
Data Analytics Project Report

1. Cover Page

- **Project Title:** Transportation Operations Analytics – Goodcabs
- **Prepared By:** Omkar Kotkar
- **Tools Used:** SQL, Power BI, Excel
- **Organization / Course:** The entity for which the project was developed.

2. Executive Summary

- **Business Problem:** Goodcabs operates in tier-2 Indian cities and has set ambitious performance targets for 2024. However, leadership lacks clear, data-driven visibility into key operational metrics such as trip volume, passenger satisfaction, repeat usage, and trip distribution. Without structure insights, the Chief of Operation cannot accurately assess performance gaps or take informed decisions to improve growth, efficiency , and overall passenger experience.
- **Key Insights:**
 - Jaipur emerges as the primary revenue and demand driver, recording the highest number of trips, maximum total distance travelled, and the highest average fare per trip. Its strong performing across volume and revenue metrics makes it the most critical city for business growth and strategic focus.
 - Customer retention varies significantly by city, with Surat and Lucknow showing higher repeat passenger percentage despite lower overall trips volume.
 - Pricing efficiency differs across cities without impacting service quality as mid-tier cities such as Indore and Vadodara maintain stable driver and passenger ratings despite lower average fares.
- **Final Recommendations:**
 - **Jaipur:** Increase driver supply and peak pricing - it has the highest trips and highest avg fare, so impact is immediate.
 - **Retention:** Focus on Jaipur and Kochi - high new users but lower repeat% than Surat/Lucknow.
 - **Pricing:** Test small dare increase in Indore and Vadodara - rating are stable, demand won't drop.

3. Business Understanding

- **Business Objectives:** Our primary goal is to evaluate Goodcabs' performance across ten tier-2 Indian cities to drive growth and improve passenger satisfaction in 2024.
 - **Operational Efficiency:** Assessing trip volume, pricing efficiency (fare per km), and city-level contributions.

- **Target Achievement:** Quantifying the gap between actual performance and targets for trips, new passengers, and ratings.
- **Customer Loyalty:** Analysing repeat passenger rates (RPR%) and trip frequencies to distinguish between tourism and business-focused demand patterns.
- **Strategic Growth:** Identifying top and bottom-performing cities to optimize resource allocation and marketing efforts.
- **Key Stakeholders:** Chief of Operations.

4. Data Understanding

- **Data Source:** The data originates from codebasics.
- **Dataset Structure:**

Category	Key Fields & Metrics
City & Time	city_name, month_name
Trip Details	total_trips, avg_fare_per_km, avg_fare_per_trip, total_distance_travelled, trip_distance (Max/Min)
Passenger Data	total_passengers, new_passengers, repeat_passengers, repeat_passenger_rate (%)
Ratings	passenger_rating, driver_rating
Targets	target_trips, new_passenger_target, average_passenger_rating_target
Financials	revenue, revenue_growth_rate

- **Time Period:** The time period of data is the year 2024.
- **Assumptions & Limitations:** The data is limited to a six-month window, which may not capture full annual seasonality or long-term growth trends.

5. Data Cleaning & Preparation

- **Data Quality Audit:** No missing values, duplicate records, or inconsistent date formats were identified. The dataset was found to be clean and well-structured.

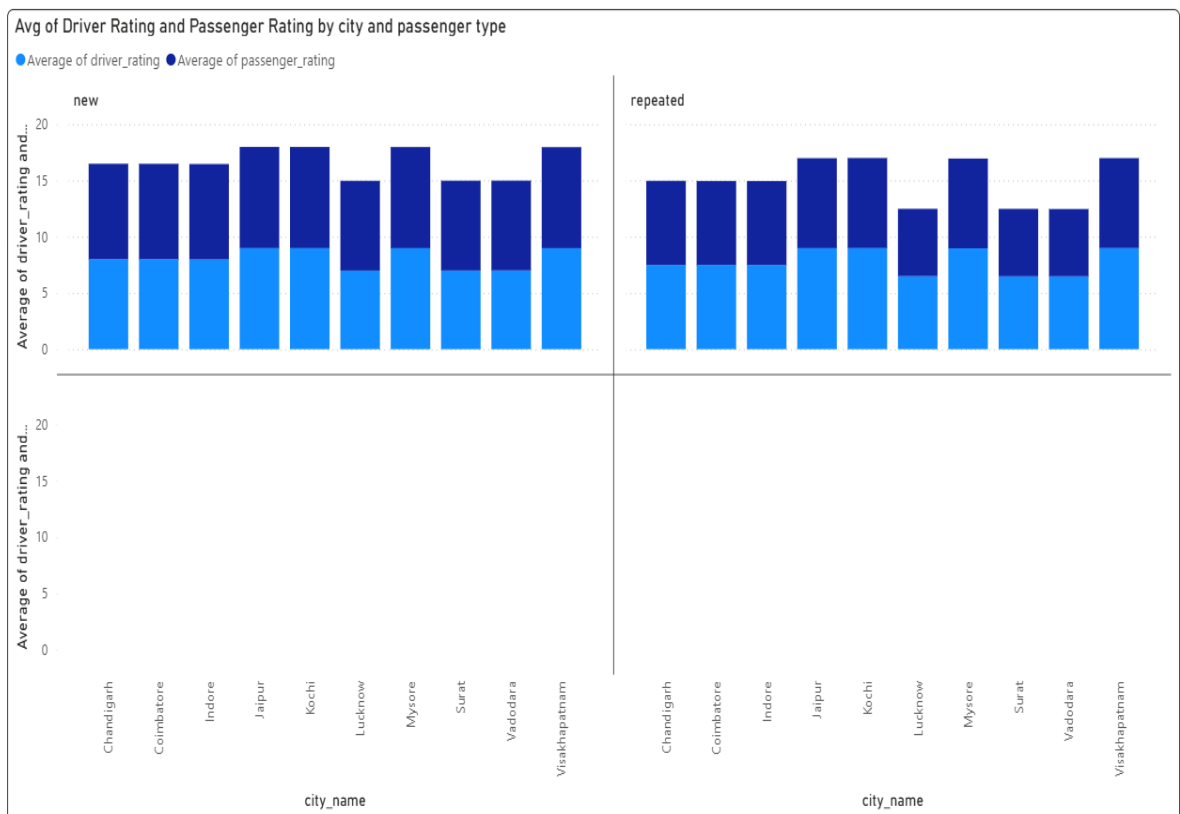
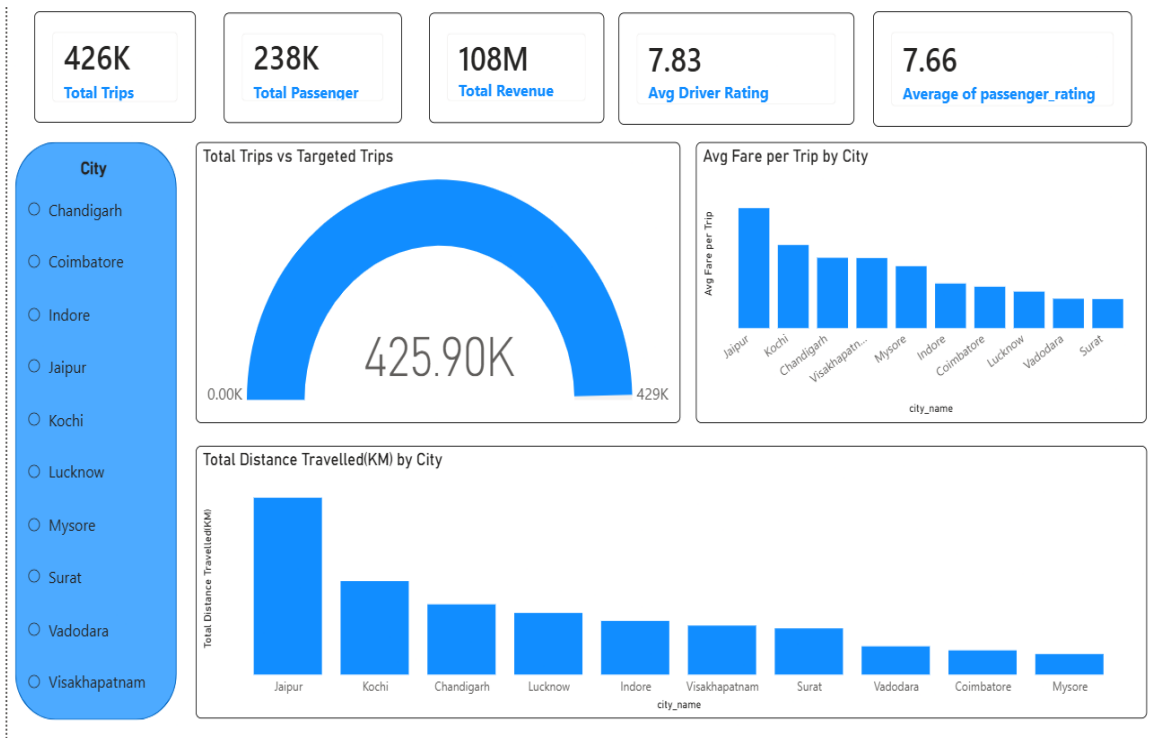
- **Tool Stack:** Excel/SQL for data inspection and validation.

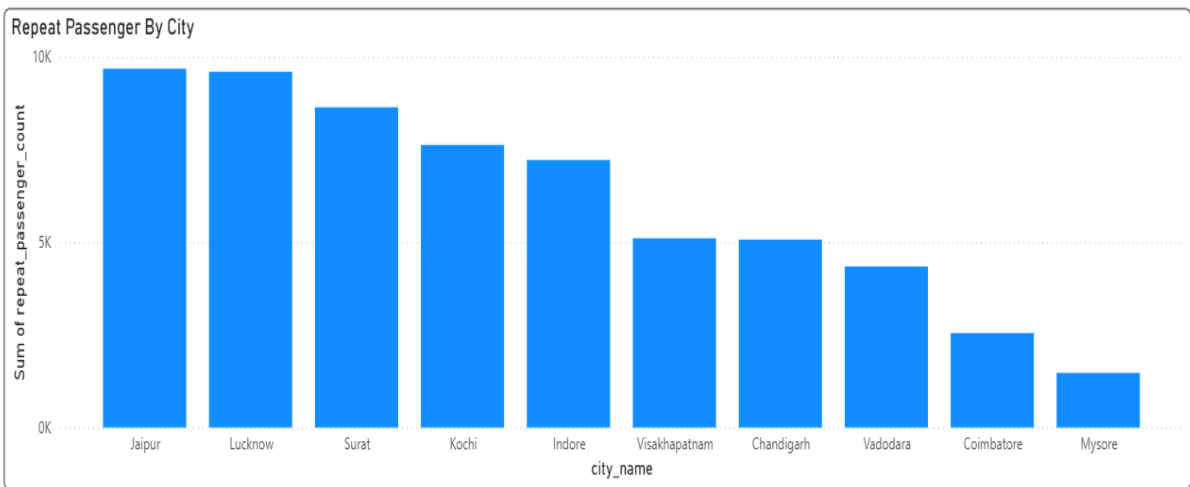
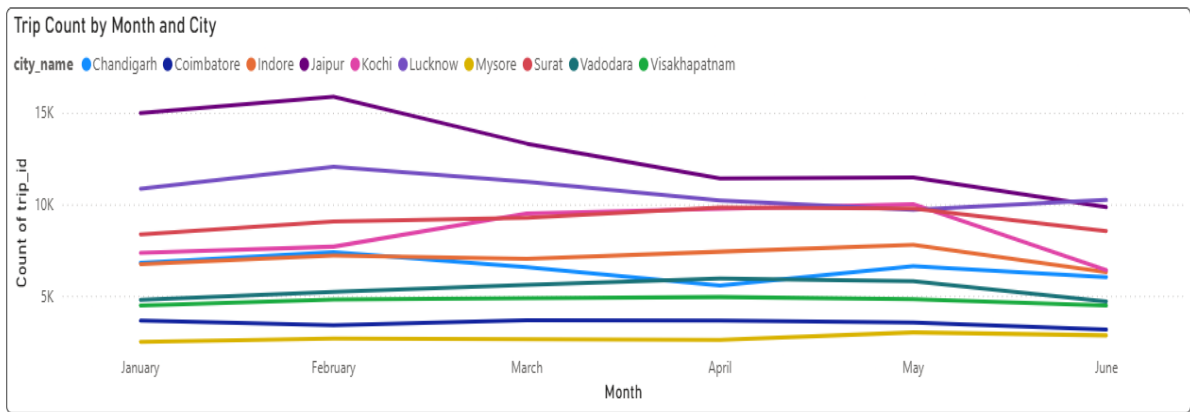
6. Insights & Findings

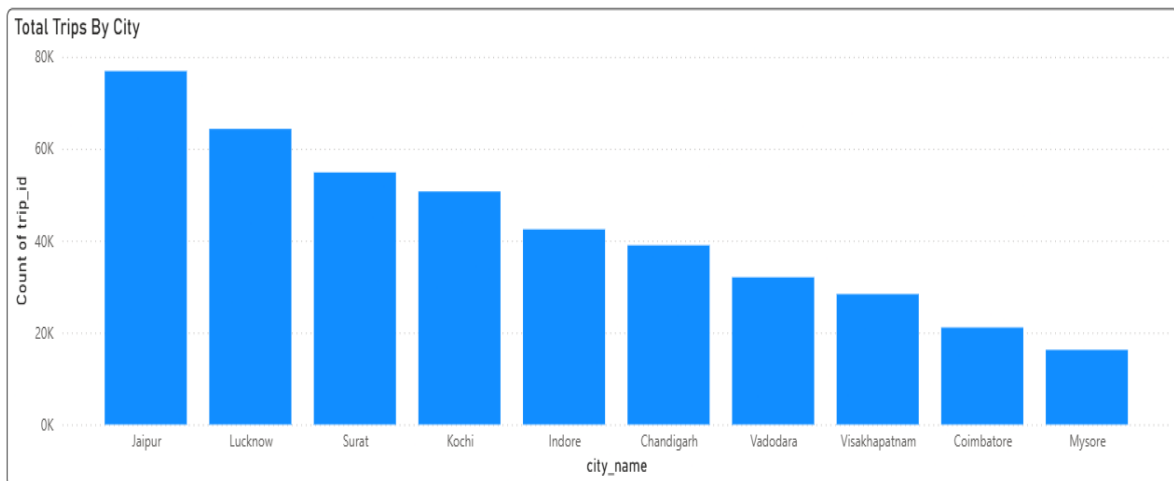
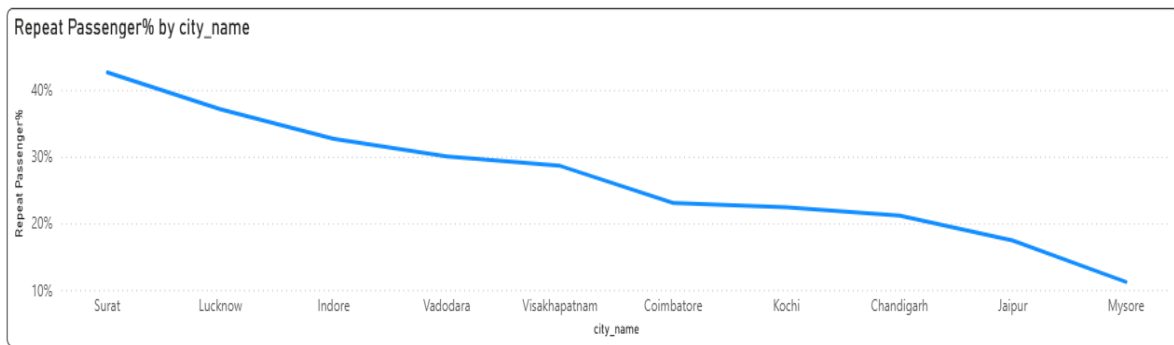
- **Actionable Insights:**
 - **Trip and revenue performance is higher in a few major cities** Jaipur, Lucknow, Surat and Kochi recorded the highest number of trips and revenue. Jaipur performed the best overall, generating the highest revenue and exceeding its targeted trips.
 - **Some cities met or exceeded trip targets despite average ratings** Cities like Jaipur, Kochi, and Mysore achieved or slightly exceeded their target trips, even though driver and passenger ratings in some cities were not highest.
 - **Seasonal variation in trip demand is clearly visible** most cities showed higher trip counts during January and February, followed by a gradual decline toward June, indicating seasonal demand patterns.
 - **Repeat passenger trends differ across cities** Surat and Lucknow have higher repeat passenger percentage, while cities such as Mysore and Jaipur show lower repeat passenger rates, suggesting variations in customer retention.
 - **Higher ratings do not always result in higher trips or revenue** Some cities with high driver and passenger ratings, such as Mysore and Visakhapatnam , have lower trips volume and revenue compared to other cities.
- **Impact on Decisions:**
 - Seasonal trends can be considered while planning resources and trips targets.
 - High performance cities can be monitored closely to maintain performance level.
 - Cities with lower repeat passenger percentages may require further analysis to understand customer behaviour.
 - Performance evaluation should increase both trip metrics and customer rating rather than relying on a single metric.

7. Dashboard & Visualization

- **Metrics Displayed:**







8. Recommendations

- **Short-term Actions:**
 - **Focus on High-Revenue cities:**
 - Cities like Jaipur and Kochi show higher average fares and distance travelled. Increasing driver availability and incentives in these can quickly boost total revenue.
 - **Improve Passenger Experience in Low-Rating Area:**
 - Cities with comparatively lower passenger ratings should receive targeted actions such as driver training, service quality checks, and faster complaint resolution to prevent churn.
 - **Dynamic Pricing Optimization:**
 - Use peak-hour and high-demand data to fine-tune surge pricing, especially in cities with high trip volume but lower average fare.

- **Long-term Strategy:**
 - **City-Specific Growth Strategy:**
 - Instead of a one-size-fits-all approach, design tailored strategies for each city based on trip volume, revenue contribution, and distance trends.
 - **Driver Performance & Retention Program**
Introduce long-term incentive programs tied to driver ratings and trip completion to improve service quality and reduce driver attrition.
 - **Data-Driven Demand Forecasting**
Implement predictive models using historical trip and distance data to forecast demand and optimize driver allocation proactively.
- **Expected Business Impact:**
 - **5–8% increase in total revenue** through better pricing and high-performing city focus.
 - **10–12% improvement in customer satisfaction scores** by addressing low-rating regions.
 - **Reduced customer churn** driven by consistent service quality across cities.

12. Future Scope

- **Advanced Modeling (Predictive Analytics & Machine Learning):**
 - **Demand Forecasting Models:**
 - Use historical trip volume, distance traveled, and city-level trends to predict future demand using time-series models or regression-based forecasting. This helps in proactive driver allocation and surge planning.
 - **Revenue Prediction:**
 - Build predictive models to estimate future revenue based on factors such as trip count, average fare, and seasonal patterns.
 - **Driver & Passenger Rating Analysis:**
 - Apply machine learning models to identify factors influencing low ratings and predict potential service quality issues before they impact customer satisfaction.

13. Conclusion

- **Summary of Work:** This project focused on analyzing ride and trip data to uncover meaningful business insights using structured data analysis and interactive dashboards. The end-to-end workflow included data cleaning, KPI identification, city-

level performance analysis, and visualization of key metrics such as trips, revenue, distance traveled, and user ratings.

- By transforming raw data into an interactive dashboard, the project enabled clear performance comparison across cities and supported data-driven decision-making. The insights derived from the analysis highlighted revenue-driving regions, service quality gaps, and opportunities for operational optimization.
 - Overall, this project demonstrates the practical application of data analytics techniques to solve real-world business problems and lays a strong foundation for future enhancements using predictive analytics.
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