Analysis of Product Pricing, Discounts, and Inventory Using SQL

A Case Study on Zepto Grocery Data

SQL ANALYSIS

QUICK COMMERCE

The Quick-Commerce Challenge

Instant delivery platforms like Zepto manage thousands of products in real time. Key challenges include:

- High-priced products with low availability
- Inconsistent discount strategies
- Overstocking or understocking issues
- Difficulty identifying best-value products

These challenges directly impact revenue and customer satisfaction.

Project Objectives

Explore & Clean Data

Transform raw Zepto product dataset into analysis-ready format

Analyze Categories

Examine product categories and stock availability patterns

Identify Value Products

Find top discounted and best-value items for customers

Calculate Revenue

Estimate revenue potential by product category

Evaluate Inventory

Assess distribution based on product weight

Provide Recommendations

Deliver data-driven business insights using SQL

Dataset Overview

Key Attributes

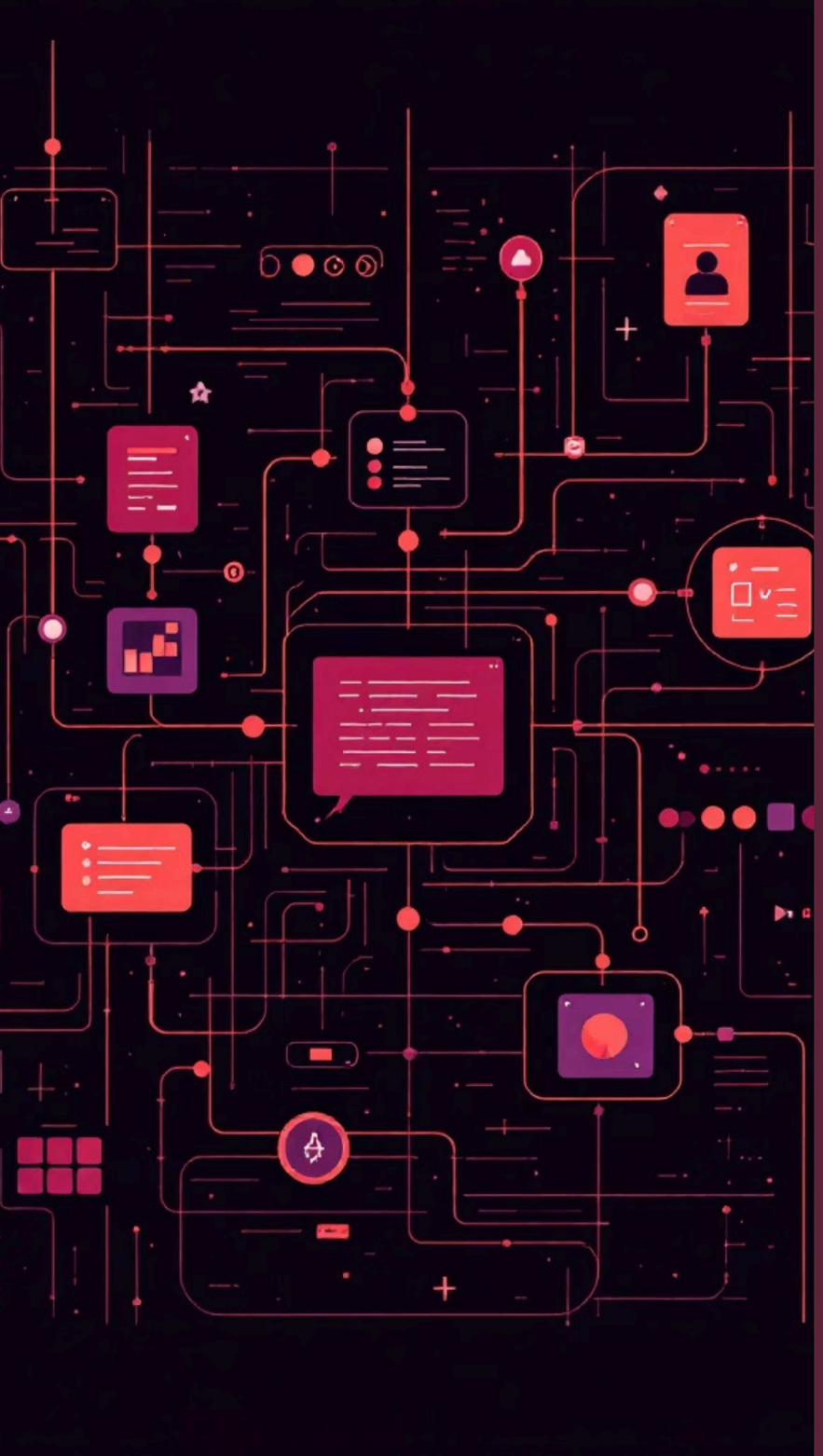
The dataset contains detailed grocery product information:

- **sku_id**: Unique product identifier
- **category**: Product classification
- **mrp**: Maximum Retail Price
- **discountPercent**: Applied discount
- **availableQuantity**: Inventory count
- **discountedSellingPrice**: Final price
- **weightInGms**: Product weight
- **outOfStock**: Stock status

Focus Area

Dataset primarily covers **Fruits & Vegetables** category, providing deep insights into fresh produce pricing and inventory behavior.

Tools: PostgreSQL, SQL, VS Code



Data Cleaning & Transformation

01

Data Loading

Imported CSV into SQL database with structured table schema

02

Initial Exploration

Counted records, viewed samples, identified categories, checked stock distribution

03

Cleaning Operations

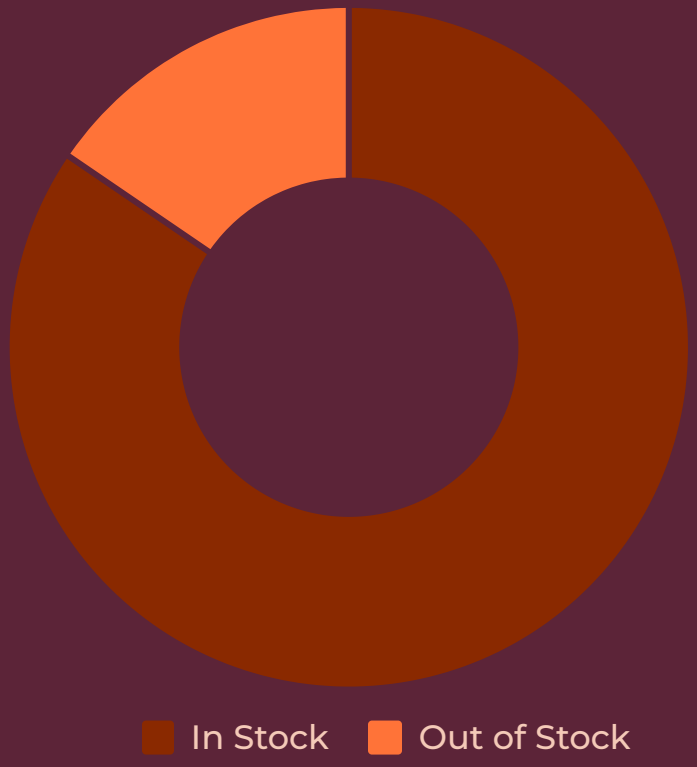
Removed zero-price rows, converted paise to rupees, handled duplicates and nulls

04

Validation

Verified data integrity and conversion accuracy across all fields

Key Findings: Stock & Discounts



Stock Availability Analysis

847 products available versus 153 out of stock. This 85% availability rate is strong, but out-of-stock high-MRP items represent significant missed revenue opportunities.

Top Discounted Products

Analysis identified products with discounts up to 50%, ideal for promotional campaigns and attracting price-sensitive customers.

Revenue & Pricing Insights

Revenue Estimation

Calculated using discountedSelling Price × availableQuantity to identify top revenue-generating categories

Price per Gram

Enabled fair comparison across package sizes, revealing hidden value differences among similar products

High-MRP Opportunities

Products priced above ₹500 with discounts below 10% identified for dynamic pricing strategies

Inventory Distribution by Weight

Weight Classification

Products segmented into three categories to optimize logistics and warehouse planning:

Low Weight

Under 500g

Medium Weight

500g - 2kg

Bulk Weight

Over 2kg

Bulk-weight products dominate total inventory weight, requiring optimized transportation and storage solutions.

Business Recommendations

Improve Restocking

Prioritize high-priced out-of-stock products to capture missed revenue

Optimize Promotions

Use discount data to create targeted campaigns for best-value products

Monitor Pricing

Track price-per-gram metrics to maintain competitive positioning

Optimize Logistics

Allocate warehouse space based on weight distribution analysis

Conclusion & Future Scope

Key Takeaway

This project demonstrates SQL's power in transforming raw grocery data into actionable business insights. By analyzing pricing, discounts, and inventory levels, we identified critical areas where data-driven decisions enhance profitability and operational efficiency.

Future Opportunities

- Integration with Power BI or Tableau dashboards
- Time-based sales trend analysis
- Predictive inventory forecasting
- Customer purchase behavior analysis
- Automated SQL reporting pipelines