



Advanced SQL Data Analytics

Zomato Data Analytics – SQL

Enhancing Delivery Efficiency & Customer
Experience with SQL

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Introduction

In today's fast-paced food delivery industry, data-driven decision-making is crucial for optimizing operations and enhancing customer experience. This project focuses on analyzing Zomato's food delivery data using SQL to extract meaningful insights related to customer behavior, restaurant performance, rider efficiency, and sales trends.

By leveraging structured query language (SQL), we perform deep analytical queries on key metrics such as customer segmentation, order frequency, rider efficiency, and revenue trends. The insights derived from this analysis help identify areas for improvement in delivery time, customer satisfaction, and business growth strategies.



Project Objective

The objective of this project is to analyze Zomato's food delivery data using SQL to uncover key insights that drive business decisions.

The project aims to:

- Understand Customer Behavior – Segment customers based on spending patterns and analyze order frequency.
- Evaluate Restaurant Performance – Identify top-performing restaurants and their peak order days.
- Assess Rider Efficiency – Measure delivery time, rider earnings, and rating distribution.
- Analyze Sales Trends – Track monthly revenue trends and rank cities based on total sales.
- Optimize Business Strategy – Identify seasonal demand spikes and improve operational efficiency.

The Zomato logo, featuring the word "zomato" in a bold, white, lowercase sans-serif font, centered within a solid red rectangular background.



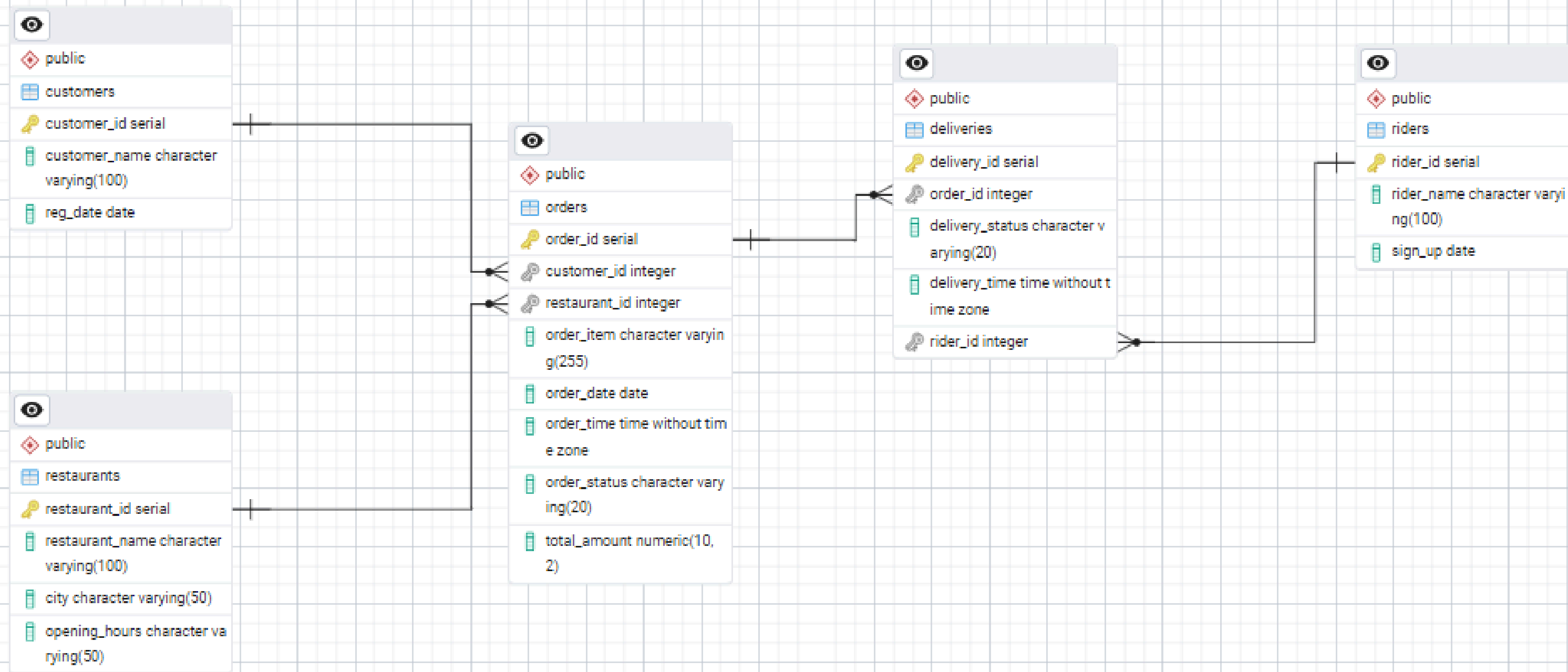
Data Set

Dataset Description

This project utilizes multiple datasets from Zomato's food delivery operations:

- Orders: Contains order details like order_id, customer_id, restaurant_id, order_date, and total_amount.
- Customers: Stores customer_id, customer_name, and city.
- Restaurants: Includes restaurant_id, restaurant_name, and city.
- Deliveries: Tracks order_id, rider_id, delivery_time, and delivery_status.
- Riders: Holds rider_id, rider_name, and city.

Entities & Relationships



Methodologies Used

- Data Collection & Understanding – Gathered datasets related to orders, customers, riders, and restaurants.
- Data Cleaning & Preparation – Handled missing values, removed duplicates, and ensured data consistency.
- Exploratory Data Analysis (EDA) – Performed trend analysis, customer segmentation, and revenue insights.
- SQL Query Optimization – Used indexing, joins, window functions, and subqueries for efficiency.
- Customer Segmentation – Classified customers as ‘Gold’ or ‘Silver’ based on spending behavior.
- Rider Performance Analysis – Evaluated delivery times and assigned ratings based on efficiency.
- Sales & Revenue Analysis – Identified monthly sales trends and ranked cities based on revenue.
- Customer Lifetime Value (CLV) Calculation – Measured long-term revenue contribution of customers.

SQL Questions

Basic Level

- Customer Lifetime Value (CLV) – Calculate the total revenue generated by each customer over all their orders.
- Rider Monthly Earnings – Calculate each rider's total monthly earnings, assuming they earn 8% of the order amount.
- Order Frequency by Day – Analyze order frequency per day of the week and identify the peak day for each restaurant.
- Total Revenue by City – Rank each city based on total revenue for the year 2023.

SQL Questions

- Intermediate Level
- **Rider Ratings Analysis** – Count the number of 5-star, 4-star, and 3-star ratings each rider received based on delivery time.
- **Monthly Sales Trends** – Compare each month's total sales to the previous month's to identify sales trends.
- **Order Item Popularity** – Track the popularity of specific order items over time and identify seasonal demand spikes.
- **Rider Efficiency** – Evaluate rider efficiency by determining average delivery times and identifying those with the lowest and highest averages.
- **Restaurant Revenue Contribution** – Determine each restaurant's contribution to total platform revenue.
- **Peak Order Hours** – Identify the busiest hours of the day for food orders.
- **Customer Segmentation** – Categorize customers based on their order frequency and spending behavior.

SQL Questions

- **Advanced Level**
- **Restaurant Performance Ranking** – Rank restaurants based on total sales and customer orders.
- **Repeat Customer Analysis** – Identify customers who placed multiple orders within a specific time period.
- **Rider Order Distribution** – Analyze the number of orders assigned to each rider and detect workload imbalances.
- **Order Abandonment Rate** – Determine the percentage of orders that were placed but never delivered.
- **Delivery Time Trends** – Evaluate how delivery times have changed over different time periods.
- **Peak Season Revenue Analysis** – Compare revenue across different seasons and identify high-revenue months.
- **Average Order Value (AOV) Calculation** – Measure the average revenue per order for performance evaluation.
- **Cancellation Rate Analysis** – Calculate the percentage of orders canceled per restaurant.
- **Top Customers by Spending** – Identify the highest-spending customers on the platform.

Top 5 Key Findings from the Zomato Food Delivery SQL Analysis

- **1 Peak Order Days & Time:** Orders are highest on weekends, especially during dinner hours, indicating optimal times for promotions and surge pricing.
- **2 Customer Spending Patterns:** A small group of high-value customers contributes significantly to total revenue, highlighting the potential for targeted loyalty programs.
- **3 Rider Efficiency Variations:** Some riders deliver significantly faster than others, and delays are more common during peak hours, suggesting a need for better resource allocation.
- **4 Seasonal Demand Spikes:** Certain food items (e.g., ice cream in summer, hot beverages in winter) show clear seasonal trends, helping in inventory planning.
- **5 City-Wise Revenue Distribution:** Some cities contribute a disproportionate amount of total revenue, indicating high-performing markets and potential expansion opportunities.

Recommendations Based on Key Findings

- 1 Optimize Peak Hour Operations:** Since weekends and dinner hours have the highest orders, Zomato can increase rider availability and implement surge pricing to maximize efficiency and revenue.
- 2 Enhance Customer Loyalty Programs:** With high-value customers contributing significantly to revenue, offering personalized discounts, exclusive offers, and membership programs can improve retention.
- 3 Improve Rider Efficiency:** Identifying the slowest riders and providing training or incentives for faster deliveries can reduce delays and enhance customer satisfaction.
- 4 Leverage Seasonal Demand Trends:** Restaurants can adjust their menus based on seasonal preferences (e.g., summer drinks, winter soups) to boost sales and optimize inventory management..
- 5 Expand in High-Revenue Cities:** Focusing marketing efforts and increasing partnerships in top-performing cities can drive further revenue growth and market dominance.

Conclusion

This project provided valuable insights into Zomato's food delivery operations using SQL-based data analysis. By analyzing order trends, rider efficiency, customer spending behavior, and seasonal demand, we identified key areas for improvement. Implementing data-driven strategies, such as optimizing delivery times, enhancing customer retention, and leveraging peak-hour demand, can significantly improve Zomato's performance. This project demonstrates the power of SQL in extracting meaningful business insights to drive growth and efficiency in the food delivery industry. 🚀