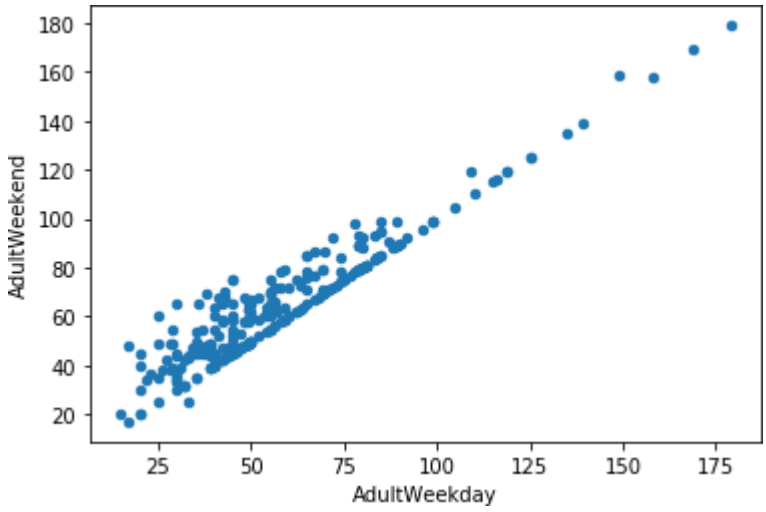
Big Mountain Resort Price Analysis Report

Introduction:
Big Mountain Resort, nestled in Whitefish, Montana, offers breathtaking views of the Flathead National Forest and Glacier National Park, complemented by an array of ski runs. With its recent installation of a new chair lift, resulting in an additional $1.54 million in operating costs this season, the resort faces the imperative task of revising its pricing strategy. Previously, the resort's pricing slightly exceeded the average of its market segment.

Problem:
The primary challenge for Big Mountain Resort is to devise a data-informed pricing strategy. This strategy must strike a balance between being competitive for customers and reflecting the resort's unique offerings.

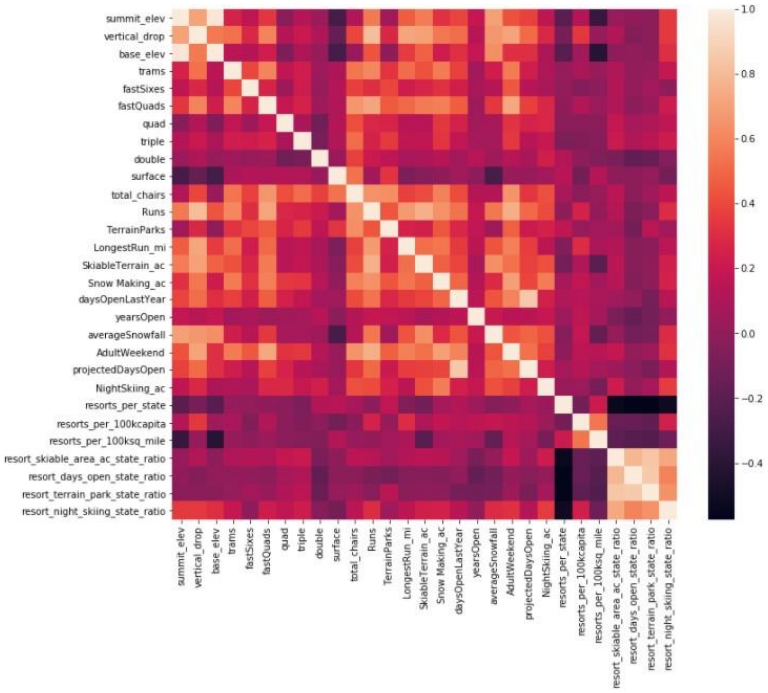
Data Wrangling:

Our dataset encompasses key metrics such as total vertical drop, number of lifts, and pricing for weekdays and weekends. Initial analysis revealed a parity between AdultWeekday and AdultWeekend prices across most states, particularly in Montana. Due to numerous missing values, the AdultWeekend column was omitted. The dataset underwent further refinement by dropping columns with negligible data, like the fastEight column, and addressing other missing values. This process resulted in a consolidated dataset of 277 entries from the original 330.



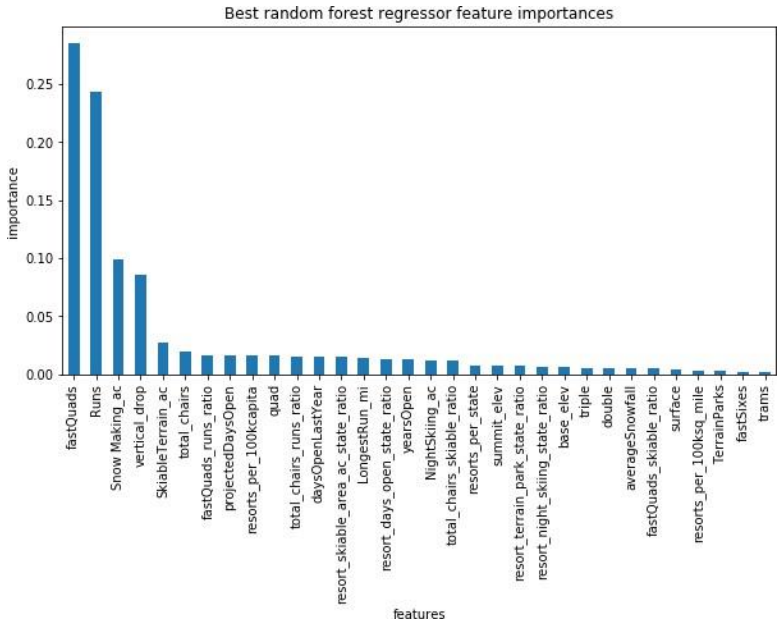
Exploratory Data Analysis

To unearth trends and insights, we examined various data relationships. For instance, we looked at the distribution of resorts by population versus area, and the correlations between resort features like vertical drop and skiable areas against state-wise pricing. Using Principal Cumulative Analysis (PCA), we identified key components accounting for a significant portion of pricing variance. A subsequent heatmap analysis highlighted strong positive correlations between price and features such as fastQuads, Runs, SnowMaking_Ac, and resort_night_skiing_state_ratio.



Pre-Processing and Training Data

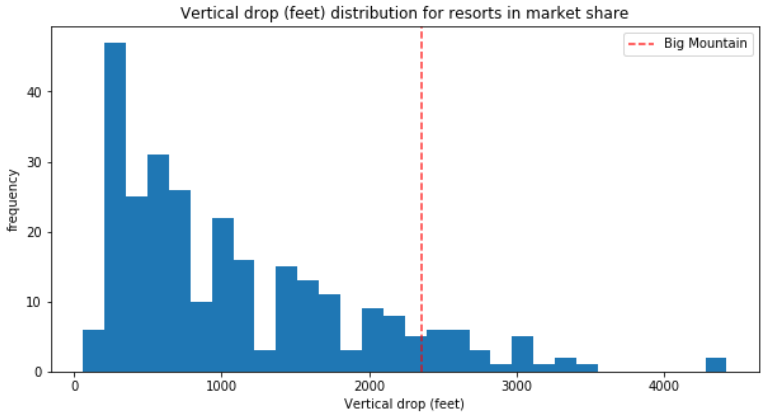
The initial step involved establishing a baseline average price of $83.81. However, to improve accuracy, we adopted a regression approach, utilizing the median for better alignment with our data. The implementation of a Random Forest Model, particularly with the inclusion of vertical drop as a significant factor, significantly enhanced the Mean Absolute Error, bringing it down to approximately $1.



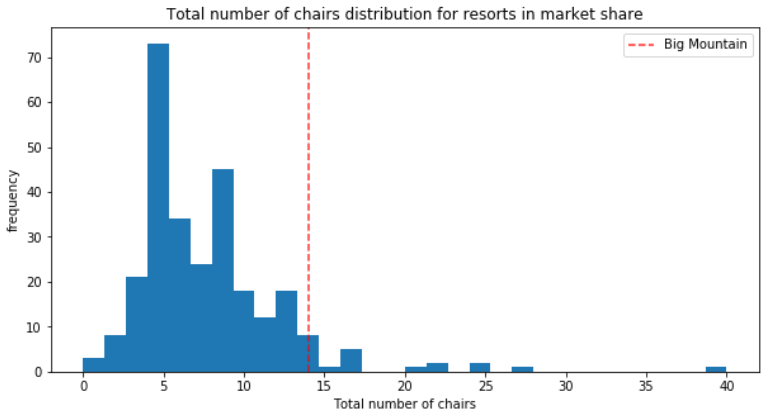
Modeling

With the identification of key components and an effective regression method, we developed a model to determine a data-driven ticket price. We expanded our focus to eight components, including total chairs and longest run. Big Mountain Resort's standing in these categories, represented by a dashed red line in our analyses, consistently ranked high or above average, except for trams, a less common feature in most resorts.

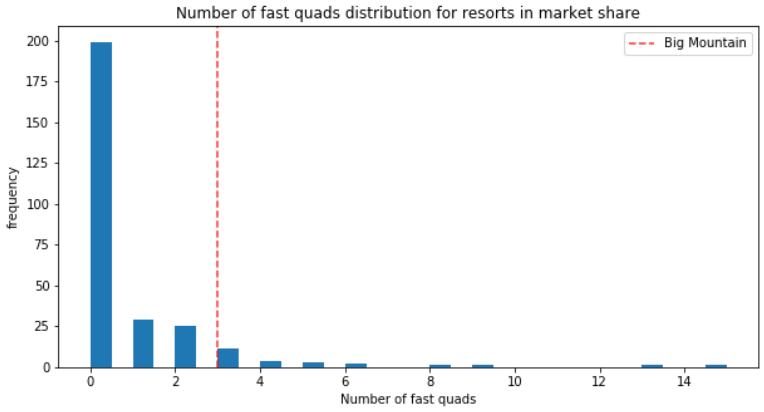
- **Vertical Drop**



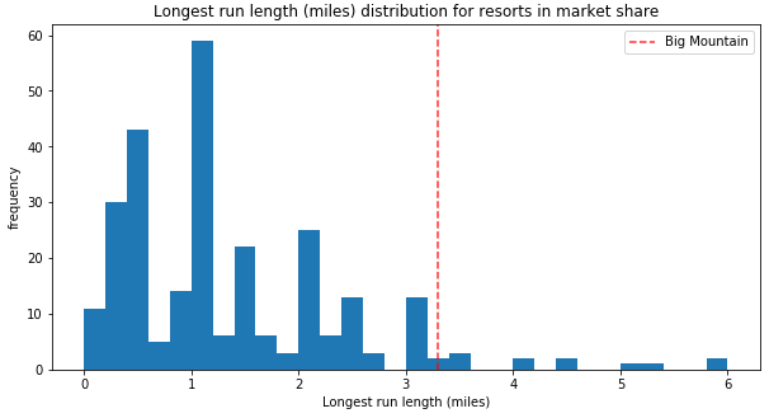
- **Total Chairs**



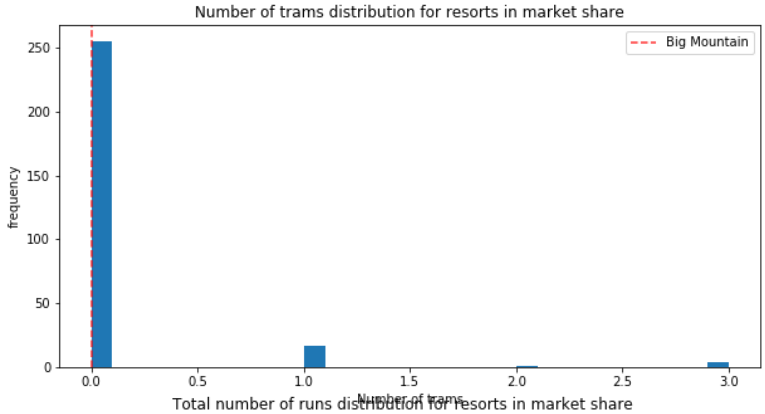
- **Fast Quads**



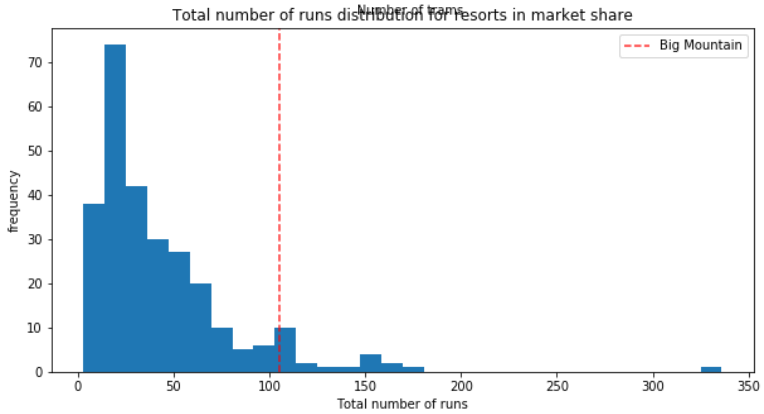
- **Longest Run**



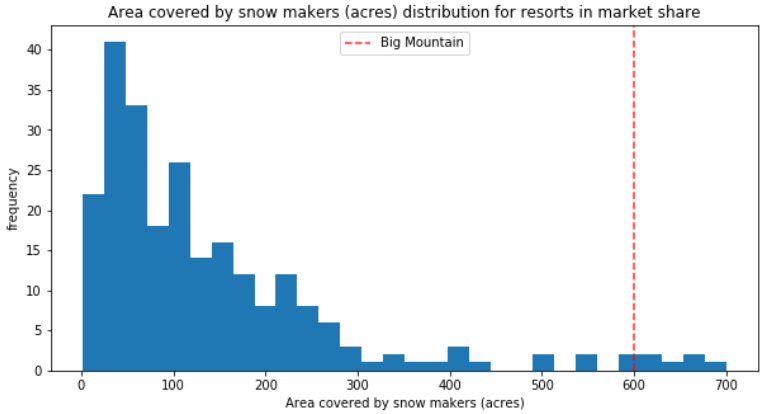
- **Number of Trams**



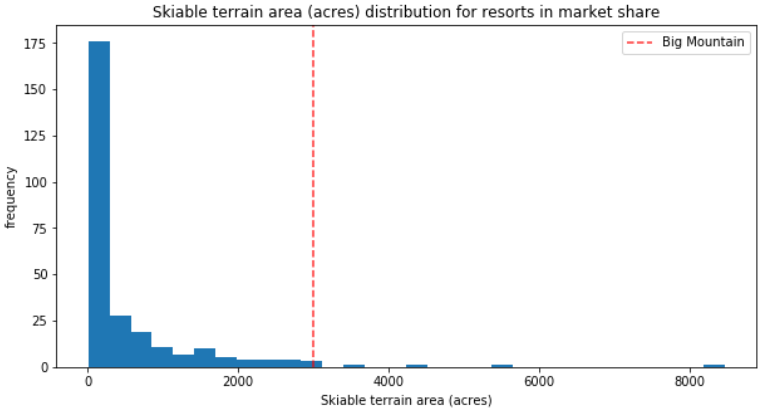
- **Number of Runs**



- **Area Covered by Snow Makers**



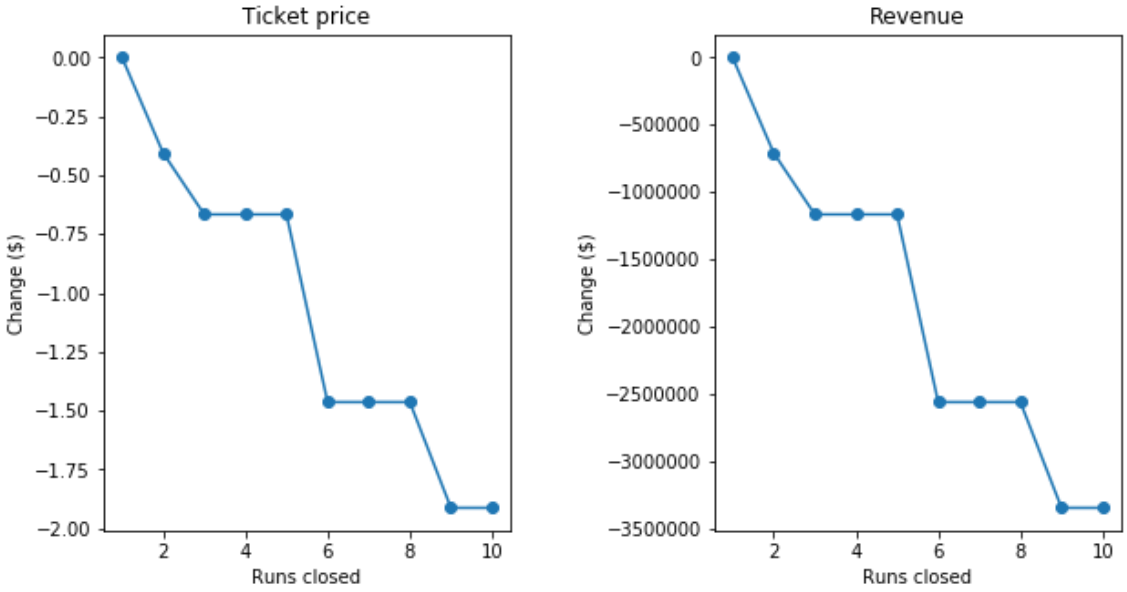
- **Skiable Area**



As we can see, Big Mountain Resort either ranks high or is well above the average in each category. With the exception of trams which most resorts don't have anyway. All this shows us that Big Mountain Resort is an exceptional resort with many great facilities, and the price should reflect that. With that we get a modelled price of $96.62, which is well above their current price of $81.00.

Conclusion

In summary, our analysis reveals that Big Mountain Resort's current pricing strategy does not fully capitalize on the value of its extensive facilities and services. The evidence strongly supports a recommendation to increase ticket prices by a minimum of $10.00. This adjustment is essential not only to reflect the quality of the resort's offerings but also to align with the operational costs incurred.



In addition to revising our pricing strategy, we propose operational efficiencies that can be realized through the selective closure of ski runs. This strategy aims to optimize resource allocation without significantly impacting our revenue stream. Such measures ensure that we maintain the high standards of our guest experience while managing costs effectively.

Looking to the future, there is considerable scope for enhancing our pricing model. A critical area for development involves a more comprehensive analysis of competitor pricing strategies. Currently, our model primarily focuses on ticket prices, but a more nuanced approach would consider the full spectrum of costs, including rentals and hotel fees, that other resorts might incorporate into their overall pricing structure. Incorporating these broader market dynamics will allow us to refine our strategy further and stay competitive.