Big Mountain Resort Price Analysis Report

Martin Vodanovic
May 2023

Introduction:

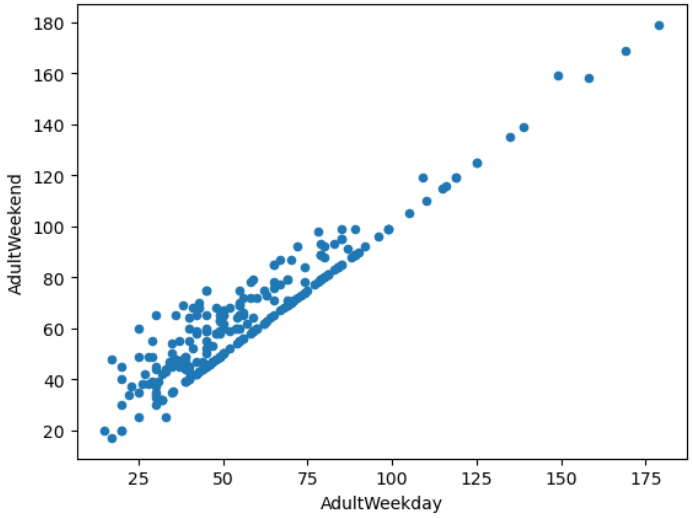
Big Mountain Resort, located Montana, is a popular ski resort known for its stunning views and a variety of ski runs. The recent installation of a new chair lift has increased the operating costs by $1.54 million for the season. This cost increase has prompted the need for a new pricing strategy that accurately reflects the significance of the resort's facilities while remaining competitive in the market.

Problem:

The primary challenge faced by Big Mountain Resort is to develop a data-driven pricing model that considers the amenities and offerings of the resort, as well as pricing data from various ski resorts across the country. The goal is to determine a price that is both competitive for customers and accurately reflects the value provided by Big Mountain Resort.

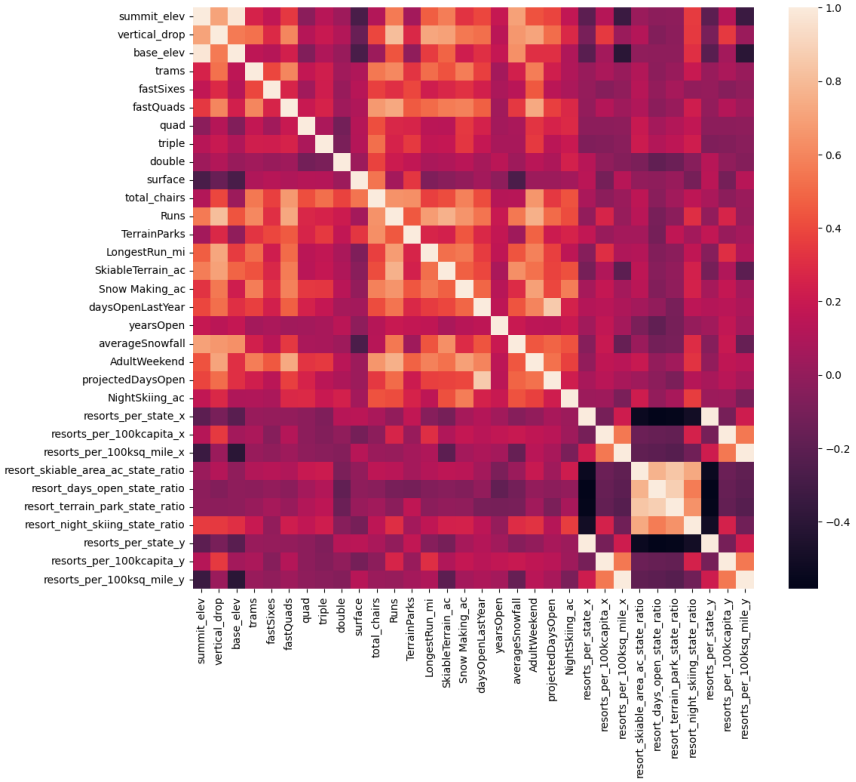
Data Wrangling:

The dataset used for analysis includes essential variables such as total vertical drop, number of lift chairs, weekday/weekend prices, and total number of runs for each resort. Initial data wrangling involved removing irrelevant columns and handling missing values. The analysis focused on the relationship between AdultWeekend and AdultWeekday prices and identified that the prices were similar for most resorts, except for Montana. Consequently, the AdultWeekday column was dropped from further analysis. In addition, the fasEight column was dropped as well because most of the values were null and others were mostly 0. Beside these two columns, were some others that had to be dropped and missing values that had to be addressed.

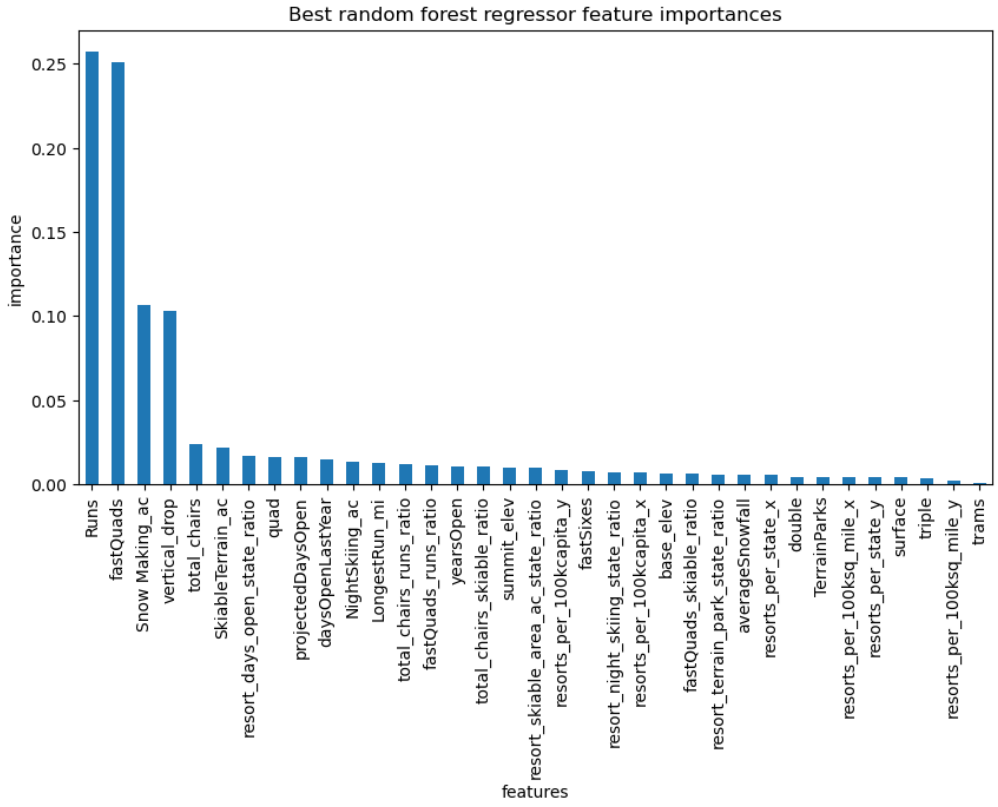


Exploratory Data Analysis:

Exploring the data revealed patterns and insights related to the features and their correlation with ticket prices. Principal Component Analysis (PCA) was performed to identify the key components influencing ticket prices. The analysis indicated that features like fastQuads, runs, snowmaking coverage, and resort night skiing had a strong positive correlation with ticket prices. Heatmap visualization further confirmed these relationships.

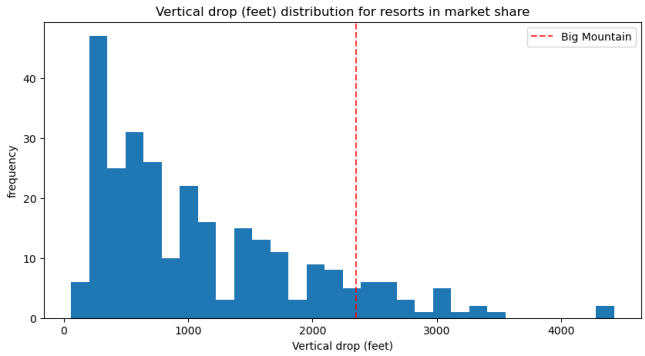


Pre-Processing and Training Data:
To determine a new pricing strategy, several regression models were employed. The initial baseline pricing was derived using the mean, followed by the use of the median to reduce the mean absolute error (MAE). Further analysis incorporated a Random Forest Model and included the vertical drop as an additional component, resulting in improved accuracy with a reduced MAE.

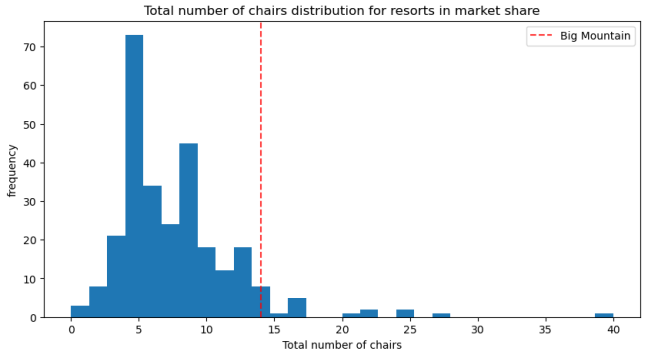


Modeling:
The final model incorporated eight key components: vertical drop, total chairs, fast quads, longest run, number of trams, number of runs, area covered by snowmakers, and skiable area. By comparing Big Mountain Resort's performance in these categories to other resorts, it was evident that the resort excelled in most areas, warranting a higher price. The model predicted a price of $97.96, significantly higher than the current price of $81.00.

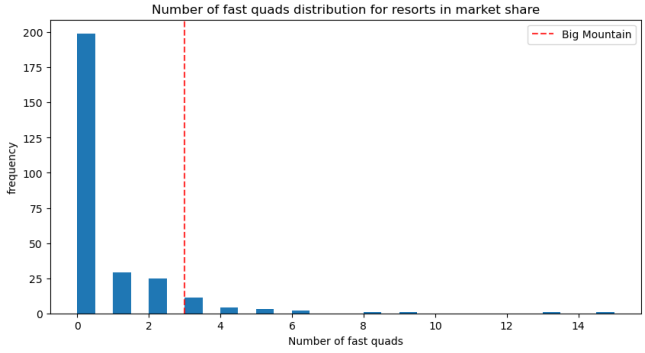
Vertical Drop



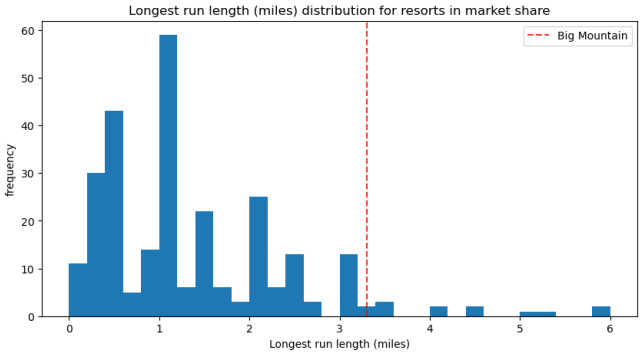
Total Chairs



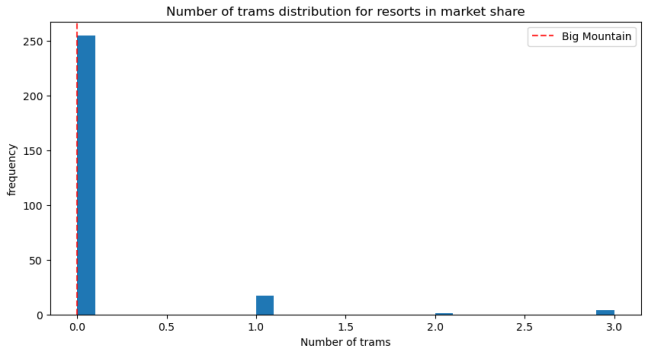
Fast Quad



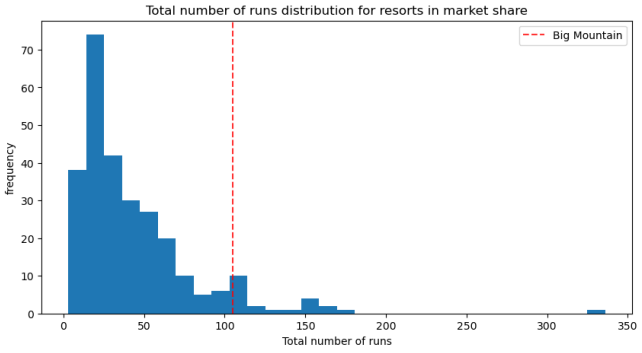
Longest Run



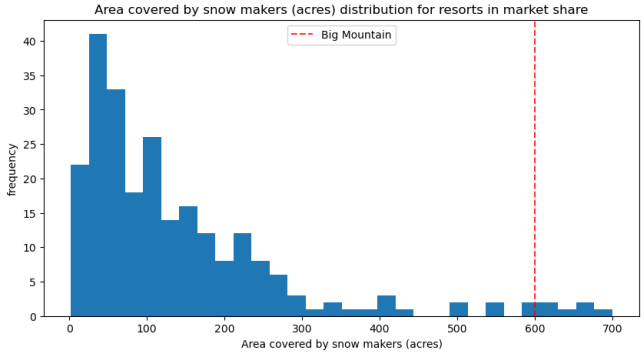
Number of Trams



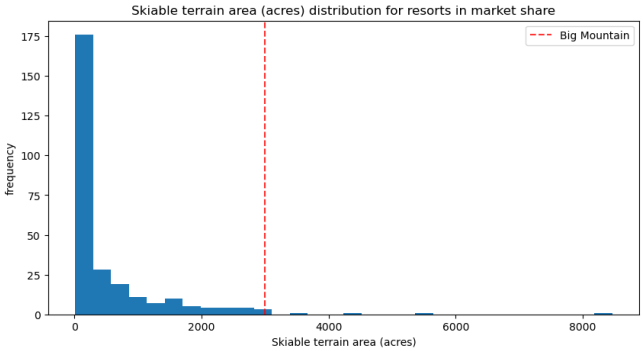
Numbers of Runs



Area Covered by Snow Makers

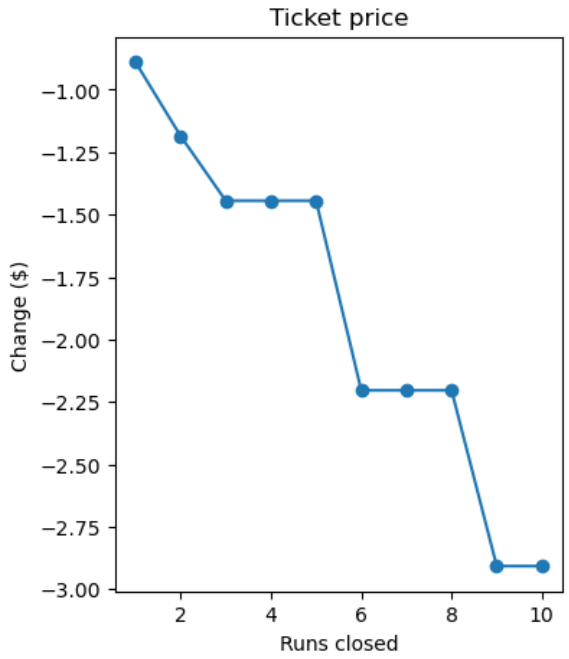


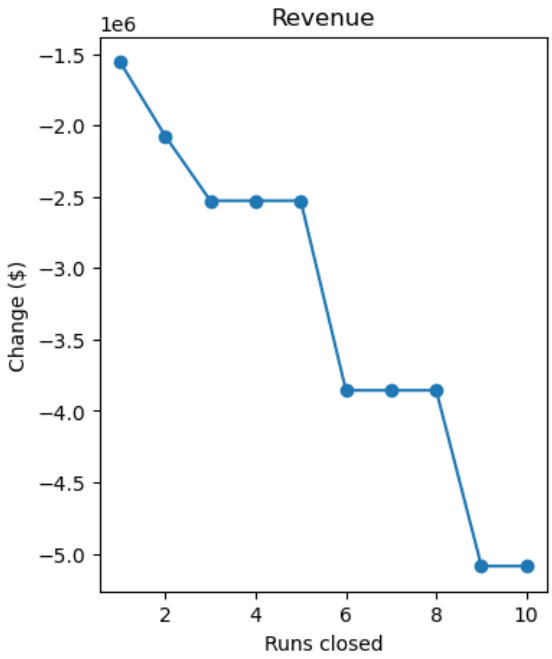
Skiable Area



The analysis reveals that Big Mountain Resort consistently outperforms or surpasses the average in each category, demonstrating its exceptional status among resorts. Although trams are not commonly found in most resorts, the overall evaluation underscores Big Mountain Resort's outstanding amenities and suggests that its pricing should reflect the exceptional quality it offers.

Conclusion:
Based on the analysis, it is recommended that Big Mountain Resort adjusts its pricing strategy. The resort should increase the ticket price by at least $16.96 to better reflect its exceptional facilities and offerings. Additionally, the resort can optimize costs by selectively closing some runs based on demand without significantly impacting revenue. The model provides insights for both short-term and long-term decision-making, with the potential for further improvement by considering additional cost data from other resorts.





In conclusion, this analysis offers actionable recommendations for Big Mountain Resort to enhance its profitability while providing exceptional amenities to its customers. The model can be a valuable tool for business leaders to make informed pricing decisions. Continuous monitoring and refinement of the model, along with the incorporation of additional data, can further improve its accuracy and usefulness for the resort's long-term success.