



A
Mini Project Report
on
Zomato Data Analysis using Power B.I.
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ABSTRACT

This report analyzes Zomato's customer data using Power BI to uncover key insights into customer preferences and demographic trends. The study focuses on understanding the behavior of Zomato's customer base across various cities, segmented by gender and marital status. The analysis aims to provide actionable insights into customer preferences and behaviors by visualizing and interpreting data patterns. The findings are intended to assist Zomato in refining its marketing strategies, tailoring services to diverse customer needs, and enhancing overall customer satisfaction. This data-driven approach underscores the importance of leveraging analytics for strategic decision-making in a competitive food delivery market.

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LIST OF ABBREVIATIONS

BI	Business Intelligence
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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Zomato, a leading global food delivery and restaurant discovery platform, serves millions of customers with diverse preferences and expectations. In today's competitive market, understanding customer demographics and behavior is crucial for developing effective marketing strategies and enhancing customer satisfaction.

This project leverages Power BI to analyze Zomato's customer data, focusing on demographic segments such as gender, marital status, and geographic distribution across various cities. The objective is to identify patterns and trends that provide a deeper understanding of Zomato's customer base. By exploring how preferences vary across different segments, the analysis aims to uncover actionable insights that can guide Zomato in tailoring its offerings and optimizing its engagement strategies.

Through this data-driven approach, the report seeks to bridge the gap between raw data and meaningful insights, enabling Zomato to make informed decisions to strengthen its market presence and deliver value to its customers.

1.2 PROJECT DESCRIPTION

This project analyzes Zomato's customer data using Power BI to uncover critical insights into demographic trends and customer behavior. The primary goal is to comprehensively understand Zomato's customer base by segmenting data across various dimensions, including gender, marital status, and city-wise distribution.

The analysis involves importing, cleaning, and transforming Zomato's customer data to ensure accuracy and relevance. Key metrics and visualizations are designed to highlight patterns in customer preferences, such as popular cuisines, order frequency, and spending habits. By segmenting the data based on gender and marital status, the project seeks to identify unique preferences and behaviors within each group.

Furthermore, the study examines city-wise trends to determine regional variations in customer behavior, providing insights into localized market dynamics. These findings aim to help Zomato optimize its marketing strategies, enhance customer engagement, and improve service delivery by catering to the distinct needs of diverse customer segments.

This project underscores the power of data visualization and analytics in making informed, strategic decisions in the food delivery industry.

CHAPTER 2

LITERATURE REVIEW

S. N o.	Author(s)	Year	Title	Findings	Journal/Conference /Thesis	Source
1	Krishna Kishor Tirupati, Archit Joshi, Dr. S P Singh, Dr. Alok Gupta, et al.	2024	<i>Leveraging Power BI for Enhanced Data Visualization and Business Intelligence</i>	Power BI empowers organizations through interactive dashboards, real-time updates, AI-driven analytics, and collaborative tools, enhancing decision-making and operational efficiency.	<i>Universal Research Reports</i>	DOI: 10.36676/urr.v10.i2.1375
2	K. Al Bulushi, F. Al Mawali, I. Alrashdi	2024	<i>Enhancing Pipeline Integrity Data Management through Power BI and PI Dashboard Approach</i>	Power BI and PI dashboards enable real-time integrity management of pipelines by integrating inspection data, corrosion treatment performance, and operational data to prioritize maintenance, reduce risks, and enhance decision-making.	<i>ADIPEC Conference</i>	DOI: 10.2118/222521-MS

S. N o.	Author(s)	Year	Title	Findings	Journal/Conference /Thesis	Source
3	Mostafa Milani, Lakchchayam Khare	2024	<i>Security and Integration in Business Intelligence Tools: A Comprehensive Study</i>	The research highlights security challenges in BI tools, focusing on access control and data management issues, especially in dynamic, multi-user environments. It proposes a security-centered framework for BI tool evaluation.	<i>Master's Thesis in Business Intelligence</i>	DOI: 10.13140/RG.2.2.13845.13281
4	Matthew M. Johnson, Kathleen Hill, Amber Cesare, Stephanie Klixbull, et al.	2024	<i>From Educator to Broader Impacts Professional: A Case Study Analysis of the BI Toolkit Approach</i>	This case study explores the transition of classroom teachers to BI professionals using the ARIS BI Toolkit, emphasizing broader impacts (BI) in research and societal benefits.	<i>Journal of Community Engagement and Scholarship</i>	DOI: 10.54656/jces.v17i2.607
5	Mariem Belghith, Sana Bouajaja, Abdelkari m Elloumi	2024	<i>Developing a Sales Dashboard with Power BI – A Case</i>	This study develops a sales dashboard for a pharmaceutical company	<i>Decision Making Advances</i>	DOI: 10.31181/dma21202438

S. N o.	Author(s)	Year	Title	Findings	Journal/Conference /Thesis	Source
			<i>Study in a Pharmaceutical Company</i>	using Power BI, enabling decision-makers to visualize sales data, select KPIs, and create annual management reports for improved monitoring and strategic planning.		
6	Pedro Ayuso García	2023	<i>Analysis and Visualization of Financial Data with Power BI</i>	Power BI is a transformative tool in financial management, enabling efficient data analysis, visualization, and strategic decision-making, with case studies like Walmart demonstrating its large-scale business applicability.	<i>Master's Thesis in Financial Management and Accounting</i>	DOI: 10.13140/RG.2.2.12718.89929
7	Rupesh Parthe	2023	<i>Comparative Analysis of Data Visualization Tools: Power BI and Tableau</i>	Compares Power BI and Tableau in terms of pricing, UI, integration, visualization, ETL capabilities, and	<i>International Journal of Scientific Research in Engineering and Management</i>	DOI: 10.55041/IJSREM26272

S. No.	Author(s)	Year	Title	Findings	Journal/Conference /Thesis	Source
				collaboration, helping organizations decide based on their needs and requirements.		
8	Reza Rad	2023	<i>Power BI Helper</i>	Power BI Helper, a free tool developed by RADACAD, enhances Power BI implementation by improving development, maintenance, performance, and administration.	<i>Pro Power BI Architecture</i>	DOI: 10.1007/978-1-4842-9538-0_44
9	Ms. Sarika Singh, Ms. Lavina Jadhav	2022	<i>Data Analysis and Visualization of Sales Dataset using Power BI</i>	Power BI enables quick transformation of research data into shareable analytical reports and dashboards, improving decision-making and data visualization across organizations.	<i>International Journal for Research in Applied Science and Engineering Technology</i>	DOI: 10.22214/ijraset.2022.44132

S. N o.	Author(s)	Year	Title	Findings	Journal/Conference /Thesis	Source
10	Chukwu Christian Onyemae chi	2022	<i>Applicati on of Data Analytics in Process Predictio ns, Analysis, Manage ment & Visualiza tion using Microsoft Power BI</i>	Power BI helps tackle manufacturing industry challenges by analyzing large volumes of data and visualizing trends and opportunities for improved forecasting and operational management.	<i>Federal University of Technology Owerri</i>	DOI: 10.13140/RG.2.2.357 81.93929/1

CHAPTER 3

PROPOSED METHODOLOGY

This project employs a structured methodology to ensure that the analysis of Zomato's customer data is comprehensive, accurate, and insightful. The methodology is divided into four key stages:

3.1. Data Cleaning

The initial step focuses on preparing the data for analysis by addressing inconsistencies and ensuring data integrity. Key tasks include:

- **Promoted Headers:** Ensuring column headers are correctly aligned with the data.
- **Handling Missing Values:** Replacing or imputing missing data to maintain consistency.
- **Changed Type:** Standardizing data types for accurate calculations and relationships.
- **Split Column by Delimiter:** Extracting relevant details from concatenated fields.
- **Unpivoted Columns:** Transforming data for a tabular structure suitable for analysis.
- **Renamed Columns:** Standardizing column names for clarity and usability.
- **Removed Unnecessary Columns:** Eliminating redundant fields to reduce clutter.
- **Merged Columns:** Combining related columns for efficient representation.
- **Extracted Month and Year:** Deriving temporal fields for time-based analysis.
- **Final Validation:** Verifying data readiness before proceeding to modeling and visualization.

3.2. Data Modeling

A robust data model is constructed to establish relationships between various entities such as users, orders, restaurants, and menus. This step ensures data is organized for seamless querying and analysis.

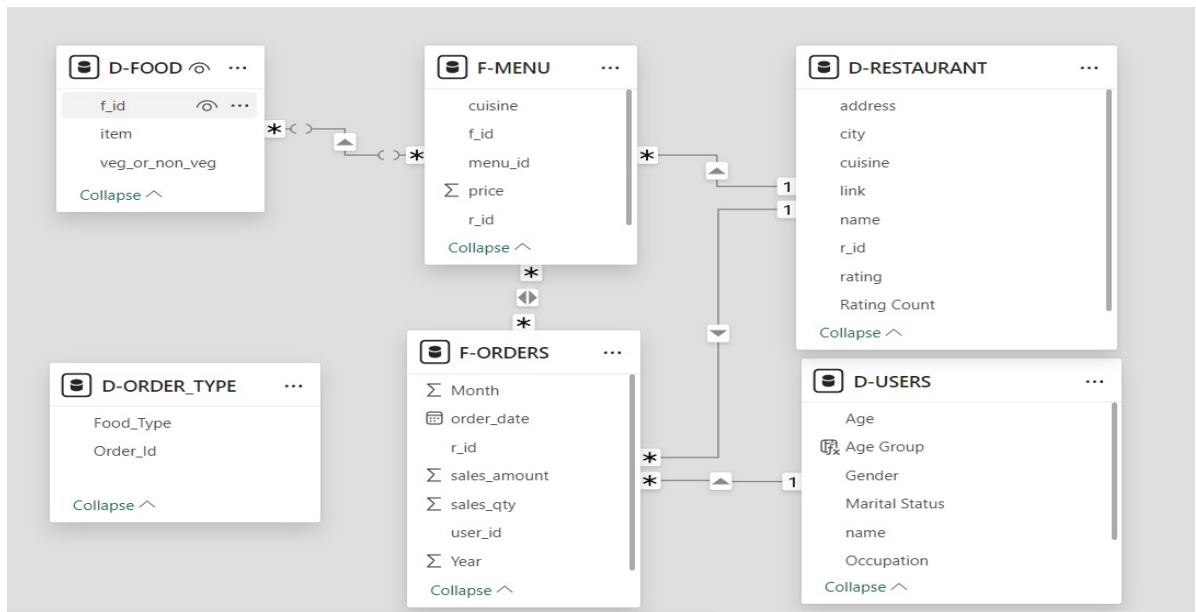


Figure 1: Data Modeling Framework for Zomato Analysis.

3.3. DAX Queries

Custom measures and calculated columns are created using DAX (Data Analysis Expressions) to derive meaningful insights. Examples include:

- **Age Group Classification:** Segments users into groups (e.g., Young, Middle Age).

```

Age Group = SWITCH(
  TRUE(),
  SELECTEDVALUE('D-USERS'[Age]) >= 18 &&
  SELECTEDVALUE('D-USERS'[Age]) <= 25, "Young",
  SELECTEDVALUE('D-USERS'[Age]) >=
  26 && SELECTEDVALUE('D-USERS'[Age]) <= 33, "Middle Age",
  "Other")
  
```

- **Average Food Price:** Calculates the average price of menu items.

```

Average Food Price = AVERAGE('F-MENU'[price])
  
```

- **Average Order Value:** Derives the average transaction value per user.

```

Average Order Value = DIVIDE(
  [Total Sales Amount],
  COUNT('F-ORDERS'[user_id]),
  0)
  
```

- **Sales by City/Food Item/Restaurant/Cuisine:** Analyzes sales data across various dimensions.

Sales by City = SUMX(VALUES('D-RESTAURANT'[city]), CALCULATE(SUM('F-ORDERS'[sales_amount])))

Sales by Food Item = CALCULATE(SUM('F-ORDERS'[sales_amount]), ALLEXCEPT('D-FOOD','D-FOOD'[f_id]))

Sales by Restaurant = CALCULATE(SUM('F-ORDERS'[sales_amount]), ALLEXCEPT('D-RESTAURANT', 'D-RESTAURANT'[r_id]))

Sales of Cuisine = CALCULATE(SUM('F-ORDERS'[sales_amount]), ALLEXCEPT('F-MENU', 'F-MENU'[cuisine]))

- **Key Metrics:** Includes total cities, orders, restaurants, quantity sold, and total sales amount.

Total Cities = DISTINCTCOUNT('D-RESTAURANT'[city])

Total Number of Orders = COUNT('F-ORDERS'[user_id])

Total Quantity Sold = SUM('F-ORDERS'[sales_qty])

Total Restaurants = DISTINCTCOUNT('D-RESTAURANT'[r_id])

Total Sales Amount = SUM('F-ORDERS'[sales_amount])

3.4. Data Visualizations

Interactive and dynamic visualizations are created to present insights effectively, using the following techniques:

- **Cards:** Highlights metrics like total sales amount, average order value, and total cities.

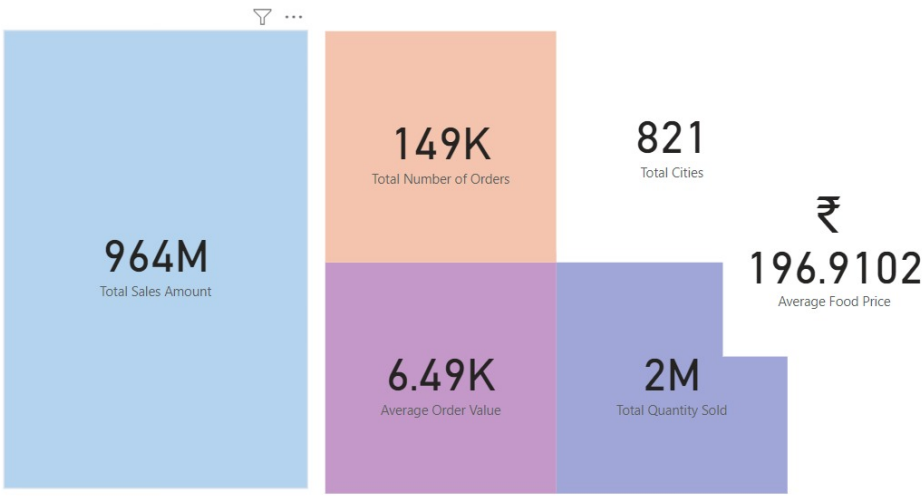


Figure 2: Card Visualization.

- **Pie Charts:** Shows sales distribution by gender, marital status, food type, and age group.

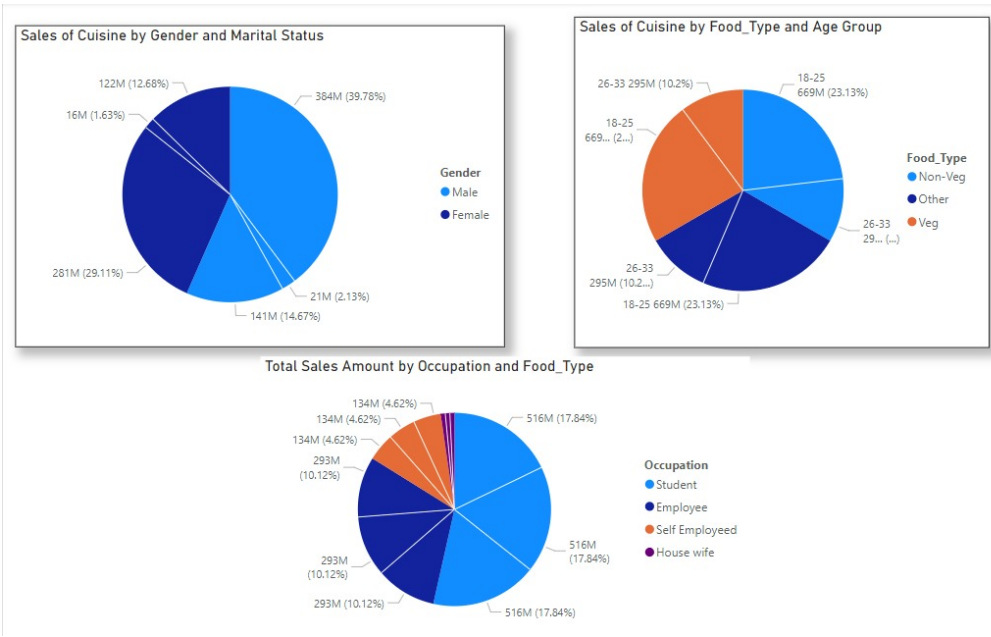


Figure 3: Sales of Cuisine by Gender, Food type, age group, and Marital Status.

- **Matrix:** Displays data relationships, such as average food price by city and best-rated restaurants.

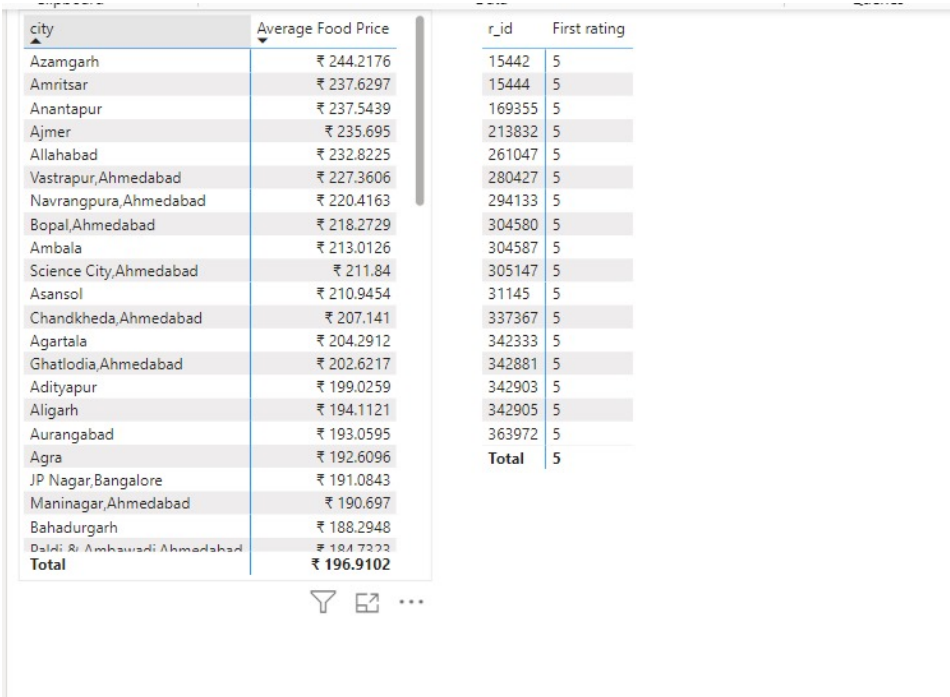


Figure 4: Average Order Value by City and top restaurant.

- **Clustered Bar Chart:** Compares sales by restaurant and city.

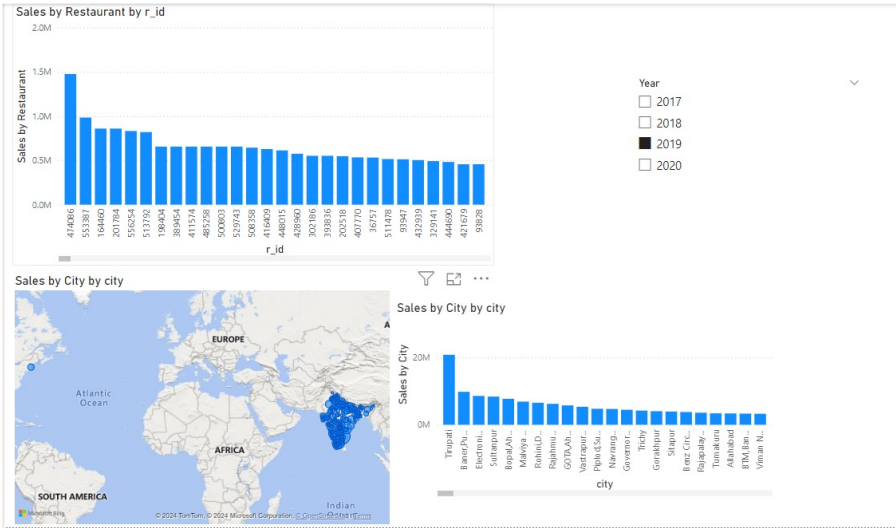


Figure 5: Total Restaurants by City

- **Line Chart with Forecasting:** Tracks sales trends by month and year.

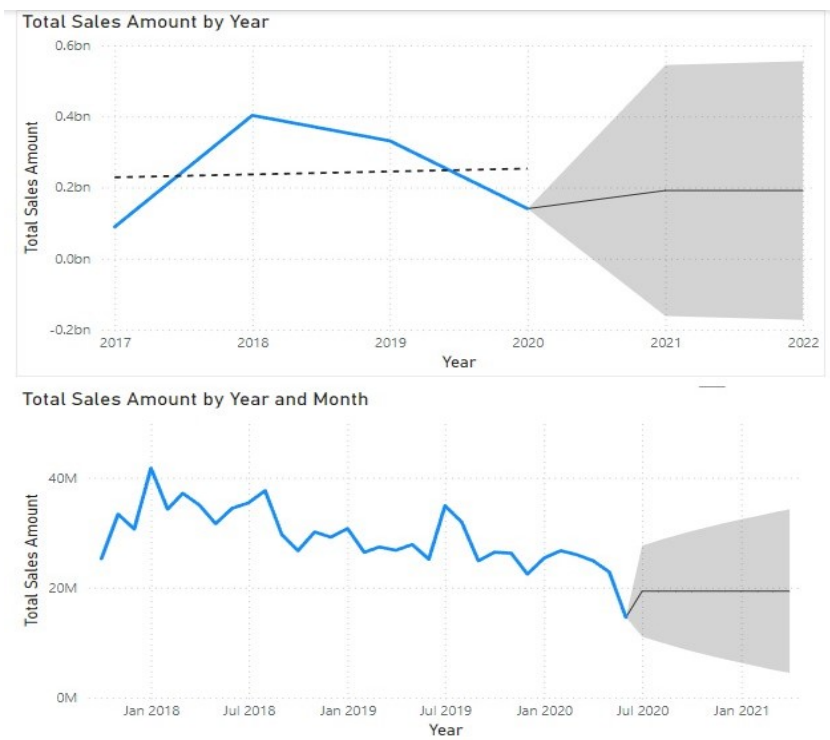


Figure 6: Total Sales Amount by Year and Forecasting.

- **Maps:** Visualizes sales distribution across cities.



Figure 7: Sales by City

- **Slicers:** Enables filtering by year and city for dynamic exploration.

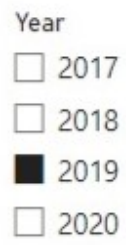


Figure 8: Year Filter

CHAPTER 4

RESULTS AND DISCUSSION

The analysis of Zomato's customer data using Power BI revealed several key insights about customer demographics, preferences, and behaviors across various cities:

4.1 Demographic Trends:

- Younger customers (aged 18-25) showed a higher frequency of orders, particularly for quick meals and fast food items.
- Married individuals tended to prefer family-sized meals and traditional cuisines.

4.2 Geographical Insights:

- Cities with higher populations demonstrated a greater diversity in cuisine preferences, with metropolitan areas favoring international cuisines.
- Smaller cities showed a higher demand for regional and traditional foods.

4.3 Customer Preferences:

- The average food price varied significantly across cities, reflecting differences in spending power and restaurant types.
- Popular cuisines differed based on gender and marital status, with women favoring healthier options and men preferring fast food.

4.4 Sales Performance:

- Restaurants in urban areas had higher sales volumes but also greater competition.
- The average order value was highest in Tier-1 cities, suggesting a greater propensity for premium dining experiences.

4.5 Business Metrics:

- The total sales amount and quantity sold were positively correlated with the number of active restaurants in a city.
- Restaurants offering discounts or promotions performed significantly better in terms of order quantity and repeat customers.

The findings highlight important trends that can guide Zomato in refining its business strategies:

- **Targeted Marketing:** By understanding preferences based on age, gender, and marital status, Zomato can design personalized marketing campaigns, such as promoting family meals to married customers or offering discounts on fast food for younger demographics.
- **City-Specific Strategies:** The varying sales performance and average order values across cities emphasize the need for city-specific strategies. For instance, introducing premium offerings in metropolitan cities and promoting regional dishes in smaller towns can align with customer preferences.
- **Menu Optimization:** Insights into cuisine popularity and pricing can help Zomato recommend menu adjustments for partner restaurants to better meet customer demands.
- **Improved Engagement:** By focusing on the best-performing restaurants and cuisines, Zomato can enhance customer engagement through curated lists, promotional events, and loyalty programs.
- **Future Outlook:** The forecasting models indicate a steady growth trend in total sales amount, particularly in urban areas. Leveraging this growth, Zomato can expand its presence in high-performing cities while exploring new opportunities in emerging markets.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

The Zomato data analysis using Power BI provided valuable insights into the demographic trends and customer preferences across various cities. The study revealed patterns in customer behavior, such as variations in cuisine preferences by gender, marital status, and age group, as well as significant differences in sales performance across geographic locations.

Key findings include:

- Younger customers and metropolitan cities drive a significant portion of sales.
- Traditional cuisines and family meals are more popular among married individuals.
- Urban areas exhibit higher average order values and diversity in preferences.

These insights enable Zomato to refine its marketing strategies, tailor its offerings to customer segments, and enhance customer satisfaction by addressing diverse needs. The use of Power BI's interactive visualizations made it possible to interpret complex datasets, identify trends, and make informed recommendations effectively.

5.2 Future Scope

Building on this analysis, future studies and projects can explore the following areas:

Integration of Advanced Analytics:

Implement machine learning models for predictive analytics, such as forecasting demand trends, identifying potential churn risks, and recommending personalized promotions for customers.

Expansion of Metrics:

Incorporate additional metrics like delivery time, customer reviews, and seasonal trends to gain deeper insights into factors influencing customer satisfaction and loyalty.

Real-Time Data Analysis:

Develop dashboards for real-time monitoring of sales, customer engagement, and operational performance to enable faster decision-making.

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5. Belghith, M., Bouajaja, S., & Elloumi, A. (2024). *Developing a Sales Dashboard with Power BI – A Case Study in a Pharmaceutical Company*. Decision Making Advances, 2(1), 142–147. DOI: 10.31181/dma21202438.

APPENDIX

Appendix 1: Data Description

This section provides details about the dataset used for the analysis:

- **Users Table:** Contains demographic information such as age, gender, marital status, and occupation.
- **Orders Table:** Includes transaction data such as order ID, user ID, sales amount, sales quantity, and order date.
- **Restaurant Table:** Provides information on restaurant IDs, names, ratings, and city locations.
- **Menu Table:** Details menu items, their prices, and associated cuisine types.
- **Food Table:** Includes food item IDs, food types, and popularity scores.