Fare Amount Analysis: Taxi Company Data

Cellula: Group 1

Outline

Introduction

- This analysis focuses on the most important factor for the taxi company: fare amount.
- We explore how different conditions, time factors, and ride features influence fare.
- The goal is to identify key trends and patterns that can help improve fare optimization strategies.

Overall Fare Distribution

- Before diving into specific factors, it is essential to understand the overall distribution of fare amounts.
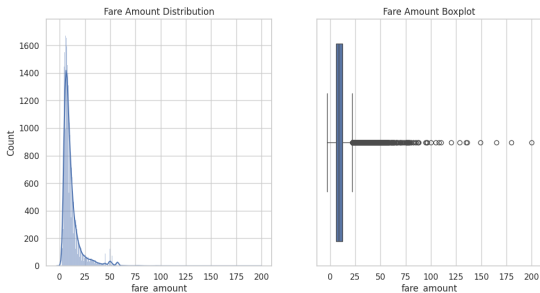- This gives us a baseline for identifying outliers, normal fare ranges, and peaks.

Figure: Overall Distribution of Fare Amounts.

Fare Amount by Hour of the Day

- Fare amounts fluctuate throughout the day, with specific hours having higher or lower demand.
- We observe peak hours where fare amounts rise significantly, likely due to commuting or high-demand times.
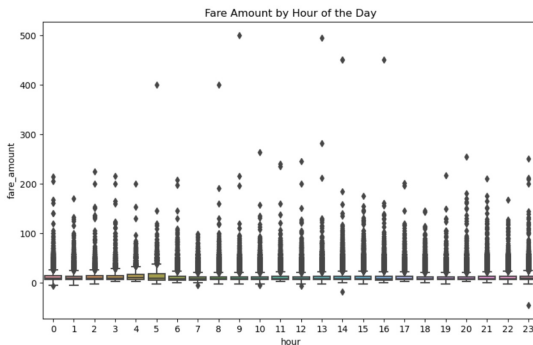

Figure: Average Fare Amount by Hour of the Day.

Fare Amount by Weekday

- The day of the week also impacts fare amounts, with weekends and weekdays showing different patterns.
- We notice higher fares on specific weekdays, possibly due to workday traffic or weekend demand.
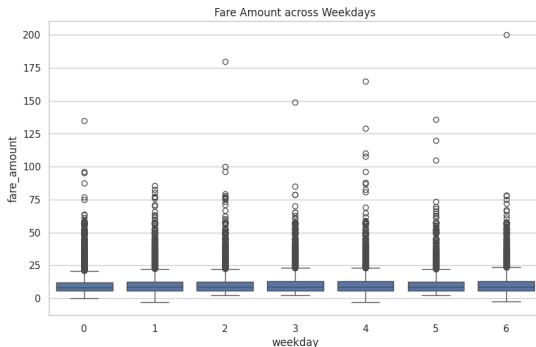

Figure: Fare Amount by Day of the Week.

Fare Amount by Month and Year

- Monthly and yearly trends provide insights into seasonal variations and long-term changes in fare amounts.
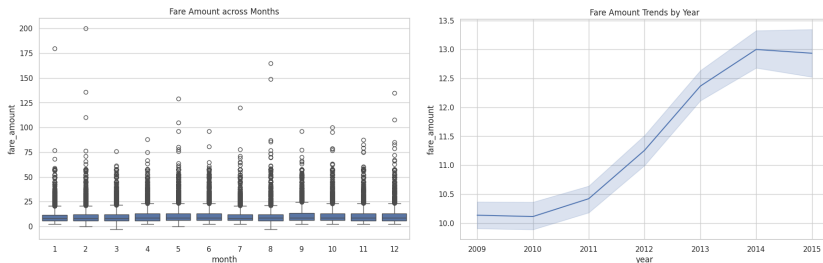- We can identify peak fare months and observe year-over-year growth or decline.

Figure: Fare Amount by Month and Year.

Average Fare by Month

- Analyzing the average fare amount across different months helps us identify seasonality effects.
- This can help in understanding high-demand periods and potential fare fluctuations.
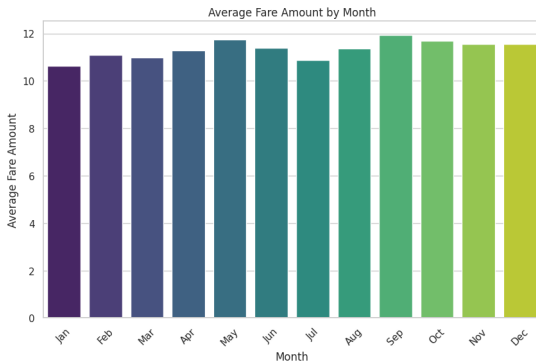

Figure: Average Fare by Month.

Average Fare by Week

- Weekly analysis gives insights into whether there are specific weeks that stand out with higher or lower fare amounts.
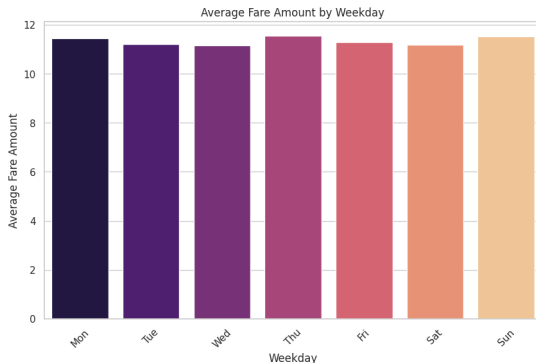- Identifying these trends can help predict future fare expectations.

Figure: Average Fare by Week.

Average Fare by Year

- Looking at average fare amounts over different years reveals long-term trends and helps identify year-over-year growth or decline.
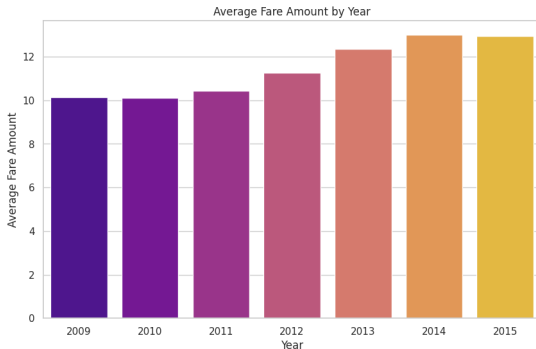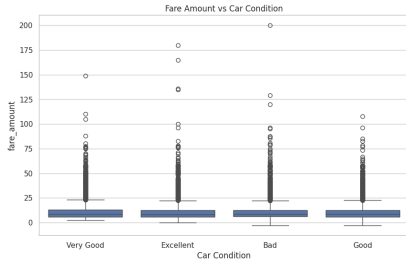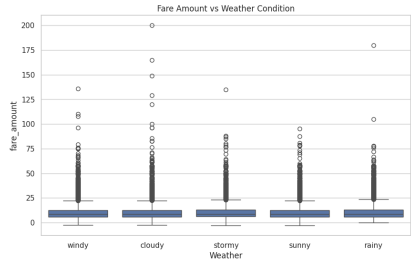- This can be useful for strategic decisions and forecasting.

Figure: Average Fare by Year.
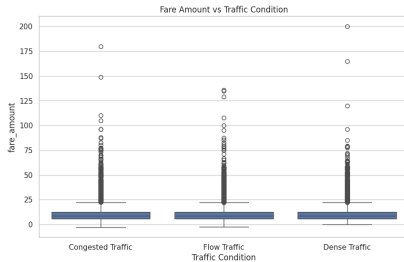
Impact of Ride Conditions on Fare Amount

- Factors such as car condition, weather, and traffic can influence the fare.
- Although we previously considered these factors constant, the data reveals interesting trends.

(a) Fare by Car Condition.

(b) Fare by Weather Condition.

(c) Fare by Traffic Condition.

Fare Amount by Passenger Count

- The number of passengers can affect the total fare, especially for rides that involve multiple stops or larger vehicles.
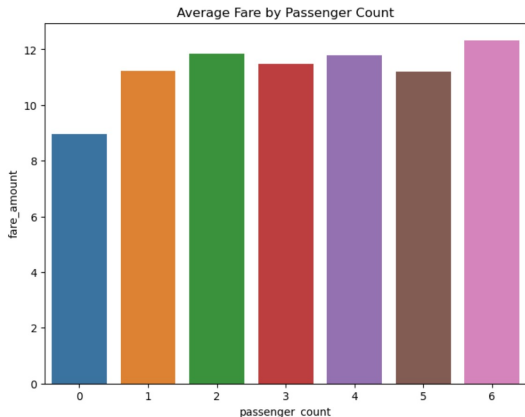- We explore how fares vary depending on passenger count.

Figure: Average Fare Amount by Passenger Count.

Conclusion

- Time-related factors (hour, weekday, month, year) are key drivers of fare amount trends, showing clear peaks.
- External conditions like car condition, weather, and traffic, while not heavily skewed, do have an impact on fare variability.
- Passenger count also significantly influence the fare amount.
- These insights can help improve fare prediction models and optimize pricing strategies.