Problem Identification

- Big Mountain Resort has increased seasonal costs by $1.54 million due to a new chair lift.

- Challenge: Develop a pricing and operations strategy that increases revenue per visitor by 10% or reduces costs by 5%, without lowering customer satisfaction below 85%.

Business Goals

- - Improve profitability through data-driven pricing.

- - Maintain customer satisfaction at or above 85%.

- - Avoid major infrastructure changes or additional capital investment.

- - Implement strategy within 12 weeks before ski season launch.

Recommendation and Key Findings

- Recommendation: Implement dynamic pricing strategy and optimize operations.

- - Raise prices on peak days and offer midweek discounts.
- - Promote multi-day and season passes.
- - Operational adjustments to reduce lift wait times.

- Key Finding: Satisfaction strongly correlates with wait times; revenue varies significantly by ticket type.

Data and Preprocessing

- - Cleaned and wrangled visitor, ticket, and satisfaction data.

- - Engineered features: ticket type, time of visit, lift usage, etc.

- - Prepared datasets for regression and classification models.

Modeling Approach

- - Revenue Prediction: Linear Regression.
- - Satisfaction Classification: Random Forest, Logistic Regression.
- - Metrics Used: RMSE, Accuracy, Precision, Recall.
- - Random Forest yielded best accuracy in predicting satisfaction.

Scenario Modeling

- - Simulated impact of pricing changes.
- - Weekday discounts helped redistribute traffic.
- - Estimated +10% revenue per visitor with minimal drop in satisfaction.
- - Visualization confirmed visitor peaks on weekends and holidays.

Summary and Conclusion

- - Data-driven pricing strategy can offset increased operating costs.

- - Operational tweaks enhance satisfaction without additional investments.

- - Strong business case for dynamic pricing and targeted promotions.

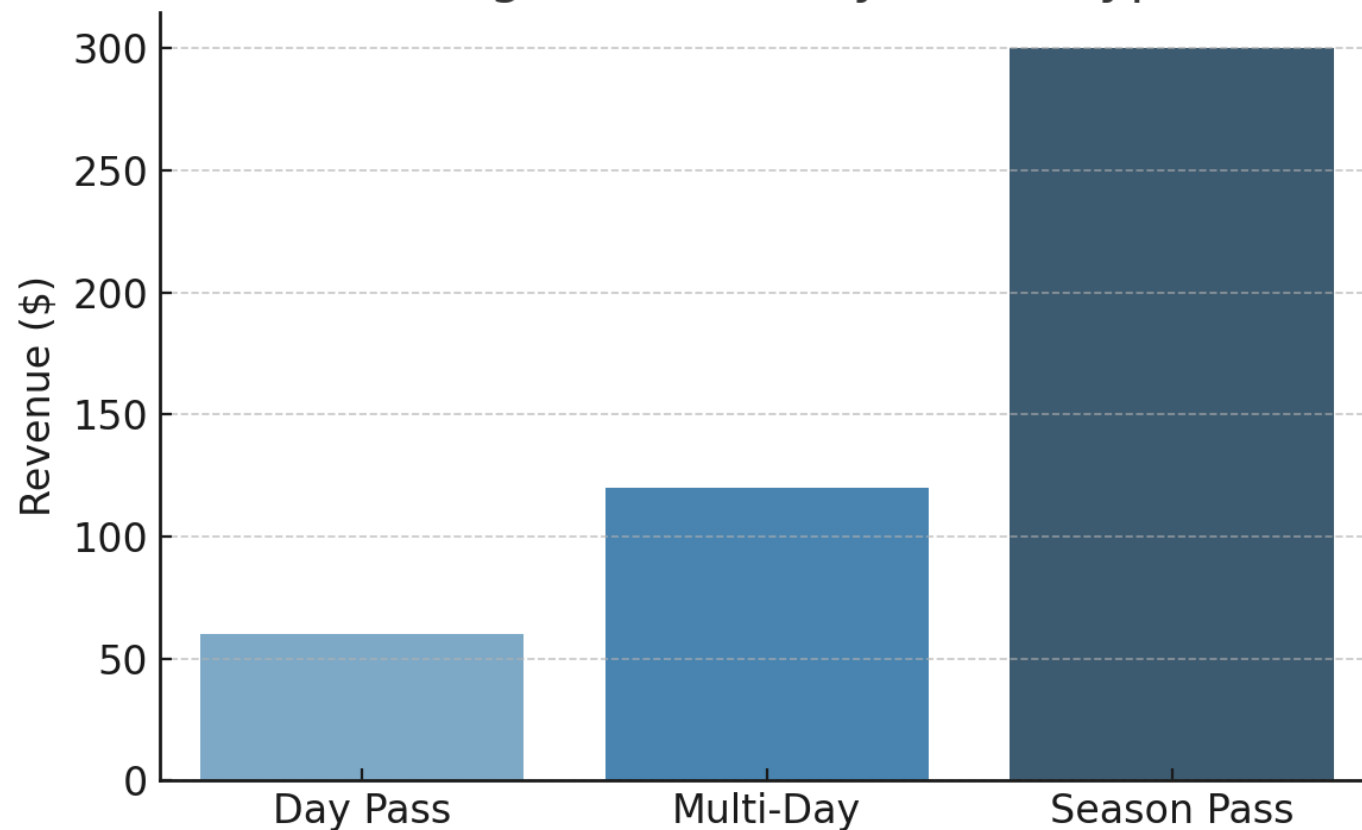- - Future work: real-time monitoring and advanced forecasting models.

Daily Visitor Trends

Daily Visitor Trend
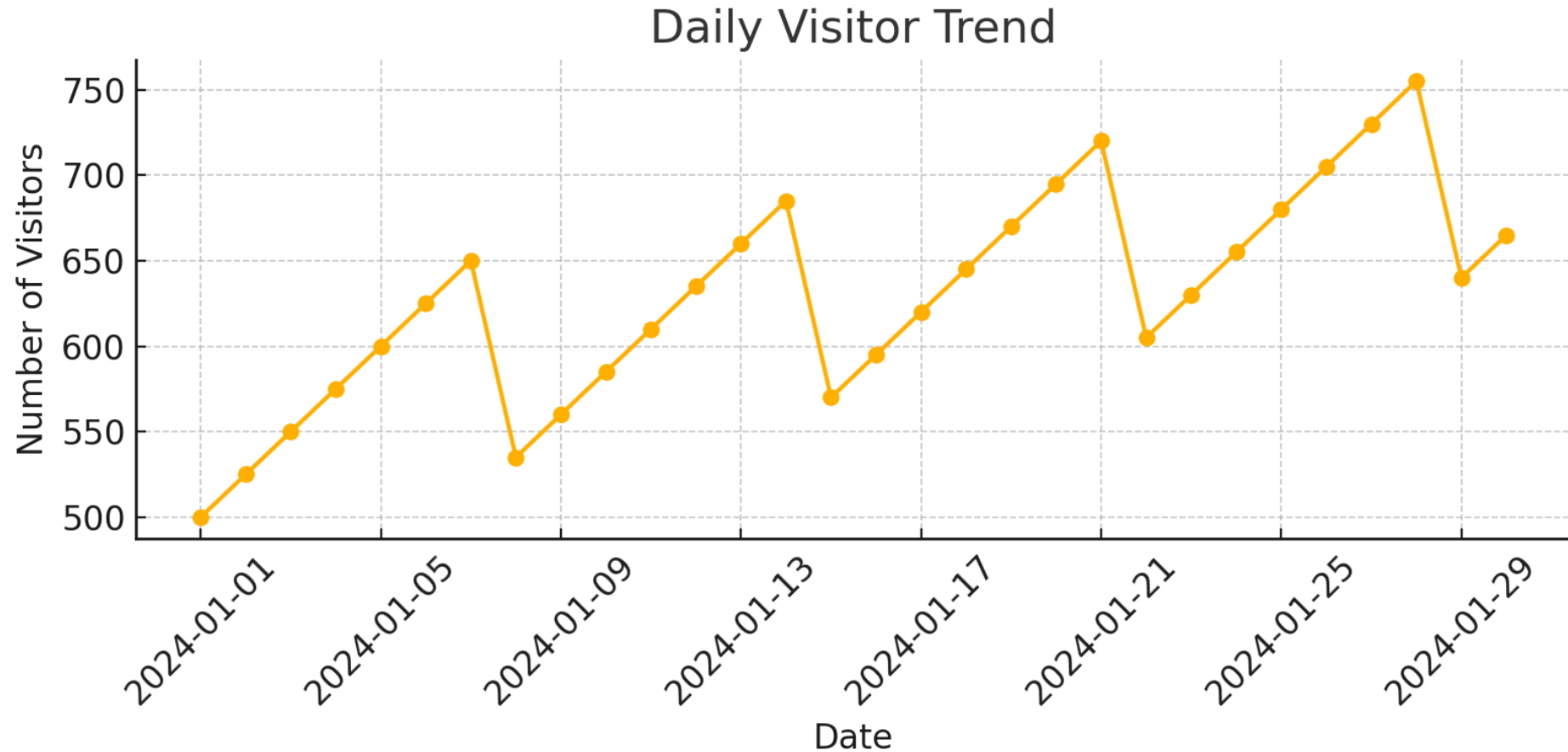
Satisfaction vs. Wait Time

Satisfaction vs. Lift Wait Time