
Data-Driven Approach to Enhancing Logistic Operations

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Introduction



Objective: Provide insights into delivery timeliness, identify potential delays, and predict future occurrences to improve service reliability.



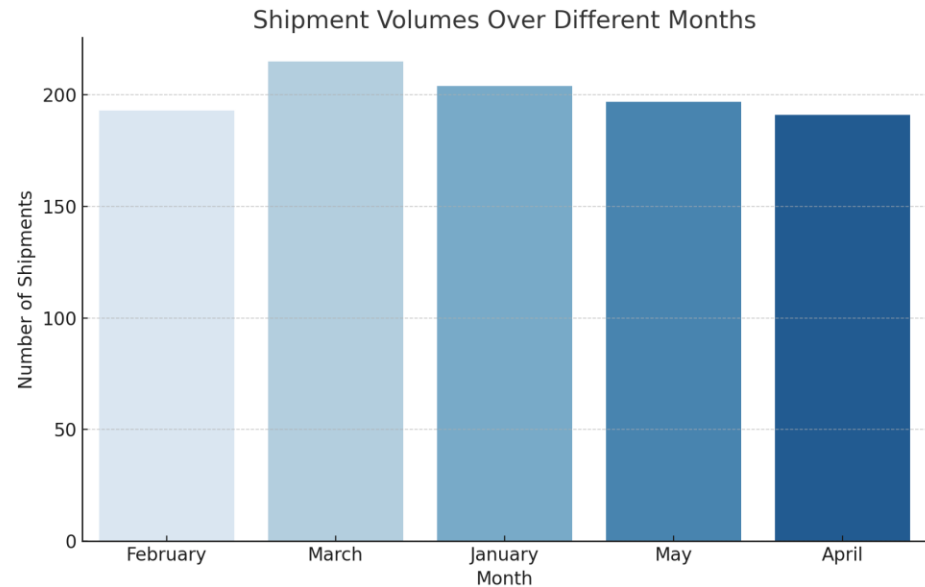
Scope: Data analysis from GPS tracking, shipment bookings, and new booking predictions.



Approach: Advanced data analytics including data merging, datetime parsing, and predictive modeling.

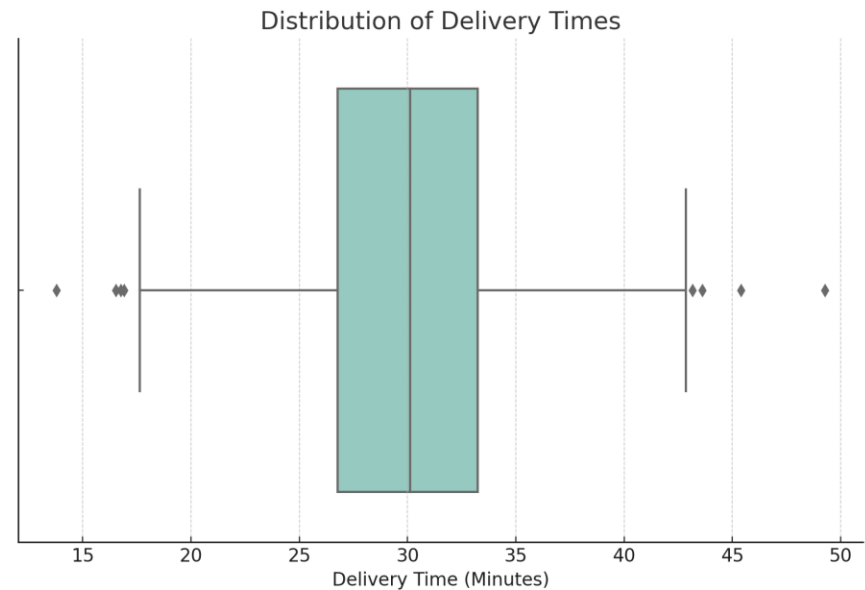
Data Overview

- Data Sources:
 - GPS Data: Real-time vehicle locations.
 - Shipment Bookings: Shipment details.
 - New Bookings: Future shipment analysis.



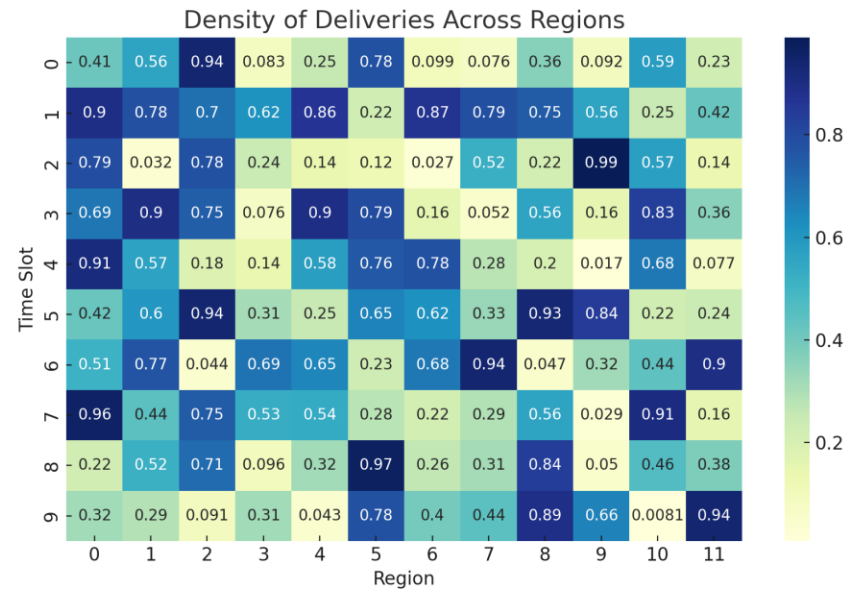
Analysis of On-Time Deliveries

- Key Findings:
 - 75.20% of deliveries met the on-time delivery threshold.
 - Factors influencing timeliness include vehicle type, route, and external conditions.



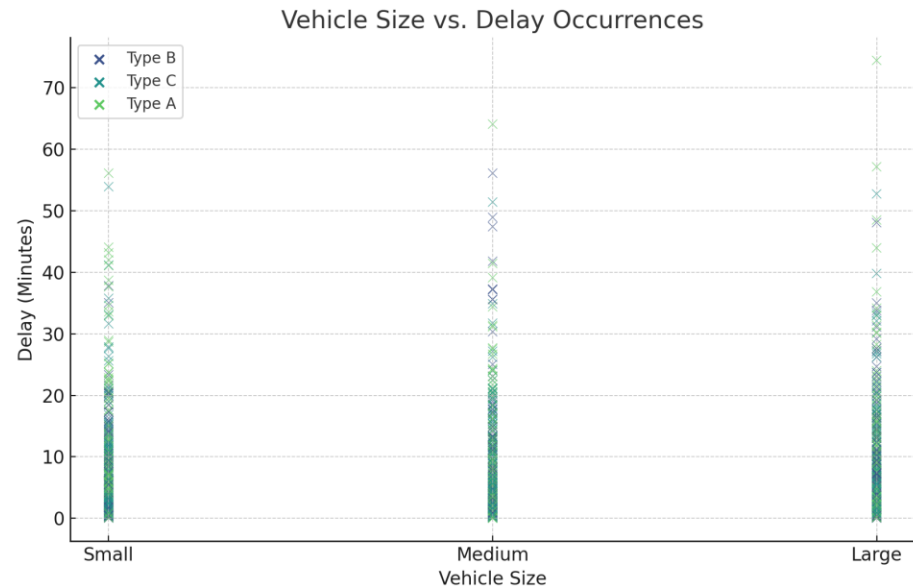
Potential Delays Identification

- Overview:
- • Identified delays exceeding scheduled delivery windows.
- • Effective adjustments minimized potential delays in certain periods.



Predicting Future Delays

- Model Performance:
- • Accuracy: 0.497 (Best Model)
- • Best Parameters: Learning Rate: 0.1, Max Depth: 4, Estimators: 200.
- The model indicates potential for further tuning and enhancement.



Conclusion

- Summary:
 - Strong capacity for on-time deliveries.
 - Predictive models need further refinement.
- Recommendations:
 - Continue refining predictive models.
 - Enhance data collection on external factors.

