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Analyzing Food Delivery Service Growth and Customer Preferences Using Tableau

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ABSTRACT

The online food delivery sector has rapidly expanded over the last decade, becoming an essential service for urban consumers in India. With rising smartphone use, affordable internet, and convenience-driven lifestyles, food delivery applications such as Swiggy and Zomato have transformed the way customers interact with restaurants. This study investigates customer preferences, delivery performance, and business growth patterns using Tableau as a visualization and analytics tool. Unlike traditional survey-based studies, this research uses a structured dataset of 100 food delivery orders collected from 7 major Indian cities, covering diverse parameters such as customer demographics, cuisine preferences, order values, payment methods, delivery times, and satisfaction ratings.

The methodology employed includes data preprocessing, identification of key performance indicators (KPIs), and the development of interactive Tableau dashboards to highlight customer behavior and service efficiency. The results reveal that Indian and Chinese cuisines dominate food preferences across regions, while UPI and Cash on Delivery (COD) remain the most widely used payment methods. City-level analysis shows that metropolitan hubs such as Pune, Mumbai, and Delhi account for the largest share of orders. Demographic analysis highlights that customers aged 20–35 years represent the primary consumer base, reflecting the digital-first habits of millennials and Gen Z.

A key insight from this study is the direct relationship between delivery time and customer satisfaction. Orders delivered within 30 minutes received the highest ratings, while delays reduced loyalty. The Tableau dashboards created in this research not only visualize these patterns but also provide a decision-making framework for food delivery companies to optimize operations, personalize offers, and predict demand.

This research contributes to the growing literature on food delivery services by integrating visual analytics with business intelligence, offering a replicable framework for similar service-based industries. The study emphasizes the importance of leveraging analytics tools for real-time monitoring, customer engagement, and competitive advantage. Ultimately, the findings suggest that businesses that can adapt quickly to customer expectations—through faster deliveries, personalized cuisine recommendations, and flexible payment options—will be better positioned to sustain long-term growth in India's dynamic food delivery sector.

Keywords Food Delivery, Tableau, Data Visualization, Customer Preferences, Analytics, Business Intelligence

1. Introduction

The food delivery industry has become an essential part of modern urban lifestyles, reshaping how people access meals in the digital age. With rising smartphone penetration, affordable internet, and a growing preference for convenience, customers increasingly prefer ordering food online rather than dining in restaurants. Globally, the online food delivery market is projected to grow at a double-digit rate, driven by evolving consumer expectations and the adoption of app-based platforms.

In India, the transformation is particularly rapid. Platforms such as Swiggy and Zomato have revolutionized eating habits by offering quick access to restaurants, promotional offers, and flexible payment systems. The COVID-19 pandemic further accelerated this shift, as restrictions on dining out increased reliance on delivery services. India's online food delivery sector crossed USD 5 billion in 2022, making it one of the fastest-growing digital markets.

Despite rapid growth, the sector still struggles with delivery speed, accuracy, and customer satisfaction. Cuisine preferences vary widely across regions, payment adoption remains uneven, and delivery delays often reduce customer loyalty. Understanding these patterns is critical for businesses seeking to optimize operations and improve competitiveness.

This research paper aims to analyze **food delivery service growth and customer preferences using Tableau** as the primary data visualization tool. The dataset includes 100 food delivery records from 7 Indian cities, covering demographics, cuisine preferences, order values, payment methods, delivery times, and satisfaction ratings.

The objectives of this study are to:

1. Examine customer demographics and behavior in food delivery services.
2. Identify cuisine and payment preferences.
3. Analyze the impact of delivery time on satisfaction.
4. Demonstrate how Tableau dashboards provide actionable insights.

The study contributes to both **academic research and industry practice**. Academically, it adds to the literature on food delivery by applying visual analytics. Practically, it provides businesses with insights for optimizing logistics, improving customer experiences, and sustaining growth in a competitive marketplace.

2. Literature Review

The online food delivery sector has attracted considerable academic attention in recent years, with studies examining customer satisfaction, service quality, technology adoption, and growth drivers. Globally, researchers agree that delivery speed, reliability, and digital convenience are among the most important determinants of customer loyalty. In India, Ray et al. (2021) emphasized the role of delivery speed and food quality, while Sinha and Dey (2019) highlighted convenience, variety, and price as major factors influencing adoption. Kumar and Sharma (2020) identified digital payment systems and lifestyle changes as key contributors to sectoral growth. The COVID-19 pandemic introduced new challenges, with Choudhury and Sengupta (2021) showing that hygiene and safety became critical for consumer trust. Similarly, Sharma and Gupta (2020) discussed the digital transformation of food delivery platforms, noting how app-based models and personalized recommendations strengthened customer engagement.

Although valuable, most studies rely on surveys and traditional statistics. There is limited research that integrates business intelligence and visual analytics tools to study food delivery services. This study addresses that gap by applying Tableau dashboards to analyze a structured dataset of Indian food delivery orders. By using visual analytics, it demonstrates how customer preferences, payment adoption, and delivery performance can be better understood, contributing insights for both academia and industry.

3. Methodology

The methodology of this research is structured into two parts: the *existing methods* generally used in food delivery studies and the *proposed methodology* developed in this work.

3.1 Existing Methodology

Previous research on online food delivery services has primarily relied on **survey-based approaches, statistical modeling, and regression analysis** to study customer satisfaction and growth drivers. While such methods are effective for identifying correlations, they often suffer from limitations such as reliance on self-reported data, restricted sample sizes, and limited ability to visualize complex, multidimensional datasets. Most existing studies focus on identifying factors such as delivery speed, food quality, and price, but they lack the integration of **business intelligence tools** that can provide real-time, interactive, and visually rich analysis.

3.2 Proposed Methodology

To overcome these limitations, this study adopts a data-driven and visualization-centric approach using Tableau. The proposed methodology followed a four-step process:

1. **Data Collection** – A dataset of 100 food delivery orders was compiled, covering multiple attributes including customer demographics (age, gender, city), cuisine types, order values, payment methods, delivery times, and satisfaction ratings.
2. **Data Preprocessing** – The dataset was cleaned to remove inconsistencies, missing values were handled, and categorical variables (such as cuisines and payment methods) were standardized for analysis.
3. **KPI Identification** – Key performance indicators (KPIs) were defined to evaluate business and customer behavior. These included: total orders, average order value, most popular cuisines, most used payment methods, delivery time distribution, satisfaction ratings, and repeat customer percentage.
4. Visualization using Tableau – Interactive dashboards were developed using Tableau. Visualization techniques—including bar charts, pie charts, scatter plots, and KPI tiles—showed customer trends, payment patterns, cuisine preferences, and the relationship between delivery time and satisfaction.

By integrating business intelligence and visualization tools, the proposed methodology transforms raw transactional data into **actionable insights**, enabling both academic researchers and industry practitioners to make evidence-based decisions.

4. Dataset Description

The dataset used in this study contains 100 food delivery records collected from 7 major Indian cities. Each record includes details about customer demographics, order characteristics, and delivery outcomes. The attributes are described in Table 1 below.

Attribute	Description	Example
City	City where order placed	Mumbai
Age	Age of customer	28
Gender	Gender of customer	Female
Cuisine	Type of food ordered	Indian
Order Value	Order amount in ₹	450
Payment Method	Mode of payment	UPI
Delivery Time	Time taken in minutes	32
Satisfaction Rating	Customer rating (1–5)	4
Repeat Customer	If customer is repeat buyer	Yes

The dataset is well-balanced across different cities, cuisines, and payment methods, making it suitable for comparative analysis. It includes both numerical attributes (e.g., age, order value, delivery time) and categorical attributes (e.g., cuisine, payment method, repeat customer). This variety enables multi-dimensional analysis of preferences and performance.

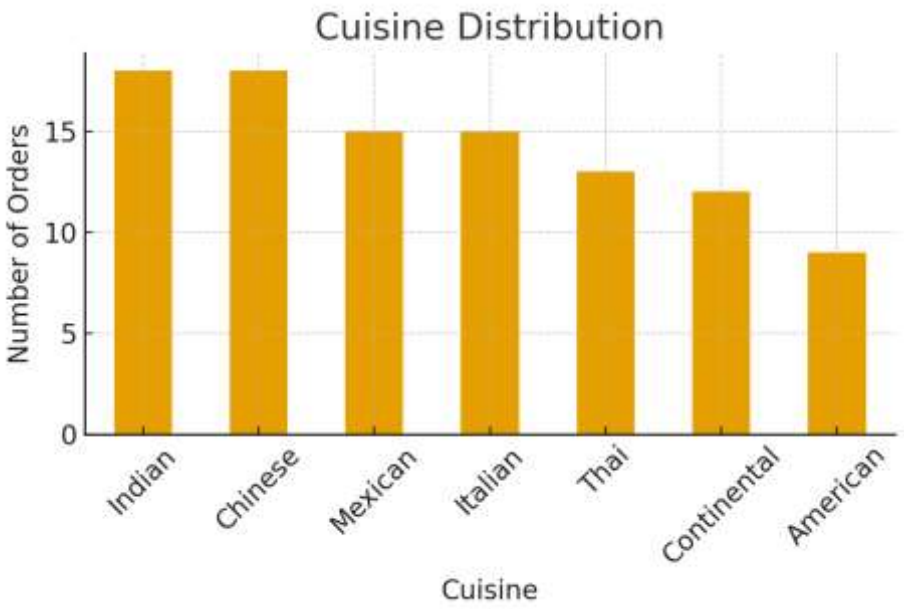
The dataset also enables the exploration of relationships, such as the impact of delivery time on satisfaction, the role of payment preferences in customer behavior, and cuisine choices across different cities. By structuring the data in this way, it becomes possible to generate insights that are both business-relevant and academically valuable.

5. Results and Discussion

The analysis of the dataset using Tableau dashboards revealed several meaningful insights into customer preferences, payment patterns, and delivery performance.

5.1 Cuisine Preferences

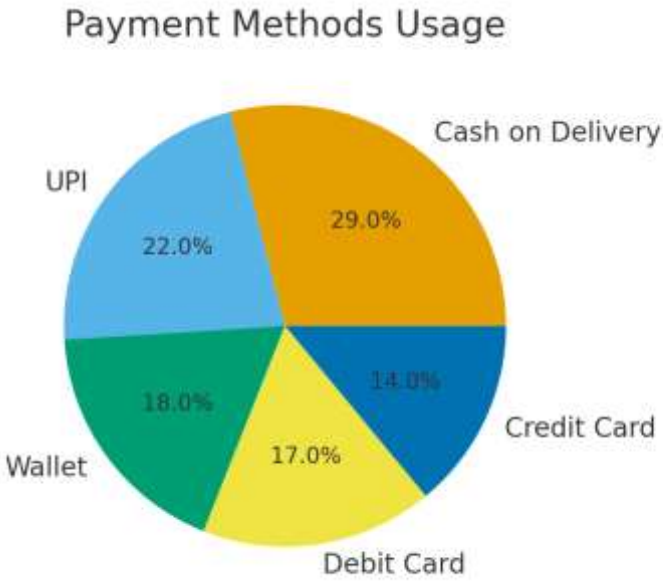
The results show that **Indian (18%) and Chinese (18%) cuisines** emerged as the most popular choices across cities, followed by **Mexican (15%)** and **Italian (15%)**. The preference for Indian cuisine highlights the dominance of local tastes, while the popularity of Chinese food indicates the growing demand for international options. This trend is consistent with prior studies emphasizing the role of variety and convenience in customer adoption.



5.2 Payment Methods

Analysis of payment modes revealed that **Cash on Delivery (29%)** continues to be the most widely used method, reflecting the reliance on traditional payment practices in India. However, **UPI (22%)** has emerged as the second-most preferred method, demonstrating the rapid adoption of digital transactions. Other methods such as Wallets (18%), Debit Cards (17%), and Credit Cards (14%) also had a noticeable share.

This finding suggests that while digital payments are growing, COD remains a safety net for customers skeptical about online transactions. Businesses can leverage this insight by offering flexible payment options to improve customer trust.



5.3 City-wise Orders

City-level analysis indicated that **Pune (19%)** accounted for the highest number of orders, followed by **Mumbai (16%)** and **Delhi (16%)**. These results show that tier-1 cities are still the dominant markets for food delivery, driven by high internet penetration, busy lifestyles, and young working populations. However, tier-2 cities such as Hyderabad and Chennai also showed significant order volumes, reflecting the growing expansion of delivery platforms.

5.4 Delivery Time vs Satisfaction

A clear relationship was observed between delivery time and satisfaction. Orders delivered within 30 minutes received the highest ratings (mostly 4–5), while delays beyond 45 minutes often resulted in reduced satisfaction scores (2–3). This finding highlights the importance of logistics optimization and real-time delivery tracking in maintaining customer loyalty.

5.1 Comparison Table

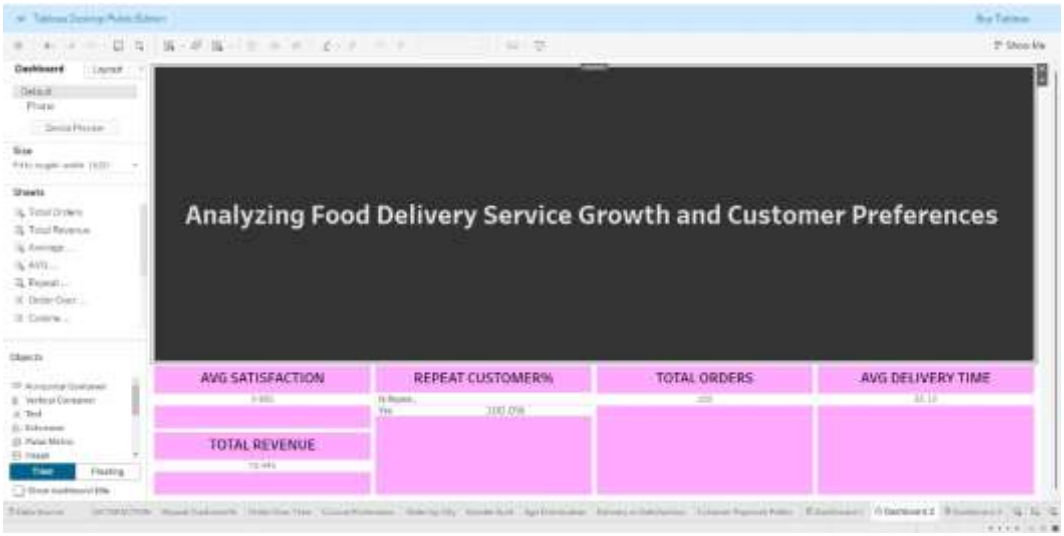
To summarize the results, **Table 2** presents a consolidated view of the top cuisines, payment preferences, and city-level trends.

Top Cuisines	**Orders**	**Payment Method**	**Usage (%)**	**Top Cities by Orders**
Indian	18	Cash on Delivery	29	Pune (19)
Chinese	18	UPI	22	Mumbai (16)
Mexican	15	Wallet	18	Delhi (16)

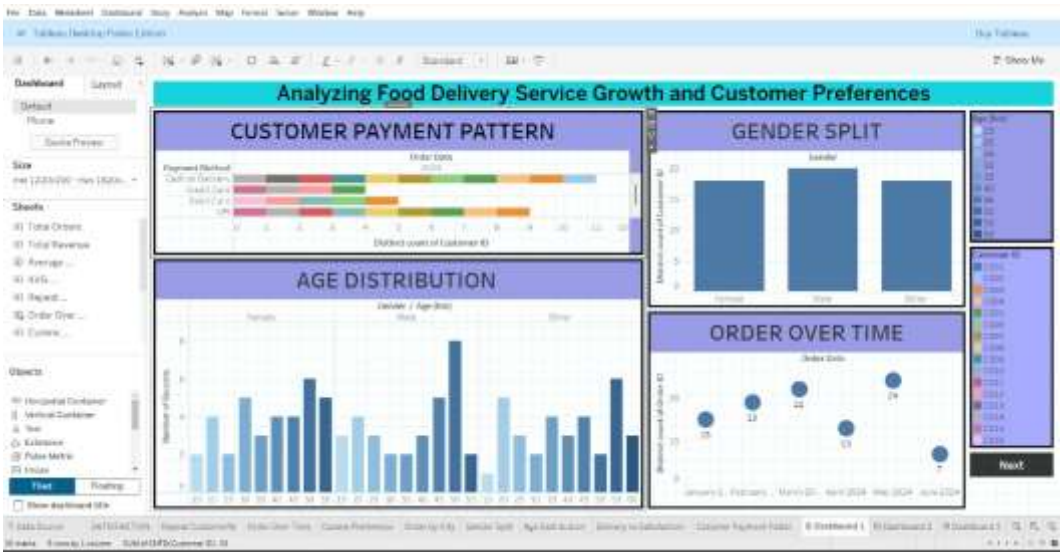
Italian	15	Debit Card	17	Chennai (15)
Thai	13	Credit Card	14	Hyderabad (14)

5.3 Tableau Dashboards

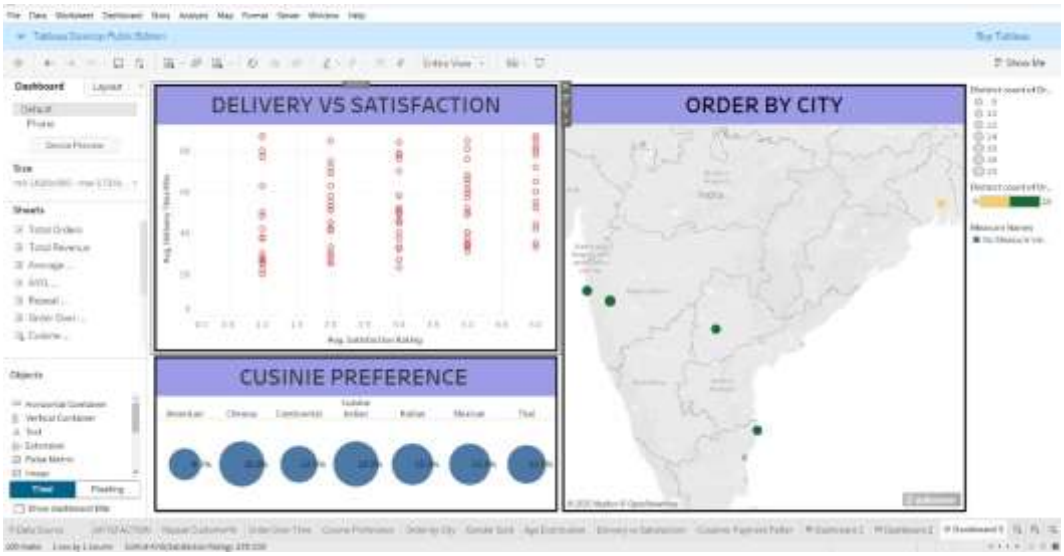
Dashboard 1: KPI Summary



Dashboard 2: Demographics and Payment Patterns



Dashboard 3: Delivery vs Satisfaction and Cuisine Preferences by City



6. Conclusion

This study analyzed the growth of food delivery services and customer preferences in India using Tableau as the primary visualization and analytics tool. The results revealed that customer behavior is strongly shaped by **cuisine variety, payment flexibility, and delivery performance**. Among cuisines, **Indian and Chinese** emerged as the most popular, reflecting both traditional tastes and the demand for affordable international options. Payment analysis highlighted the continued dominance of **Cash on Delivery (COD)**, though **UPI transactions** are rapidly gaining popularity, showing the digital shift in consumer behavior.

Delivery speed directly influenced satisfaction: faster deliveries earned higher ratings, while delays lowered loyalty. This finding highlights the importance of logistics optimization, route planning, and real-time tracking in the food delivery sector.

By employing Tableau dashboards, the study successfully transformed raw transactional data into **actionable insights**, providing a visual and evidence-based framework for food delivery platforms. The findings contribute to academic literature by integrating **business intelligence tools** with consumer studies, and to industry practice by offering concrete recommendations for improving customer experience and operational efficiency.

7. Future Scope

While this study provides useful insights, there are several directions in which future research can be extended:

- Real-time Data Integration – Using live delivery data could enable real-time monitoring of orders, peak times, and delays for faster decisions.
- **Predictive Analytics** – Machine learning models can be applied to predict demand during weekends, festivals, or adverse weather conditions, helping companies manage resources more effectively.
- **Sentiment Analysis** – Analyzing customer reviews and social media feedback would complement numerical ratings and provide deeper insights into satisfaction drivers such as food quality, delivery personnel behavior, and packaging.
- Geographical Expansion – Future studies should include rural and semi-urban areas to capture diverse needs.
- **Comparative Platform Analysis** – Comparing multiple delivery platforms (e.g., Swiggy, Zomato, Uber Eats) can help identify competitive strengths and weaknesses.
- **Sustainability Focus** – Exploring eco-friendly packaging, electric vehicle deliveries, and green logistics could align business strategies with environmental sustainability goals.

By addressing these directions, future research can strengthen the understanding of customer behavior, improve service quality, and help food delivery companies remain competitive in a rapidly evolving digital ecosystem.

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