

Optimizing Revenue and Pricing Strategy for Big Mountain Resort: A Data-Driven Approach

Executive Summary:

This comprehensive report outlines our data-driven approach to enhancing Big Mountain Resort's profitability and refining its pricing strategy to elevate revenue. We address the challenge of optimizing facility utilization and determining the optimal ticket price to attract visitors while maximizing returns. Our analysis provides invaluable insights into Big Mountain Resort's competitive positioning and potential avenues for revenue growth.

Introduction:

Big Mountain Resort, located in the state of Montana, boasts 11 lifts, including a recent chairlift addition that has increased operational costs to \$1,540,000 this season. While the resort maintains a premium pricing strategy, suspicions of facility underutilization prompt the exploration of data-driven insights.

Sole reliance on market averages for pricing is no longer sufficient for informed decision-making. The resort seeks to unravel the true potential of its offerings and set competitive pricing that aligns with market dynamics.

It is noteworthy that we had used the ski data made available by the team along with a state summary data pulled from a reliable source, that allowed us to compare Big Mountain resort's position in the market over various states. With this, the analysis expanded to a broader context by assessing the national ski resort landscape.

Key Feature Correlations with Ticket Price:

Our initial analysis shows that ticket price has a strong positive correlation with `vertical_drop`. Snow making area also has a correlation with ticket price, in fact the analysis reveals that `guaranteed_snow_cover` is more important for customers compared to larger size of terrain area. `Runs` and `total_chairs` also show higher correlations with ticket prices, which could mean that having more runs and adequate chairlift. Having a higher number of chairs shows a higher correlation with ticket price. The findings also suggest that resorts with a higher ratio of `total_chairs` to `Runs` tend to have lower ticket prices.

Market Position:

In this analysis, thorough data wrangling and dimensionality reduction paved the way for identifying critical features that influence ticket prices. By employing advanced techniques like Principal Component Analysis (PCA), we uncover correlations and interactions that drive pricing dynamics. Our meticulous approach pinpoints eight key features that have a substantial impact

on ticket prices. Evaluating Big Mountain Resort's position in the market based on the identified key features reveals the following:

Ticket Price:

Big Mountain Resort has the highest ticket price in Montana but ranks mid compared to other resorts across different states.

Vertical Drop:

Big Mountain Resort performs well in vertical drop, although some resorts exceed its drop.

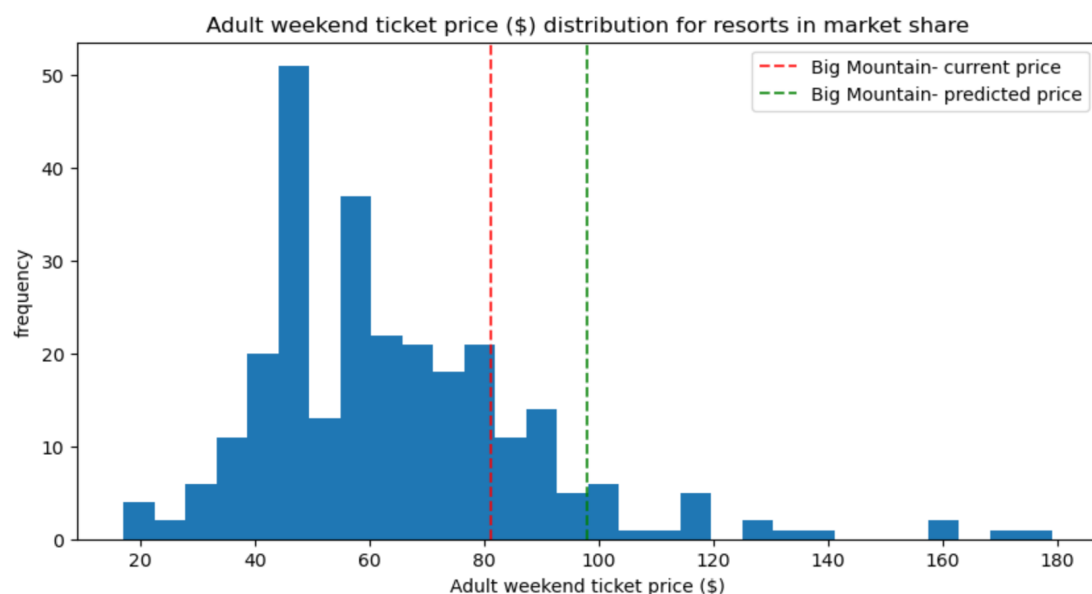
Other key features:

Big Mountain Resort ranks very high in snow making area and a substantial number of total chairs, with a few resorts having more, which are considered outliers.

Moreover, resorts lack fast quads, but Big Mountain Resort stands out with 3, even though some values are higher but rare. Big Mountain Resort also compares well in the number of runs, with a few resorts having more. While Big Mountain Resort's longest run is over half the length of the longest, longer runs are uncommon. Similar to most resorts, Big Mountain Resort does not have trams. Finally, it is to be noted that Big Mountain Resort boasts one of the largest amounts of skiable terrain, ranking among the top resorts in this aspect.

Recommendations:

With meticulous preprocessing, feature engineering, and model evaluation, the random forest model was selected, displaying superior performance. This model predicts a ticket price of \$97.96 for Big Mountain Resort, accompanied by an expected mean absolute error of \$10.36. A comparison with the current ticket price of \$81.00 suggests room for a potential increase.



Using this model, to predict potential revenue for Big Mountain Resort with a predicted price of \$97.96 and considering the marginal average error of \$10.36, the resort can safely make a price increase up to \$86.3. The expected number of visitors over the season is 350,000 and, on average, visitors ski for five days. With this assumption, Big Mountain Resort can achieve a revenue increase of up to 8% over the season.

Scenario modeling emphasizes the potential benefits of enhancing the vertical drop and potentially undertaking a strategic closing of underutilized runs. It's important to acknowledge here that a comprehensive assessment was hindered by the lack of comprehensive cost data. To ensure seamless utilization of this model, we propose the development of an interactive dashboard that allows real-time scenario testing.

Future horizons:

While our analysis lays a robust foundation, we recognize the potential for further refinement. Incorporating visitor demographics, external influences, and comprehensive cost data would enhance the model's predictive accuracy.

Big Mountain Resort stands at the crossroads of data-driven decision-making. Armed with a powerful model and insights, the resort can embark on a journey of strategic excellence. In a dynamic market, where every decision counts, this model surely equips the resort to optimize its operations, elevate customer experiences, and ultimately maximize revenue. The future is bright, and Big Mountain Resort is poised to conquer new peaks in profitability.