

# Concise Report: Brazilian E-Commerce Data Analysis

## Overview:

Brazil is one of the fastest-growing e-commerce markets in the world. With a rapidly expanding internet user base, a young digital-savvy population, and increasing smartphone penetration, online shopping has become an essential part of consumer behavior in the country.

This analysis explores key trends, sales performance, customer behavior, and product category insights within the Brazilian e-commerce market. By leveraging data-driven techniques, we aim to uncover patterns that can help businesses optimize their strategies and improve customer experiences.



## 1. Data Cleaning and Preprocessing

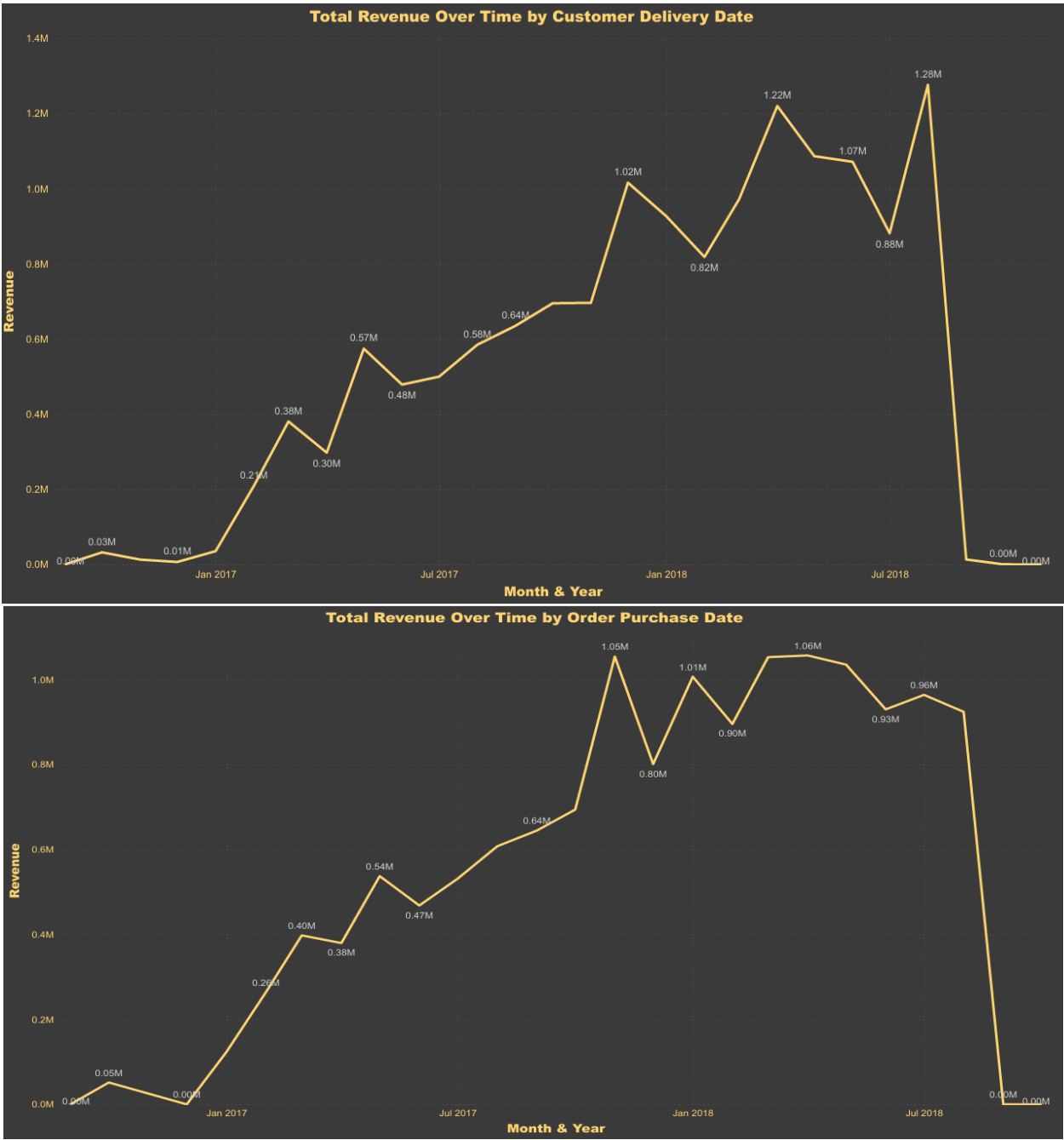
- Removed duplicates and handled missing values in key columns (order\_approved\_at, order\_delivered\_customer\_date,...).
- Converted date columns to datetime format and calculated delays in delivery.
- Merged datasets (orders, items, payments, etc.) for comprehensive analysis.
- Filled missing values for order\_item\_id, product\_id, and seller\_id appropriately.

## 2. Key Analytical Findings and Trends

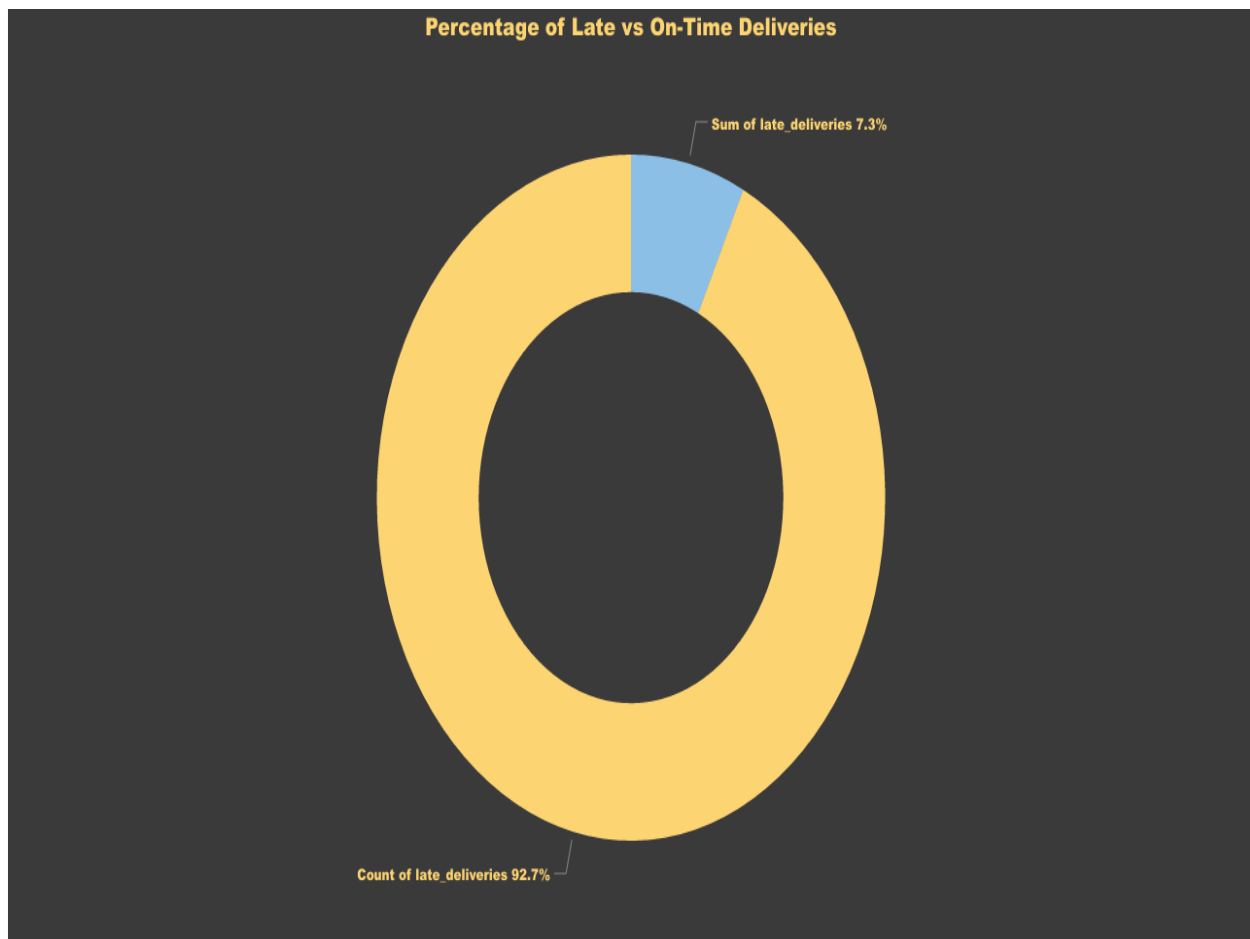
- **Total Revenue Analysis:** The majority of revenue comes from successfully delivered orders.
- **Delivery Performance:** Around **7-8%** of orders experienced late delivery.
- **Order Status Breakdown:** delivered orders form the majority, while a small percentage (canceled, unavailable) affects overall revenue.
- **Payment Trends:** credit\_card is the most used payment method, followed by boleto.

### 3. Visualizations and Interpretations

- **Revenue Trend Over Time:** Line chart showing monthly revenue fluctuations.



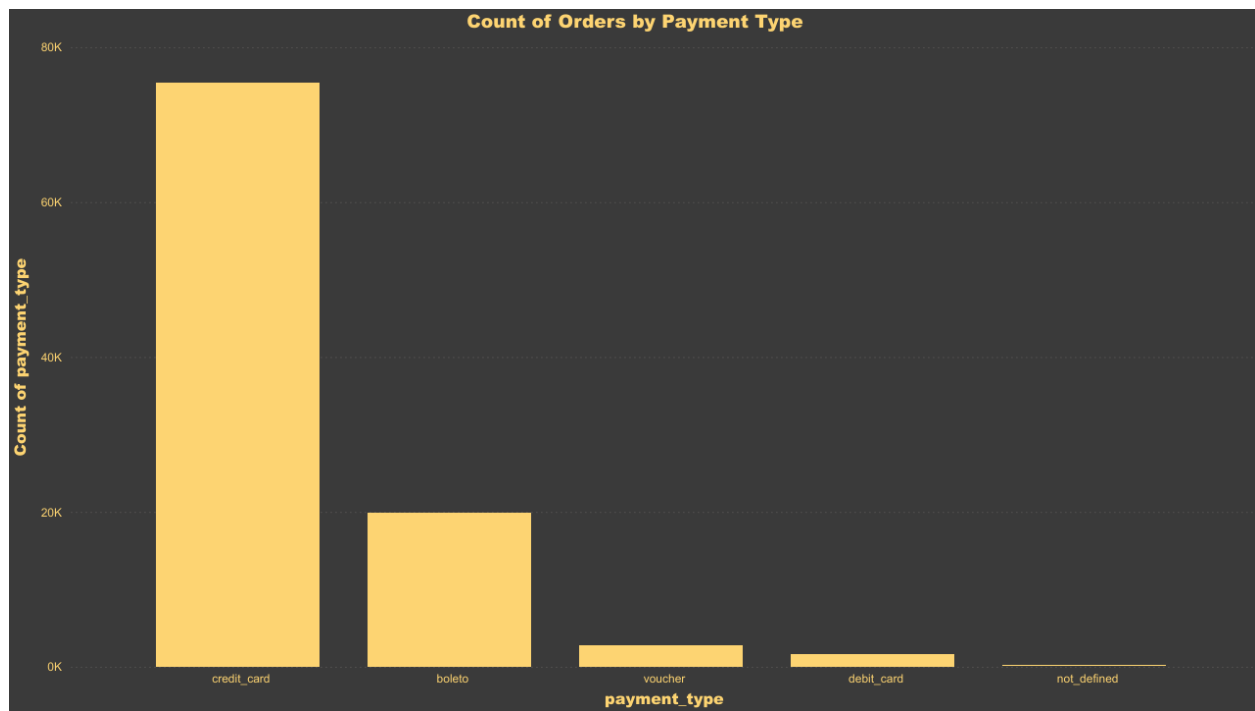
- **Late Deliveries Analysis:** A bar chart displaying the percentage of late deliveries per month.



- **Order Status Distribution:** Pie chart showing the proportion of delivered, canceled, and pending orders.



- **Payment Method Breakdown:** A bar chart highlighting the most used payment options.



## 4. Business & Strategic Insights

- **Optimizing Delivery Operations:** Late deliveries negatively impact customer satisfaction; improving logistics can reduce delays.
- **Reducing Cancellations:** Understanding reasons behind canceled and unavailable orders can help improve order fulfillment.
- **Enhancing Payment Strategies:** Offering promotions on popular payment methods like credit\_card can drive more sales.
- **Revenue Forecasting:** Trend analysis suggests peak seasons that businesses can leverage for targeted marketing.