

# PIZZA RUNNER

SALES AND DELIVERY OPTIMIZATION

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# Overview

PIZZA RUNNER

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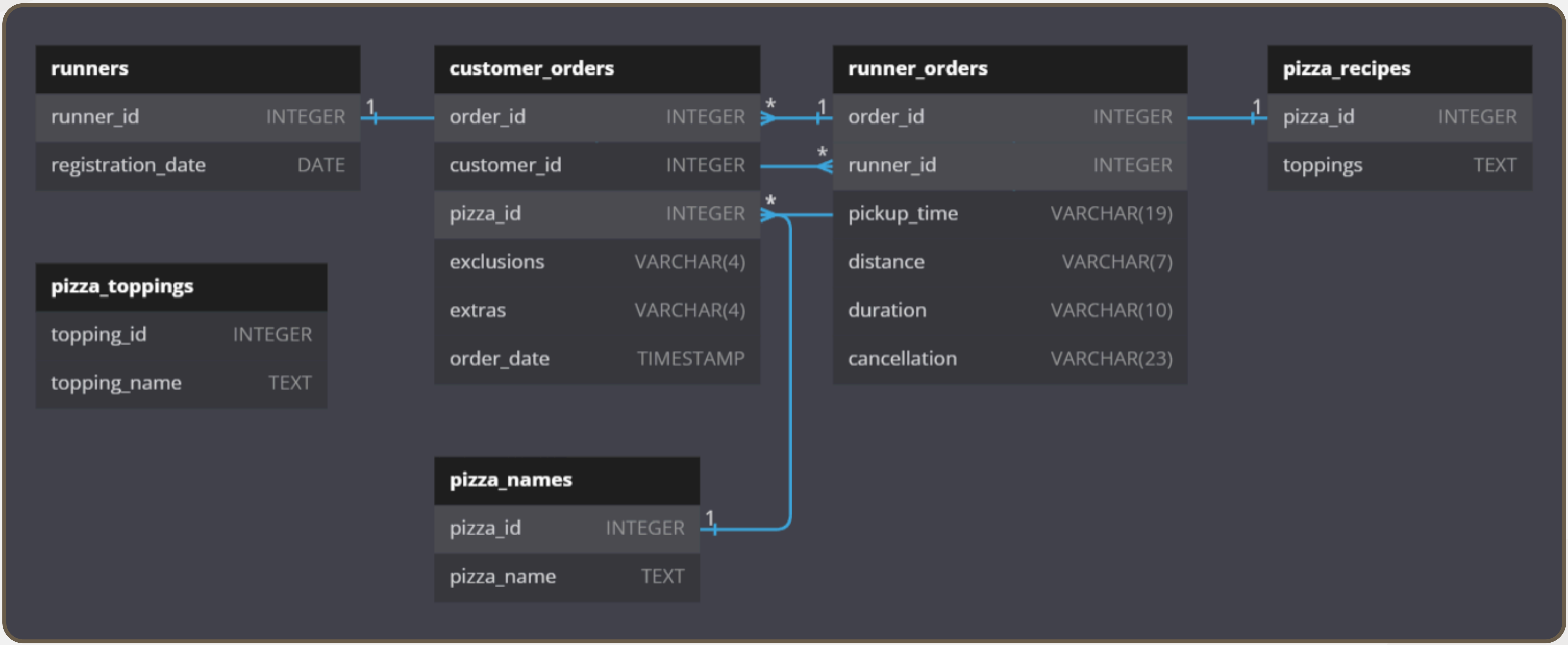
# OBJECTIVES

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***The objectives of this project are to utilize data-driven insights to streamline pizza sales, enhance delivery operations, and optimize ingredient usage.***

- Analyze pizza order patterns to understand customer behavior, including types of pizzas ordered, customer preferences, and peak ordering times.
- Evaluate runner performance in terms of delivery efficiency, speed, and customer satisfaction, to ensure high service quality and improve operational workflows.
- Optimize ingredient management by tracking exclusions, extras, and overall usage, enabling better inventory control and reducing waste.

# DATA OVERVIEW



# METHODOLOGY

- DDL COMMANDS
- DML COMMANDS
- DQL COMMANDS
- SQL JOINS
- SQL CASE
- NULL & NOT NULL
- AGGREGATE FUNCTIONS

- DATE & TIME FUNCTIONS
- CTE (COMMON TABLE EXPRESSION)
- RECURSIVE CTE
- JSON TABLE
- REGULAR EXPRESSION
- DATABASE NORMALIZATION
- DATA STANDARDIZATION

# DETAILED ANALYSIS

*THE ANALYSIS IS ORGANIZED INTO THREE KEY SECTIONS*

- **SECTION A :** FOCUSES ON PIZZA METRICS
- **SECTION B :** EXAMINES RUNNER AND CUSTOMER EXPERIENCE
- **SECTION C :** EXPLORES INGREDIENT OPTIMIZATION

# PIZZA METRICS

## *01 HOW MANY PIZZAS WERE ORDERED?*

### **Sales Performance:**

This metric directly indicates the sales volume and helps assess the overall performance of the pizza business. Analyzing order trends can reveal peak sales periods and inform inventory and staffing decisions. This data serves as a key performance indicator (KPI) for the business, enabling comparisons against targets, historical data, and competitor performance.

# PIZZA METRICS

## *02 HOW MANY UNIQUE CUSTOMER ORDERS WERE MADE?*

### **Sales Growth Opportunities & Customer Relationship:**

Understanding sales growth through unique orders provides insights into outreach and marketing effectiveness. A higher number indicates successful efforts, while a decline suggests a need for reassessing customer acquisition strategies and promotions. Concurrently, effective CRM metrics lay the groundwork for improved customer interaction tracking and personalized service enhancements.



# PIZZA METRICS

## *03 HOW MANY SUCCESSFUL ORDERS WERE DELIVERED BY EACH RUNNER?*

### **Runner Performance and Operational Efficiency:**

Evaluating delivery success rates helps assess individual runner performance, identifying top performers and areas for improvement. Analyzing these metrics also highlights inefficiencies in the delivery process, enabling better routing, time management, and resource allocation.

# PIZZA METRICS

## *04 HOW MANY OF EACH TYPE OF PIZZA WAS DELIVERED?*

### **Menu Optimization and Seasonal Trends:**

Tracking pizza delivery quantities enables data-driven menu adjustments, promoting popular items and reconsidering low-demand options. Analyzing pizza preferences over time also reveals seasonal trends, helping the business manage staffing and inventory for demand fluctuations.

# PIZZA METRICS

## *05 HOW MANY VEGETARIAN AND MEATLOVERS WERE ORDERED BY EACH CUSTOMER?*

### **Market Segmentation and Sustainability:**

Categorizing customers by pizza preferences helps identify market segments for targeted promotions and personalized offerings. Additionally, trends toward vegetarian options can drive sustainability initiatives, guiding sourcing decisions and supporting the company's environmental goals.

# PIZZA METRICS

## *06 WHAT WAS THE MAXIMUM NUMBER OF PIZZAS DELIVERED IN A SINGLE ORDER?*

### **Promotional Opportunities and Customer Experience:**

Identifying customer segments that place large orders enables targeted promotions to boost bulk purchases and drive sales. Additionally, monitoring maximum order sizes helps optimize delivery processes for large orders, enhancing customer satisfaction and retention.

# PIZZA METRICS

***07 FOR EACH CUSTOMER, HOW MANY DELIVERED PIZZAS HAD AT LEAST 1 CHANGE  
AND HOW MANY HAD NO CHANGES?***

**Customer Customization Trends:** The output indicates the level of customization among customers. For instance, customers who have pizzas with changes (extras or exclusions) may prefer personalized options, suggesting a demand for flexibility in the menu. This insight can guide marketing strategies to promote customizable offerings.

# PIZZA METRICS

## ***08 HOW MANY PIZZAS WERE DELIVERED THAT HAD BOTH EXCLUSIONS AND EXTRAS?***

### **Menu Evaluation and Customer Trends:**

Analyzing pizzas with frequent exclusions and extras can inform menu adjustments, such as creating specialized pizzas or modifying existing options to align with customer preferences. Tracking these metrics over time also reveals trends, enabling the business to adapt with seasonal promotions or limited-time offerings based on changing tastes.

# PIZZA METRICS

## ***09 WHAT WAS THE TOTAL VOLUME OF PIZZAS ORDERED FOR EACH HOUR OF THE DAY?***

### **Peak Demand and Customer Behavior Insights:**

Analyzing hourly pizza order volumes helps identify peak demand times, enabling better resource allocation for staffing and inventory. Understanding these patterns also reveals customer behavior, indicating preferences for lunch, dinner, or late-night orders, which can guide targeted strategies.

# PIZZA METRICS

## ***10 WHAT WAS THE VOLUME OF ORDERS FOR EACH DAY OF THE WEEK?***

### **Customer Engagement and Inventory Management:**

Analyzing daily order volumes can inform engagement strategies, such as targeted promotions to boost sales on slower days. Additionally, understanding weekly trends aids in accurate sales forecasting and inventory management, reducing waste and ensuring popular items are well-stocked.



# RUNNER AND CUSTOMER EXPERIENCE

## *01 HOW MANY RUNNERS SIGNED UP FOR EACH 1 WEEK PERIOD?*

### **Workforce Management and Operational Scalability:**

Tracking runner sign-up rates over time helps manage the delivery workforce effectively.

A surge in customer orders with insufficient sign-ups can lead to delays and poor customer experiences. Monitoring this data ensures adequate runner availability during peak periods and supports operational scalability. As the business grows, maintaining a sufficient workforce is crucial to meet demand, and weekly tracking provides early indicators of potential labor shortages for timely adjustments.

# RUNNER AND CUSTOMER EXPERIENCE

## *02 WHAT WAS THE AVERAGE TIME IN MINUTES IT TOOK FOR EACH RUNNER TO ARRIVE AT THE PIZZA RUNNER HQ TO PICKUP THE ORDER?*

### **Efficiency Assessment and Operational Bottlenecks:**

Evaluating average pickup times allows Danny to assess runner efficiency, with shorter times reflecting effective logistics and improved service quality. Longer pickup times may indicate delays that negatively impact customer satisfaction. High average arrival times can uncover logistical issues or bottlenecks at the pickup location. By understanding these factors, Danny can streamline operations, whether through refining pickup procedures or enhancing the setup at Pizza Runner HQ.

# RUNNER AND CUSTOMER EXPERIENCE

## *03 IS THERE ANY RELATIONSHIP BETWEEN THE NUMBER OF PIZZAS AND HOW LONG THE ORDER TAKES TO PREPARE?*

### **Operational Efficiency and Quality Control:**

Analyzing the correlation between the number of pizzas and preparation time helps identify kitchen inefficiencies. A disproportionate increase in preparation time with larger orders may indicate the need for process improvements or additional resources during peak periods. Furthermore, if preparation times rise with larger orders, it can affect pizza quality. Understanding this relationship enables the implementation of quality checks, ensuring all orders meet customer expectations, regardless of size.

# RUNNER AND CUSTOMER EXPERIENCE

## *04 WHAT WAS THE AVERAGE DISTANCE TRAVELED FOR EACH CUSTOMER?*

### **Delivery Time Prediction and Routing Optimization:**

The average distance traveled is crucial for predicting delivery times. By analyzing this metric, Danny can provide accurate delivery estimates, boosting customer satisfaction and trust. Additionally, evaluating average distances enables the optimization of delivery routes, reducing travel time and enhancing efficiency. This can result in quicker deliveries, happier customers, and potentially increased order volume.

# RUNNER AND CUSTOMER EXPERIENCE

## ***05 WHAT WAS THE DIFFERENCE BETWEEN THE LONGEST AND SHORTEST DELIVERY TIME?***

### **Delivery Time Variability and Operational Consistency:**

The difference between the longest and shortest delivery times can reveal variability in delivery efficiency, which directly impacts customer satisfaction. If the gap is large, it might indicate inconsistencies due to factors like peak-hour traffic, runner availability, or operational inefficiencies. By identifying and addressing these causes, Pizza Runner could work towards more consistent delivery times, improve customer experience, and reduce costs associated with prolonged deliveries, ultimately boosting customer retention and operational reliability.

# RUNNER AND CUSTOMER EXPERIENCE

***06 WHAT WAS THE AVERAGE SPEED FOR EACH RUNNER FOR EACH DELIVERY AND DO YOU NOTICE ANY TREND FOR THESE VALUES?***

## **Runner Speed Analysis and Performance Trends:**

Calculating each runner's average speed per delivery reveals performance consistency. High or low speeds may indicate patterns related to experience or route familiarity. Trends like increasing average speeds suggest improved efficiency, while significant variations might point to training or scheduling needs for optimized delivery across all runners.

# RUNNER AND CUSTOMER EXPERIENCE

## *07 WHAT IS THE SUCCESSFUL DELIVERY PERCENTAGE FOR EACH RUNNER?*

### **Runner Delivery Success Rate:**

Calculating the successful delivery percentage for each runner helps evaluate their performance and reliability. A high percentage indicates consistent and efficient deliveries, while a low percentage may highlight issues like delays, errors, or route inefficiencies. Identifying trends can guide improvements in training, route management, or workload distribution to boost overall delivery success and ensure better customer satisfaction.



# RUNNER AND CUSTOMER EXPERIENCE

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# INGREDIENT OPTIMIZATIONS

## *01 WHAT ARE THE STANDARD INGREDIENTS FOR EACH PIZZA?*

### **Pizza Ingredient Standardization:**

Identifying the standard ingredients for each pizza helps maintain consistency in preparation and ensures that customers receive the same quality and taste every time. This insight can also streamline inventory management, reduce waste, and improve operational efficiency by keeping track of ingredient usage. Additionally, standardizing ingredients enables more accurate costing and pricing strategies, supporting profitability while meeting customer expectations.

# INGREDIENT OPTIMIZATIONS

## *02 WHAT WAS THE MOST COMMONLY ADDED EXTRA?*

### **Popular Extra Ingredient Insights:**

Identifying the most commonly added extra helps understand customer preferences and can guide menu optimization and marketing strategies. By highlighting the most popular additions, Pizza Runner can adjust inventory, offer targeted promotions, or introduce bundles featuring these extras to increase sales. Additionally, knowing these preferences can help improve customer satisfaction by tailoring offerings to meet demand more effectively.

# INGREDIENT OPTIMIZATIONS

## *03 WHAT WAS THE MOST COMMON EXCLUSION?*

### **Customer Preference Insights on Exclusions:**

Identifying the most commonly excluded ingredient reveals customer preferences for customization, allowing Pizza Runner to better cater to individual tastes. Understanding these exclusions can inform menu design, optimize ingredient usage, and help in promoting customized pizza options. Additionally, this insight can aid in inventory management by reducing unnecessary stock of ingredients that customers typically avoid, ultimately improving efficiency and customer satisfaction.

# INGREDIENT OPTIMIZATIONS

**04 GENERATE AN ORDER ITEM FOR EACH RECORD IN THE CUSTOMERS\_ORDERS TABLE**

**IN THE FORMAT OF ONE OF THE FOLLOWING**

**MEAT LOVERS - EXCLUDE CHEESE, BACON - EXTRA MUSHROOM, PEPPERS**

## **Order Customization and Menu Optimization:**

Generating an order item for each record in the CUSTOMERS\_ORDERS table in the specified format provides insights into customer preferences for pizza customization. By analyzing these order customizations, Pizza Runner can better understand common exclusions and additions, which can help in refining menu options and promotional strategies. This data can also improve inventory planning, as it highlights which ingredients are frequently requested or avoided, enabling more efficient stock management and personalized customer offerings.

# INGREDIENT OPTIMIZATIONS

## *05 WHAT IS THE TOTAL QUANTITY OF EACH INGREDIENT USED IN ALL DELIVERED PIZZAS SORTED BY MOST FREQUENT FIRST?*

### **Ingredient Usage and Inventory Optimization:**

Calculating the total quantity of each ingredient used in all delivered pizzas helps identify the most popular ingredients, guiding inventory management and purchasing decisions. By sorting these quantities from most frequent to least, Pizza Runner can prioritize stock levels for high-demand ingredients, reducing waste and ensuring availability during peak times. This insight also aids in menu planning, pricing strategies, and promotional activities by highlighting ingredients that can be leveraged for customer engagement or upselling opportunities.

# CHALLENGES

The challenges in the Pizza Runner project were mainly related to data accuracy, system integration, and operational inconsistencies:

**01 Data Quality Issues:** Cleaning and standardizing data from various sources, including orders, deliveries, and ingredients, required significant effort to handle duplicates, null values, and ensure consistency.

**02 Operational Variability:** Variations in delivery times, runner performance, and customer preferences made it difficult to identify consistent trends and optimize operations, requiring deeper analysis to find root causes.

**03 Customer Customizations:** Analyzing complex pizza customizations, including exclusions and extras, required processing diverse customer inputs, adding complexity to the analysis.

# CONCLUSION

*The Pizza Runner (Sales & Delivery Optimization) project provides valuable insights into operational efficiency, customer preferences, and inventory management, all of which are crucial for optimizing a pizza delivery service. By analyzing key metrics such as delivery times, runner performance, ingredient usage, and customer customization trends, we can make data-driven decisions to improve delivery speed, enhance customer satisfaction, and streamline operations. The findings suggest areas for improvement in training, route optimization, and stock management, which will help increase profitability and customer loyalty. Ultimately, this project highlights the importance of data analysis in making informed business decisions and optimizing every aspect of a pizza delivery service.*