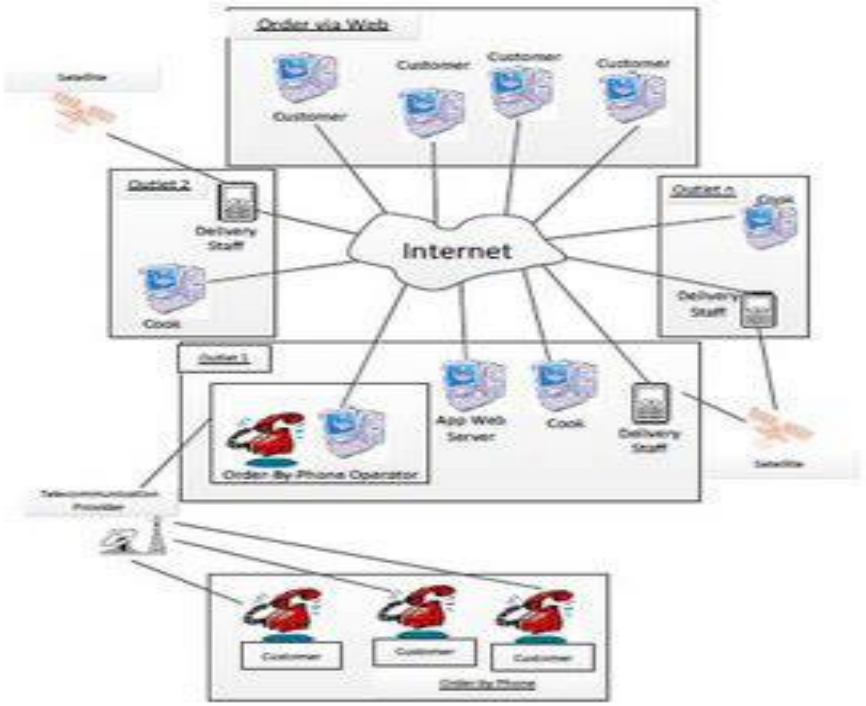
- **PowerBI Service**: This is an online SaaS (Software as a Service) service that you use to publish reports, create new dashboards, and share insights.

- **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.

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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.

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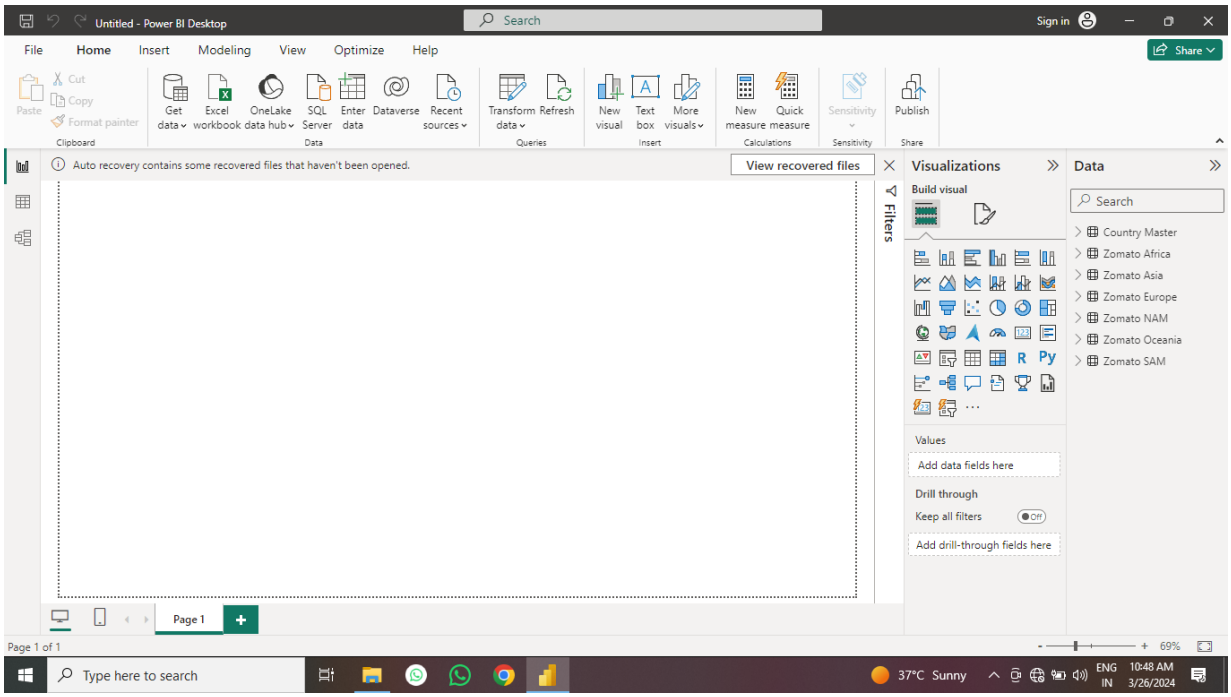
CHAPTER 4

MODELING AND RESULT

Collecting data:

We have different excel sheets for different continents. So first we have to transform data one by one to the existing Power BI desktop.



Manage relationship

We have created “cuisines” and created zomato globe as a data set merging all the data sets continents including Asia, Africa, Oceania, NAM, and SAM. We also created fact table by using the existing data set.

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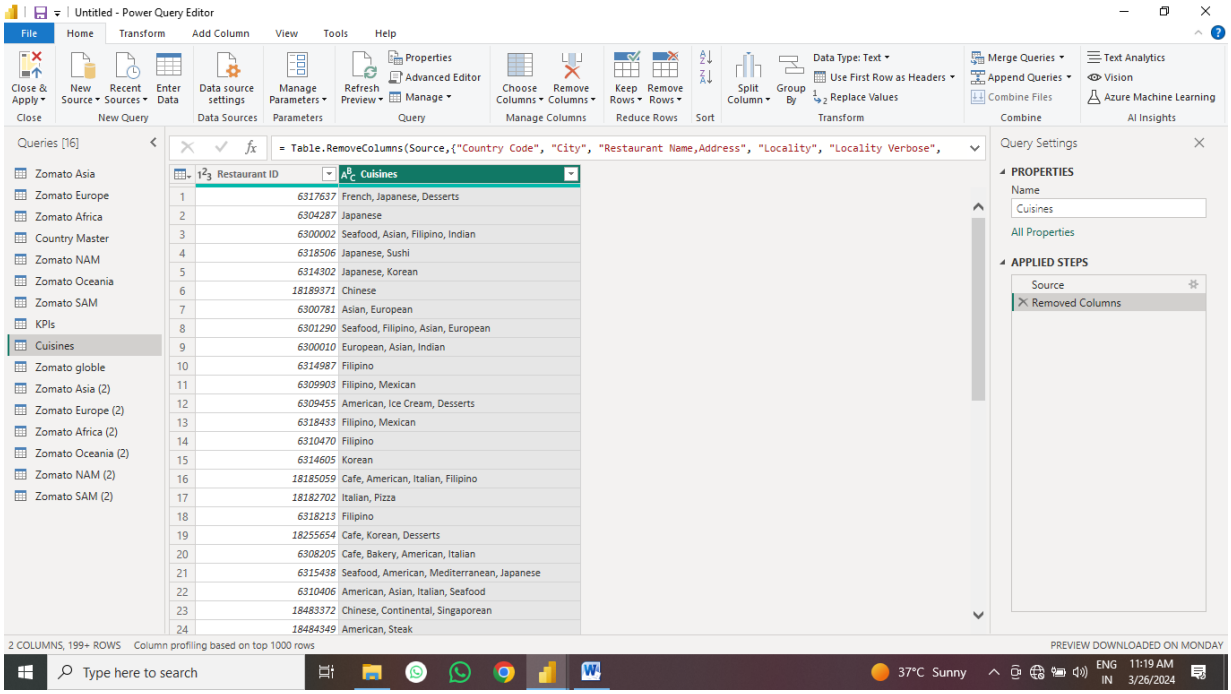

We have created a dashboard on 360-degree food analysis on online food delivering apps by using the count of cuisines, number of restaurants in a locality, rating of a restaurants and average cost for the restaurants.

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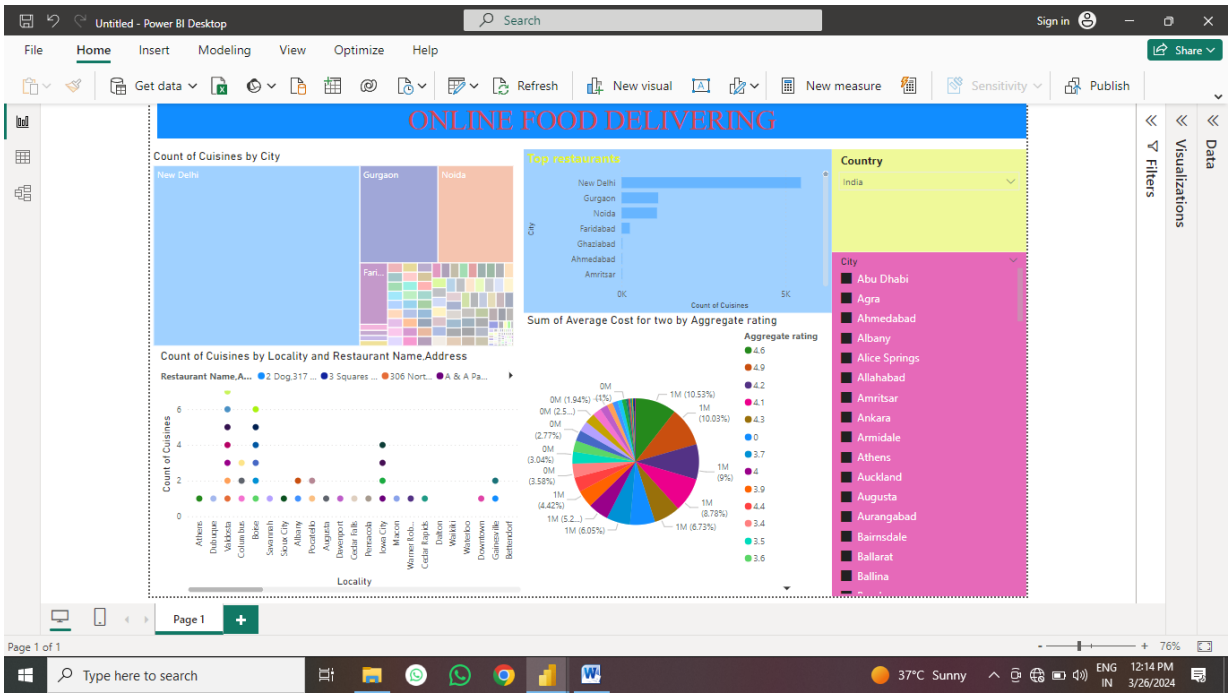
Dashboard



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CONCLUSION

After conducting a comprehensive 360-degree business analysis of online delivery apps using Power BI, several key insights have emerged:

1. Customer Behavior Patterns: Understanding customer preferences, ordering habits, and peak times can help optimize resource allocation and marketing strategies.

2. Operational Efficiency: Analyzing delivery times, order fulfillment rates, and driver performance can identify bottlenecks and streamline operations for improved efficiency.

3. Product Performance: Evaluating the popularity of menu items, seasonal trends, and customer feedback can guide menu optimization and promotional efforts.

4. Market Segmentation: Segmenting customers based on demographics, ordering frequency, and average order value enables targeted marketing campaigns and personalized experiences.

5. Competitive Benchmarking: Comparing performance metrics against competitors provides valuable insights into market positioning and areas for improvement.

6. Financial Analysis: Tracking revenue, costs, and profitability by location or product category allows for better financial planning and decision-making.

7. Predictive Analytics: Utilizing predictive models to forecast demand, optimize pricing, and anticipate customer churn can drive proactive decision-making and maximize revenue opportunities.

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In conclusion, leveraging Power BI for a comprehensive business analysis of online delivery apps offers actionable insights across various aspects of the business, empowering stakeholders to make data-driven decisions, enhance operational efficiency, and stay ahead in a competitive market landscape.

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FUTURE SCOPE

Performing a comprehensive 360-degree business analysis of online delivery apps using Power BI offers immense potential for gaining valuable insights. Here's an outline of what you could consider:

1. Data Collection and Integration:

- Gather data from various sources including transaction records, customer feedback, delivery metrics, and app usage statistics.

- Integrate data from multiple platforms such as the app itself, CRM systems, social media, and marketing platforms.

2. Data Modeling and Preparation:

- Create a unified data model that encompasses all relevant aspects of the business, including customer demographics, order details, delivery performance, and financial metrics.

- Cleanse and transform the data to ensure accuracy and consistency.

3. Dashboard Creation:

- Design interactive dashboards that provide a holistic view of the business, incorporating key performance indicators (KPIs) such as sales revenue, order volume, customer satisfaction scores, and delivery times.

- Use Power BI's visualization capabilities to represent data in meaningful and actionable ways, such as maps showing delivery hotspots, trend lines for sales performance, and customer sentiment analysis.

4. Advanced Analytics:

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- Implement advanced analytics techniques such as predictive modeling to forecast future sales trends, identify emerging customer preferences, and optimize delivery routes.

- Utilize machine learning algorithms to segment customers based on their behavior and preferences, enabling targeted marketing campaigns and personalized recommendations.

5. Operational Efficiency:

- Analyze operational processes to identify bottlenecks and inefficiencies in the delivery chain.

- Use Power BI to track key metrics such as delivery times, order fulfillment rates, and driver performance, enabling continuous improvement initiatives.

6. Financial Analysis:

- Conduct financial analysis to evaluate the profitability of different product categories, geographic regions, and customer segments.

- Generate reports on revenue growth, cost trends, and profitability margins to inform strategic decision-making.

7. Customer Insights:

- Dive deep into customer data to understand their preferences, purchase behavior, and satisfaction levels.

- Use Power BI to segment customers based on demographics, order frequency, and spending patterns, allowing for targeted marketing efforts and personalized experiences.

8. Future Scope:

- Explore emerging technologies such as IoT devices for real-time tracking of deliveries and customer engagement.

- Incorporate external data sources such as weather forecasts and traffic conditions to optimize delivery operations.

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- Continuously iterate and refine the analytics framework to adapt to changing market dynamics and business requirements.

By leveraging Power BI for a comprehensive business analysis, online delivery apps can gain valuable insights into their operations, improve efficiency, and drive sustainable growth in the competitive marketplace.

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