Big Mountain Resort Recommendations Report

***How can Big Mountain Resort change ticket prices, operating expenses, and revenue generation this year to balance the newly incurred operational expenditures of $1.54 million and keep the company's profit margin at 9.2% or higher?***

Note: The figures mentioned below are notebooks provided (03\_exploratory\_data\_analysis.ipynb and 04\_preprocessing\_and\_training.ipynb).

Figure 1: Correlation Heatmap of Resort Features

This heatmap illustrates the strong correlations between vertical drop, total skiable terrain, and ticket prices across resorts.

A screenshot of a computer screen

Description automatically generated

Figure 2: Ticket Price vs. Vertical Drop

This scatter plot shows the positive relationship between a resort's vertical drop and its ticket price, with Big Mountain's position highlighted.

A graph of blue dots

Description automatically generated

We developed and compared several machine learning models to predict optimal ticket prices based on resort features. The Random Forest model performed best, with an R-squared value of 0.92 and a Mean Absolute Error of $5.31.

Based on our model predictions and comparative analysis, we recommend increasing the adult weekend ticket price to $88.45, rounded to $89. This 9.2% increase aligns Big Mountain's pricing more closely with its features and market position, while still remaining competitive within its peer group.