FOOD TREND ANALYSIS: CUSTOMER BEHAVIOR AND MARKET INSIGHTS

Presented by:

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Introduction

❖ The F&B industry has transformed rapidly due to:

- Online food delivery platforms
- Digital payments
- Data-driven decision making

❖ Changing lifestyles and technology have influenced **how, what, and when** customers order.

❖ Understanding customer behavior is **crucial for competitiveness** and strategic planning.

Objectives

Main Goal:

- To analyze and visualize customer preferences and operational insights in the F&B sector using Power BI.

Specific Objectives:

- Analyze demographics and preferences
- Identify product and category trends
- Study order patterns and satisfaction
- Compare platform-based performance
- Examine regional and seasonal variations
- Forecast future food trends
- Develop an interactive Power BI dashboard
- Provide data-driven business recommendations

DATASET DESCRIPTION

The dataset used in this project has been **synthetically designed** to closely represent real-world food order and customer behavior data. It contains approximately **4,000- 5000 records** and **20 meaningful columns**, encompassing key aspects of the F&B ecosystem such as customer demographics, order details, product categories, and satisfaction ratings.

Field Name	Description
Order_ID	Unique identification number assigned to each customer order.
Customer_ID	Unique ID for each customer to track repeat purchases.
Customer_Name	Name of the customer (anonymized for privacy).
Age	Age of the customer, used to segment preferences across age groups.
Gender	Gender of the customer (Male/Female/Other) for demographic analysis.
City/Region	The geographical location of the customer, used for regional trend analysis.
Order_Date	The date when the order was placed, used for time-based trend analysis.
Day_of_Week	The day the order was placed (Monday–Sunday) to identify weekly patterns.
Platform	The online delivery platform used (Swiggy, Zomato, Uber Eats, Direct).
Category	Type of food ordered (e.g., Fast Food, Desserts, Beverages, Indian, Chinese).
Item_Name	Specific food item ordered, e.g., Pizza, Burger, Coffee, Ice Cream.
Quantity	The number of units ordered in a single transaction.
Unit_Price	The price of one unit of the item ordered.
Total_Amount	Total revenue from each order, calculated as Quantity × Unit Price.
Payment_Mode	The method of payment (Wallet, UPI, Card, COD).
Delivery_Time (mins)	Total delivery time from order placement to completion.
Rating	Customer rating for the order on a scale of 1–5.
Season	The season during which the order was placed (Summer, Winter, Monsoon).
Discount (%)	Discount percentage applied to the order.
Repeat_Customer (Yes/No)	Indicates whether the customer has placed orders previously.

TECHNOLOGY USED

- **Power BI** – Utilized for interactive dashboard creation and visualization.
- **Power Query** – Helped in data transformation and integration from multiple sources.
- **DAX (Data Analysis Expressions)** – Applied for calculations, KPIs, and advanced analytics.
- **Microsoft Excel** – Used for data cleaning and preparation before import.
- **Charts & Visual Tools** – Used for effective data representation and storytelling.

Home Page (Overview and Key Metrics)

The Home Page serves as the **central navigation hub** of the dashboard, titled *"Food Trend Analysis: Customer Behavior and Market Insights."*
It provides a structured overview of all six analytical modules that explore sales, customer behavior, product preferences, regional trends, seasonal insights, and future forecasting.

Sections Represented:

- **Sales Overview** – Snapshot of total revenue, total orders, and ratings.
- **Customer Insights** – Demographic and behavioral breakdowns.
- **Product Insights** – Top categories and items.
- **Regional Insights** – Geographic and platform-based performance.
- **Seasonal Trends** – Temporal consumption variations.
- **Future Insights** – Predictive analytics and strategic recommendations.

Sales And Revenue Analysis

The Sales & Performance Insights page provides a comprehensive view of business efficiency and profitability through key metrics such as total revenue, orders, average order value, and profit margin. Line and bar charts display revenue trends across time, highlighting weekend and evening peaks when customer activity is highest. A category-wise analysis reveals that Fast Food and Beverages contribute the largest share to revenue, while Healthy Options show steady growth among health-conscious consumers.

A funnel chart tracks the customer order journey from placement to delivery, showcasing a strong conversion rate of nearly 90%, reflecting operational effectiveness. The payment mode breakdown indicates the growing dominance of UPI and Wallet payments, especially in urban areas. Additionally, heatmaps reveal that sales are most active during Friday to Sunday evenings, aiding resource planning.

Overall, this page transforms raw sales data into actionable insights, helping the business monitor performance, identify high-demand segments, and optimize operations for improved profitability and customer satisfaction.

Customer Demographics and Behavior

This page focuses on profiling the customers based on demographic and behavioural data such as **age group, gender, income level, and satisfaction rating**.
Visuals include:

Bar chart: Orders by age group

Donut chart: Gender-based order distribution

Tree map: Category preference by gender

Scatter plot: Customer rating vs. total order value

By linking demographic data with spending and preference patterns, this page helps identify key customer segments.

Insights Highlight:
The analysis shows that the **18–30 age group** accounts for over 45% of total orders, with females showing a slightly higher preference for desserts and beverages, while males prefer fast food and snacks. Customers with higher income levels tend to spend more per order and exhibit greater brand loyalty.

Product & Category Insights

The third page examines the performance of different food categories and products.
Visuals include:

Stacked column chart: Revenue contribution by category

Bar chart: Top-selling items

Box plot: Rating distribution across categories

Matrix visualization: Average order value and quantity sold per category

These visuals help identify high-performing categories and items, monitor product satisfaction levels, and reveal underperforming items that need attention.

Insights Highlight:
Fast food and beverages emerge as consistent leaders in both revenue and order frequency. Desserts show high customer satisfaction scores but comparatively lower volume, suggesting potential for targeted promotions. Traditional Indian cuisines maintain steady demand in Tier-2 cities, indicating regional preferences.

Regional & Platform Insights

This page explores geographical and platform-based performance variations.
Visuals include:

Map visualization: Total revenue by region or city

Bar chart: Orders by platform (Swiggy, Zomato, etc.)

Stacked bar: Category mix per platform

Donut chart: Payment mode preference by region

KPI cards: Top-performing region and best-performing platform

Insights Highlight:
The **North region** records the highest revenue contribution, accounting for nearly 35% of total sales. Zomato emerges as the dominant platform with 40% of orders, followed by Swiggy. Digital wallet payments are more popular in urban areas, while cash payments remain common in semi-urban regions.

Seasonal & Time-Based Trends

This page focuses on the temporal aspect of customer orders, analysing how seasons, time, and days of the week influence consumption patterns.
Visuals include:

Line chart: Monthly sales trend

Area chart: Seasonal variations (Winter, Summer, Monsoon)

Heatmap: Hour-of-day and day-of-week patterns

Bar chart: Most ordered items per season

KPI cards: Peak month and off-peak month indicators

Insights Highlight:
Data reveals that **fast food peaks during weekends**, while **desserts and beverages are preferred in summer**. The busiest ordering hours fall between 6 PM and 9 PM. Monsoon shows a noticeable rise in comfort food orders such as soups and snacks.

Future Insights & Recommendations

This page is dedicated to predictive insights and strategic recommendations for business growth.
Visuals include:

Forecast line chart: Predicted future orders/revenue using Power BI's forecasting feature

Gauge charts: Target vs. actual revenue and customer satisfaction

Text cards: Key recommendations and takeaways

Insights Highlight:
Forecasting models suggest a potential **10–12% increase in beverage sales** during Q2 if targeted promotions are applied. Data correlation between satisfaction ratings and order frequency highlights that higher-rated categories tend to drive repeat purchases.

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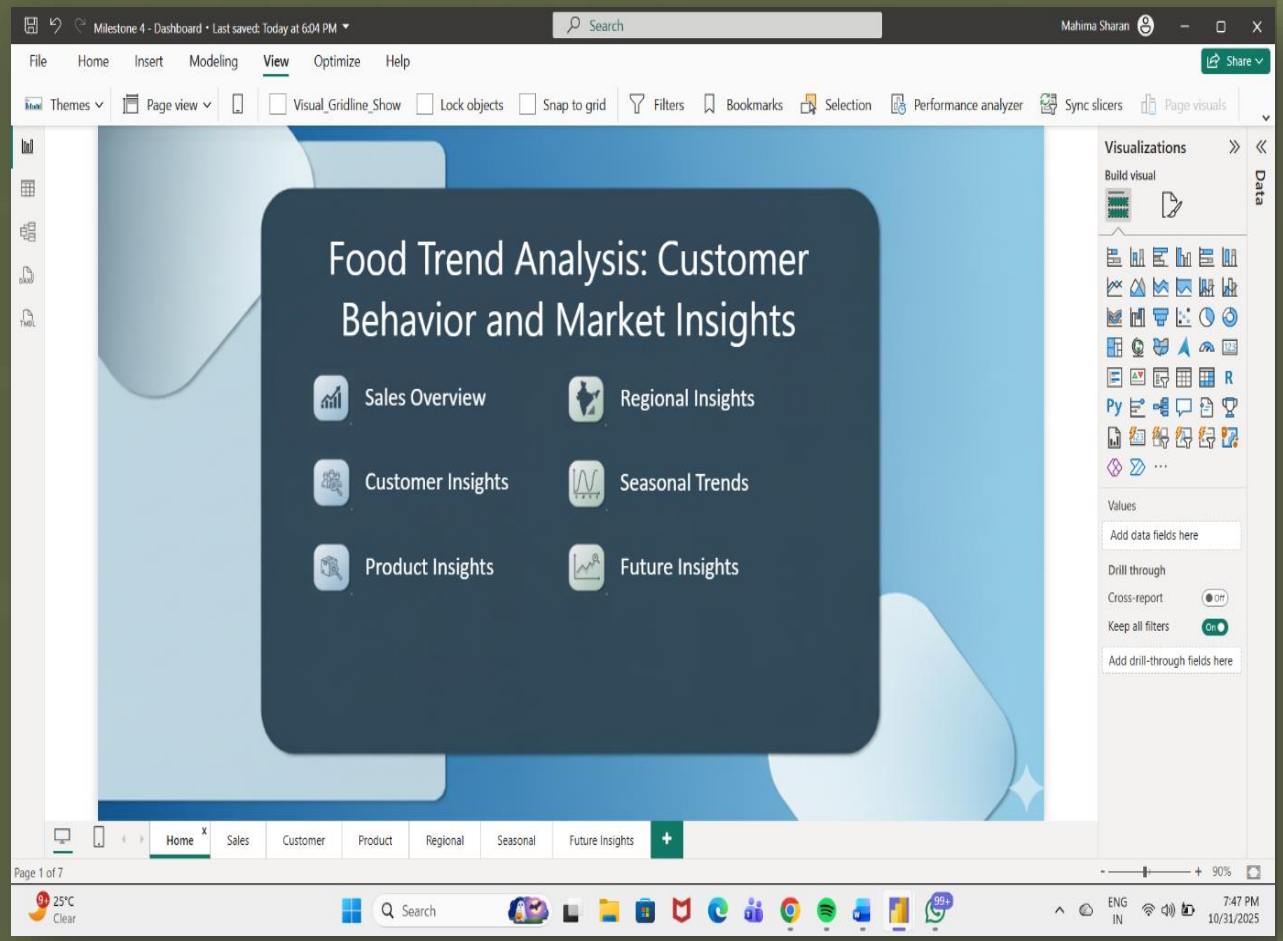
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Food Trend Analysis: Customer Behavior and Market Insights
Sales Overview
Regional Insights
Customer Insights
Seasonal Trends
Product Insights
Future Insights
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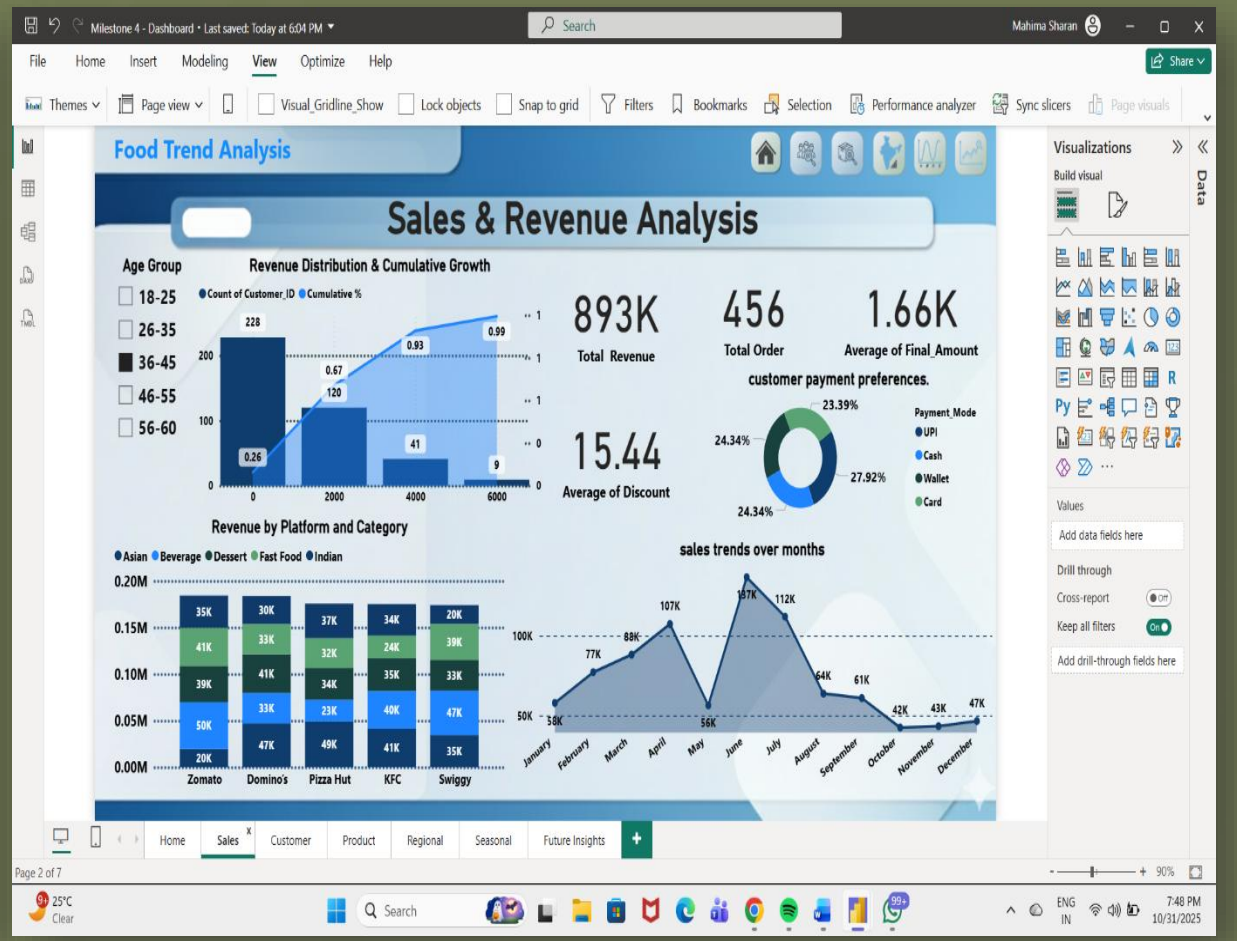
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Food Trend Analysis
Sales & Revenue Analysis
Age Group
18-25
26-35
36-45
46-55
56-60
Revenue Distribution & Cumulative Growth
Count of Customer_ID
Cumulative %
893K
Total Revenue
456
Total Order
1.66K
Average of Final_Amount
15.44
Average of Discount
customer payment preferences.
Payment_Mode
UPI
Cash
Wallet
Card
Revenue by Platform and Category
Asian
Beverage
Dessert
Fast Food
Indian
Zomato
Domino's
Pizza Hut
KFC
Swiggy
sales trends over months
January
February
March
April
May
June
July
August
September
October
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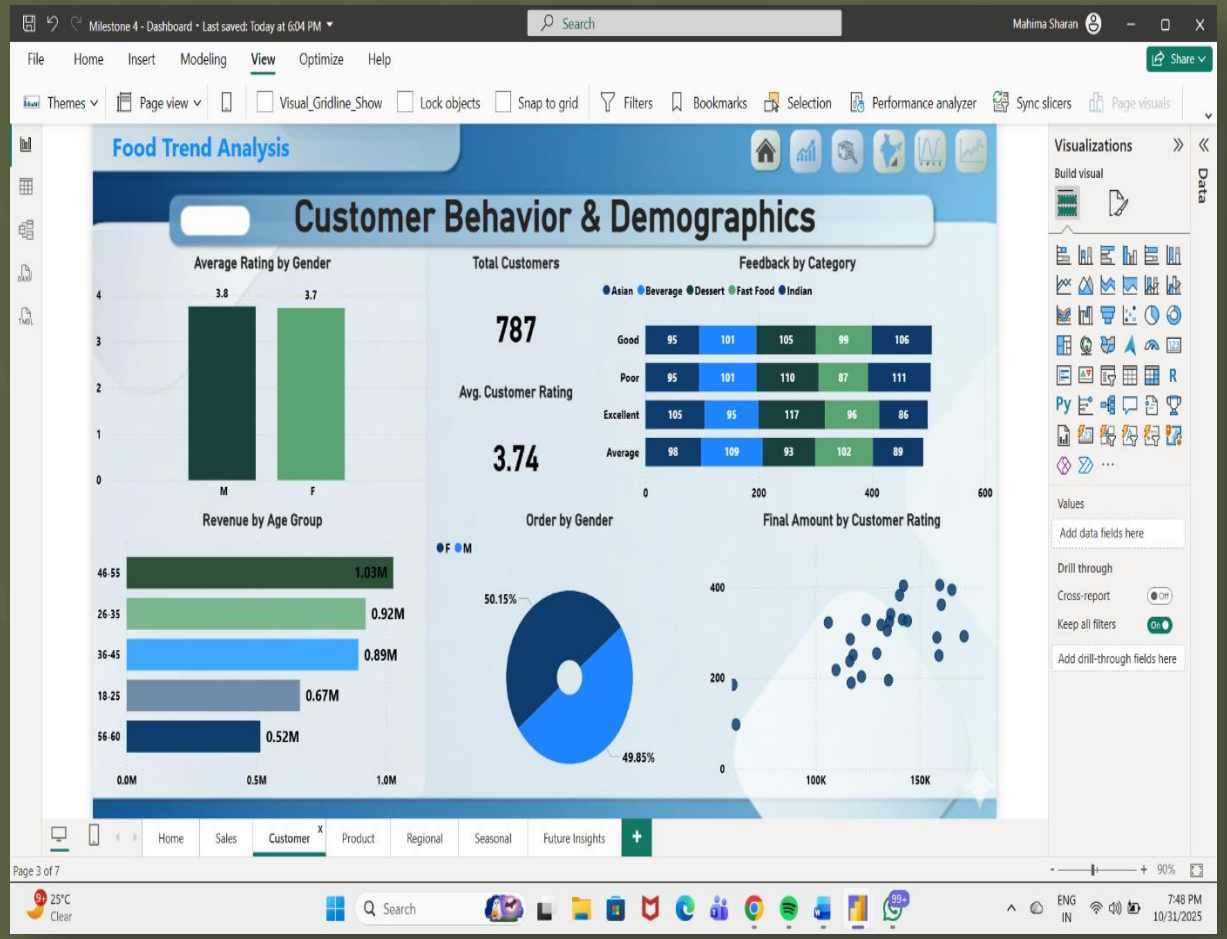
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Food Trend Analysis
Customer Behavior & Demographics
Average Rating by Gender
3.8
3.7
M
F
Total Customers
787
Avg. Customer Rating
3.74
Feedback by Category
Asian Beverage Dessert Fast Food Indian
Good 95 101 105 99 106
Poor 95 101 110 87 111
Excellent 105 95 117 96 86
Average 98 109 93 102 89
Revenue by Age Group
46-55 1.03M
26-35 0.92M
36-45 0.89M
18-25 0.67M
56-60 0.52M
Order by Gender
F M
50.15%
49.85%
Final Amount by Customer Rating
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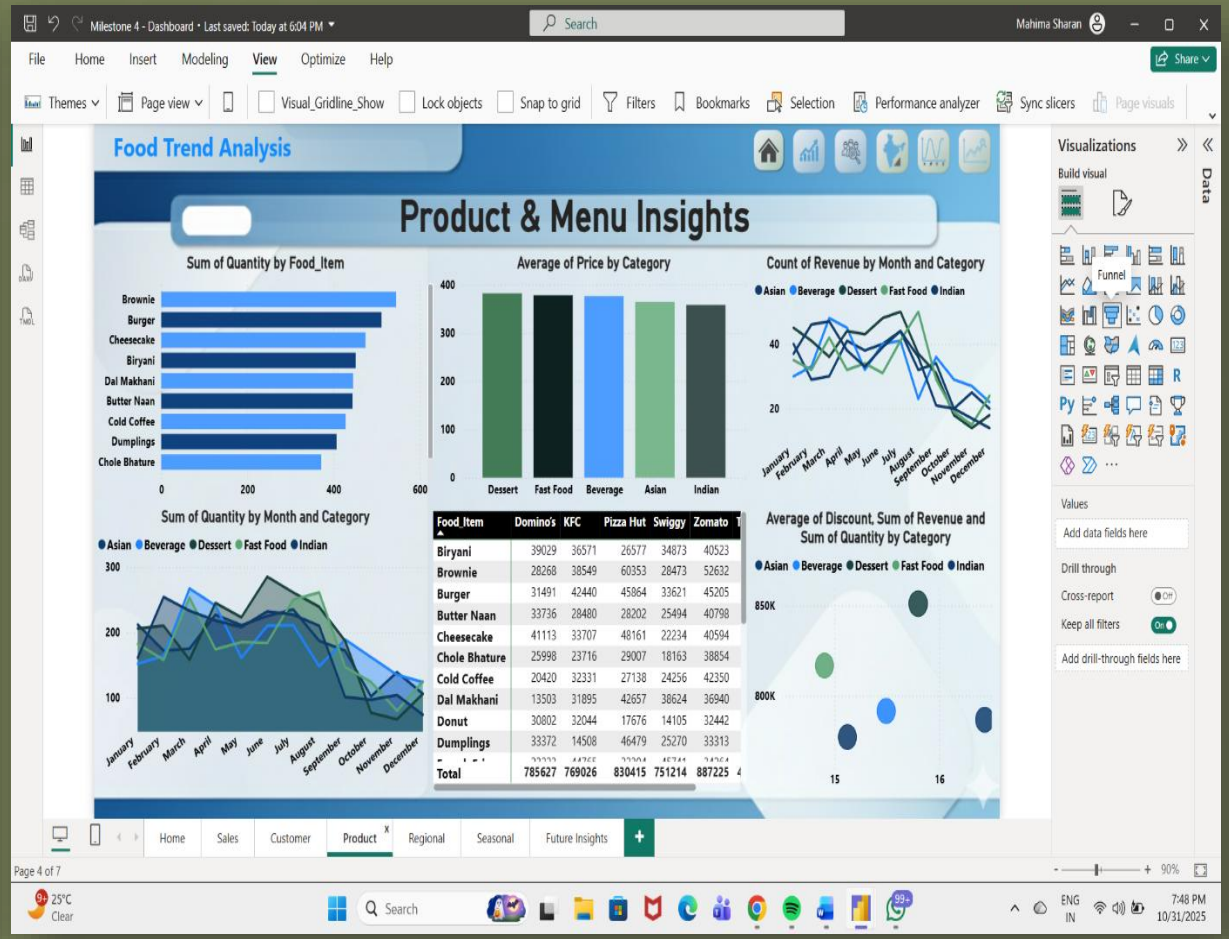
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Food Trend Analysis
Product & Menu Insights
Sum of Quantity by Food_Item
Brownie
Burger
Cheesecake
Biryani
Dal Makhani
Butter Naan
Cold Coffee
Dumplings
Chole Bhature
Average of Price by Category
Dessert Fast Food Beverage Asian Indian
Count of Revenue by Month and Category
Asian Beverage Dessert Fast Food Indian
Sum of Quantity by Month and Category
Asian Beverage Dessert Fast Food Indian
Food_Item Domino's KFC Pizza Hut Swiggy Zomato
Biryani 39029 36571 26577 34873 40523
Brownie 28268 38549 60353 28473 52632
Burger 31491 42440 45864 33621 45205
Butter Naan 33736 28480 28202 25494 40798
Cheesecake 41113 33707 48161 22234 40594
Chole Bhature 25998 23716 29007 18163 38854
Cold Coffee 20420 32331 27138 24256 42350
Dal Makhani 13503 31895 42657 38624 36940
Donut 30802 32044 17676 14105 32442
Dumplings 33372 14508 46479 25270 33313
Total 785627 769026 830415 751214 887225
Average of Discount, Sum of Revenue and Sum of Quantity by Category
Asian Beverage Dessert Fast Food Indian
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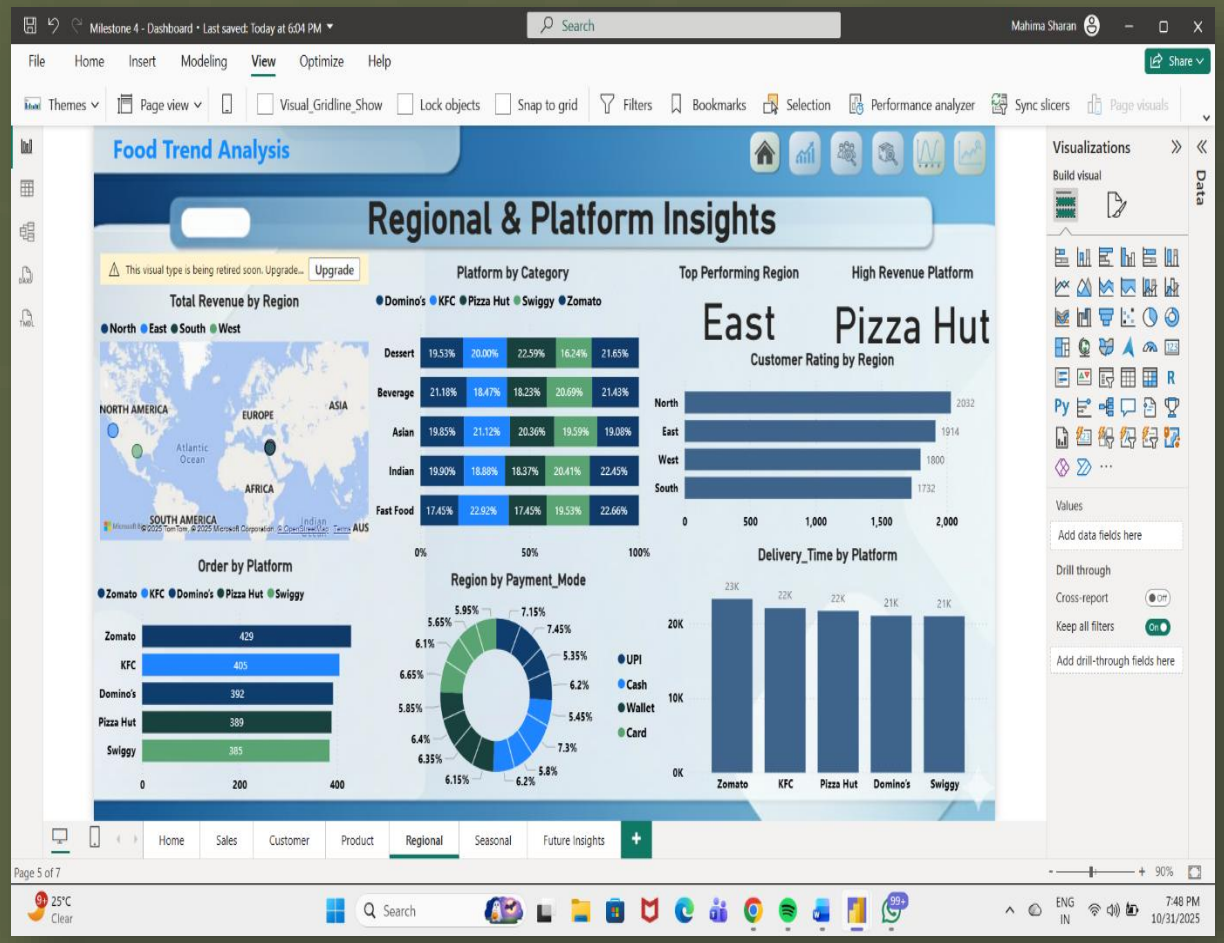
Food Trend Analysis
Regional & Platform Insights
Total Revenue by Region
Platform by Category
Top Performing Region
East
High Revenue Platform
Pizza Hut
Customer Rating by Region
Order by Platform
Region by Payment_Mode
Delivery_Time by Platform
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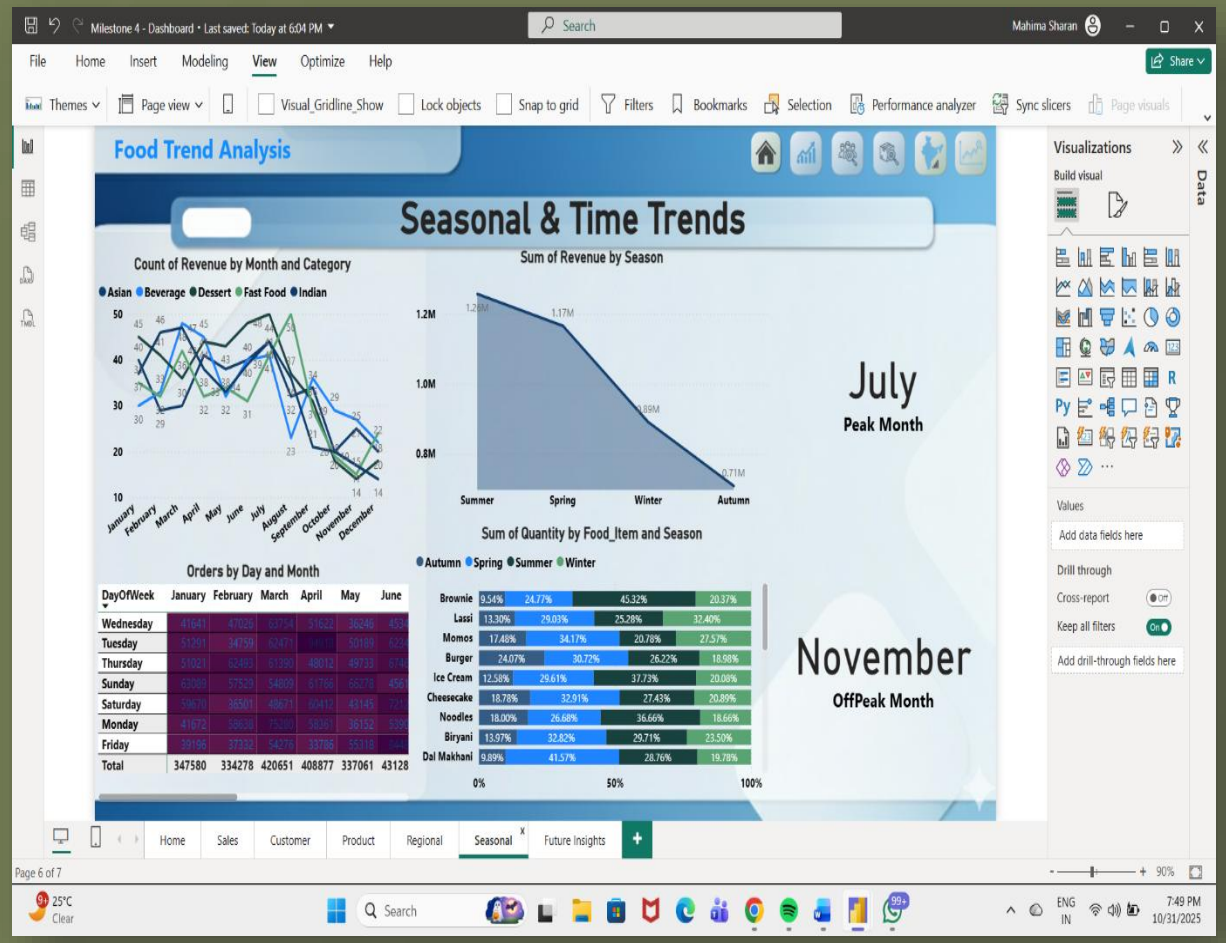
Food Trend Analysis
Seasonal & Time Trends
Count of Revenue by Month and Category
Sum of Revenue by Season
July
Peak Month
November
OffPeak Month
Orders by Day and Month
Sum of Quantity by Food_Item and Season
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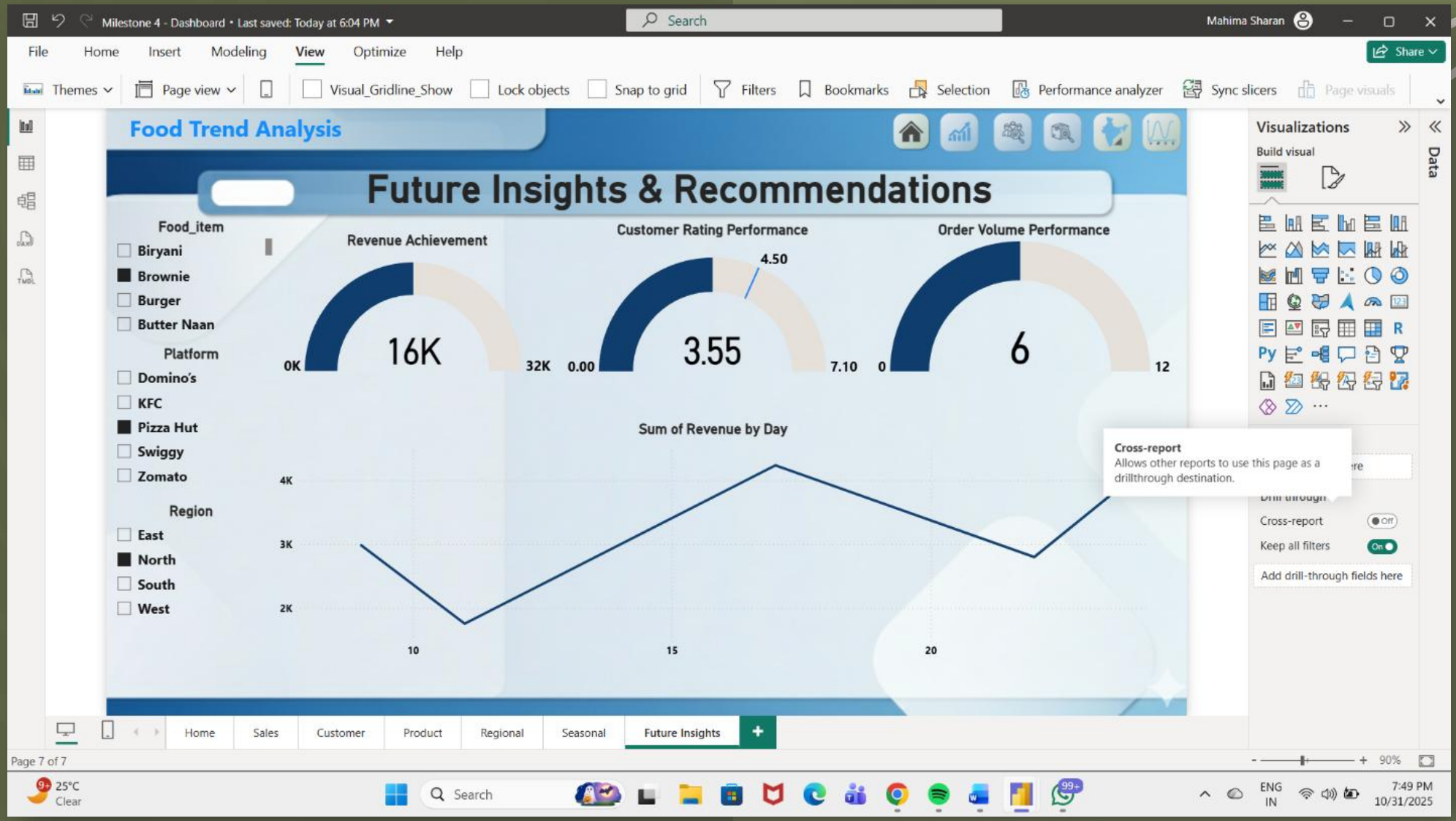
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KEY INSIGHTS

The **Food Trend Analysis Dashboard** offers a multifaceted understanding of customer behavior, market patterns, and business performance within the Food & Beverage (F&B) sector. Using data from multiple platforms, regions, and food categories, the analysis uncovers critical insights that can shape future decision-making for businesses in this domain.

- **Customer Preferences and Demand Trends:**
  The analysis indicates that fast food and desserts are the most frequently ordered categories, driven by urban consumers seeking convenience and indulgence. Beverages maintain consistent demand across all seasons, highlighting their stability as a product segment.
  Young adults (aged 18–35) represent the largest consumer group, showing a preference for online ordering through mobile-based platforms. The average order value is notably higher among professionals residing in metro cities.

- **Product Performance and Pricing Patterns:**
  The *Product & Menu Insights* section reveals that items such as burgers, brownies, and biryanis generate the highest revenue. Despite moderate pricing, these items show high order frequency, demonstrating a strong price-demand correlation. Premium categories such as Asian cuisine have fewer orders but higher margins, suggesting a niche yet profitable market.
  The dashboard also identifies cross-category relationships—for instance, dessert orders often correlate with beverage purchases, indicating upselling potential.

- **Regional and Platform Analysis:**
  Regional insights highlight that the **North and West zones** dominate in total revenue contribution. Metro cities like **Delhi, Mumbai, and Bengaluru** show the highest order volumes, while smaller cities display growing engagement with wallet-based and online payments.
  Among delivery platforms, **Swiggy and Zomato collectively account for nearly 80% of the total sales**, but the performance varies by region—Zomato leads in metro areas while Swiggy performs better in suburban zones.

- **Temporal and Seasonal Trends:**
  The time-based analysis shows clear ordering peaks during **weekends and evenings**, aligning with leisure and family dining behavior. Seasonal variation indicates that desserts and beverages are more popular in summer, while fast food and Indian cuisine dominate in winter months.
  The line and area charts emphasize how promotional offers and festive seasons significantly influence purchase frequency and category preference.

- **Operational and Marketing Insights:**
  The dashboard highlights the impact of **discount strategies** on driving order volume. Average discounts between 10–15% show a strong positive effect on both order count and customer retention. Moreover, customer ratings correlate with repeat purchase frequency, emphasizing the importance of product quality and service consistency.

Overall, these insights provide a clear understanding of how **menu diversity, pricing, marketing, and customer experience** collectively shape business success in the competitive F&B marketplace.

FUTURE INSIGHTS

The *Future Insights* section leverages Power BI's predictive capabilities and analytical reasoning to provide forward-looking observations and business recommendations that can optimize growth and profitability.

❖ Forecasting Customer Demand:

Predictive analysis indicates a **10–12% projected growth** in beverage and fast-food categories during the next quarter. Seasonal forecasting suggests that promotional campaigns aligned with festivals or summer months can significantly boost order volumes.

❖ Strategic Recommendations:

- **Enhance Digital Engagement:** Introduce personalized offers through app notifications and loyalty programs to maintain customer retention.
- **Diversify Menu Options:** Introduce healthy alternatives and fusion cuisines to appeal to emerging health-conscious consumers.
- **Optimize Pricing and Discounts:** Implement region-specific dynamic pricing and limited-time discounts to maintain competitiveness.
- **Focus on Underperforming Regions:** Launch targeted ad campaigns and delivery partnerships in low-revenue zones to balance market distribution.
- **Sustainability Initiatives:** Highlight eco-friendly packaging and sustainable sourcing as key differentiators in urban markets.

❖ Platform Strategy and Operational Improvement:\

Swiggy and Zomato should collaborate with restaurant partners to improve delivery times and customer satisfaction ratings. Power BI's forecasting charts reveal that platforms focusing on **faster delivery and superior app experience** show a direct impact on order recurrence and rating improvement.

❖ Performance Optimization through Data:

Businesses can use the KPI and gauge metrics to set **target vs. actual performance** benchmarks for revenue, ratings, and delivery time. Integrating these insights with real-time tracking can enhance decision-making precision and responsiveness.

Key Recommendations

- Increase promotional efforts for fast food and beverages during seasonal peaks.
- Strengthen partnerships with Swiggy in high-performing regions.
- Launch targeted campaigns in underperforming regions.
- Enhance digital wallet offers to encourage online payments.
- Use feedback analytics to improve quality in low-rated product categories.

CONCLUSION

- ❖ The project **“Food Trend Analysis: Customer Behavior and Market Insights”** demonstrates how **Power BI** transforms raw data into actionable business intelligence for the **Food & Beverage industry**.
- ❖ Combined analysis of **Sales, Customer, Product, Regional, Seasonal, and Forecasting dashboards** offers a complete understanding of consumer behavior and business performance.
- ❖ Insights reveal:
  - **Fast food & desserts** dominate orders.
  - **Beverages** show stable year-round demand.
  - **Swiggy & Zomato** contribute ~80% of total revenue.
  - **Digital payments** are stronger in urban areas.
  - **Weekends & festivals** see peak engagement.
- ❖ **Power BI** enabled interactive exploration through slicers, KPIs, and visuals—turning complex data into clear, accessible insights.
- ❖ The project highlights how **data-driven decisions** enhance marketing, product strategy, and operational efficiency.
- ❖ Integrating **historical and predictive analytics** enables proactive business planning and sustainable growth.
- ❖ Overall, the dashboard stands as a **strategic decision-support tool**—bridging data, analytics, and storytelling to drive long-term success.

THANK YOU