Sales Trend and Time-Based Performance Analysis for Afficionado Coffee Roasters

1. Introduction

Understanding sales trends is critical for retail businesses to optimize staffing, inventory management, and operational efficiency. This project analyzes transactional sales data from Afficionado Coffee Roasters to identify temporal demand patterns across days, hours, and store locations. The goal is to provide data-driven insights that support informed decision-making.

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2. Dataset Description

The dataset contains transactional-level sales records with the following attributes:

- Transaction ID

- Transaction Time

- Product Name

- Store Location

- Transaction Quantity

- Unit Price

The dataset captures daily sales activity across multiple store locations.

3. Data Cleaning and Preprocessing

The following steps were performed:

- Removed null values

- Removed duplicate transactions

- Filtered out invalid quantities and prices

- Converted transaction time to datetime format

- Created new features:

  - Revenue (Quantity × Unit Price)

  - Hour of transaction

  - Day of week

  - Time bucket (Morning, Afternoon, Evening, Late Night)

These transformations enabled time-based analysis.

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4. Exploratory Data Analysis (EDA)

Daily Revenue Trend

The daily revenue trend reveals overall business growth patterns and fluctuations.
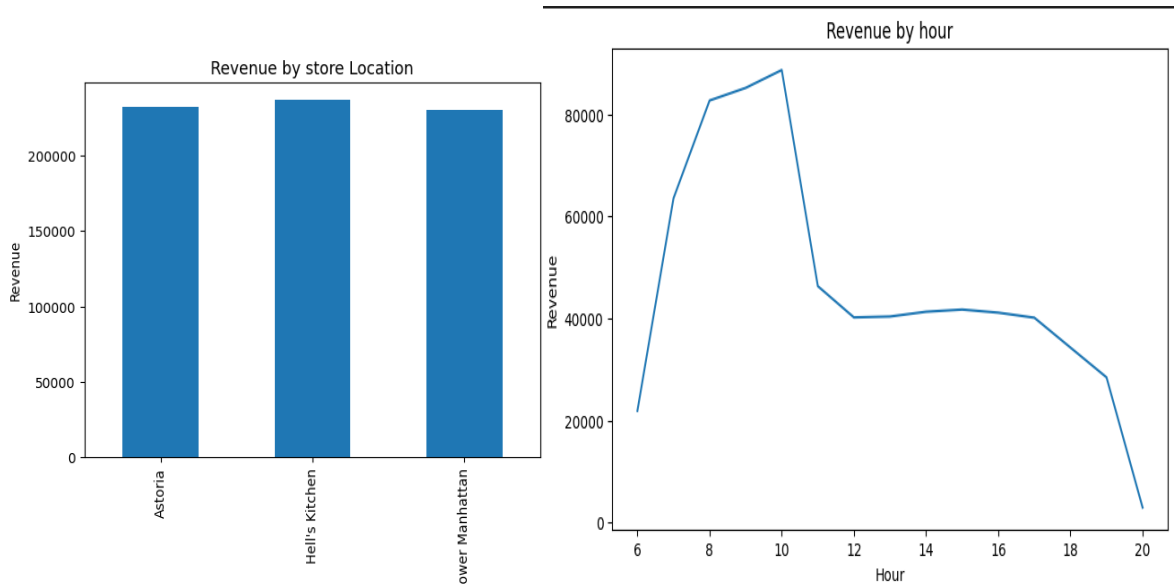
Revenue by Day of Week

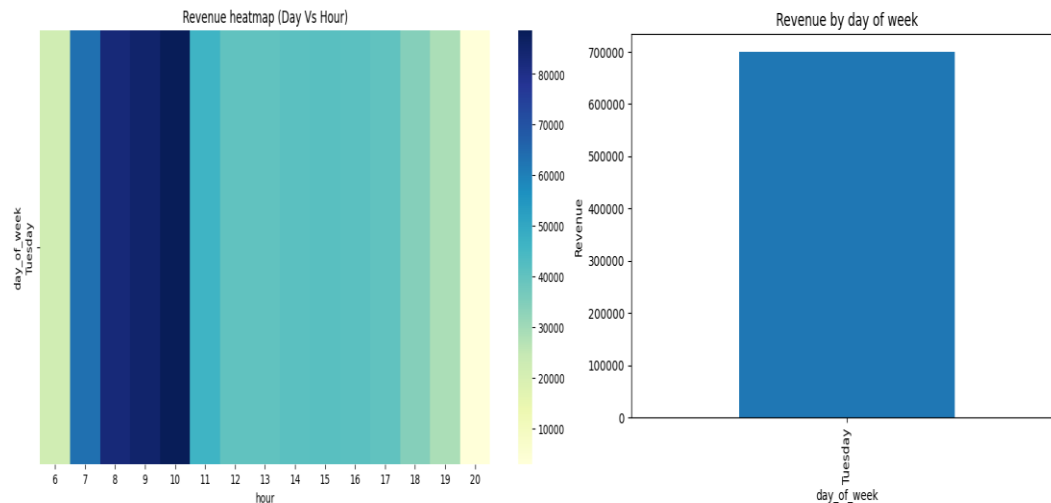Analysis shows variation in performance across weekdays and weekends.

Hourly Sales Pattern

Sales peak during morning hours, indicating strong early-day demand.

Store-Level Comparison

Revenue contribution varies across locations, highlighting performance differences.

Revenue heatmap (Day Vs Hour) — Revenue by day of week

5. Key Insights

- Morning hours (7 AM – 10 AM) generate the highest revenue.

- Friday records the strongest weekly performance.

- Mid-week (Tuesday/Wednesday) shows relatively lower activity.

- One store location contributes significantly higher revenue.

- Sales activity decreases sharply after evening hours.

6. Business Recommendations

- Increase staffing during peak morning hours.

- Introduce mid-week promotional campaigns.

- Adjust inventory based on time-of-day demand.

- Monitor underperforming locations for operational improvements.

7. Conclusion

- This analysis provides a structured understanding of temporal sales behavior at Afficionado Coffee Roasters. By leveraging time-based insights, management can optimize staffing, inventory, and marketing strategies to enhance operational efficiency and overall revenue performance.