Our analysis of Big Mountain Resort’s operational and market data indicates that the resort is currently undervaluing its ticket price relative to its amenities and performance metrics. The model-predicted ticket price is $95.87, compared with the current price of $81, suggesting there is room for a reasonable price increase even when accounting for a mean absolute error (MAE) of $10.39.

A comprehensive exploratory data analysis (EDA) revealed several strong relationships between resort features and ticket pricing. Correlation heatmaps showed that vertical drop, number of runs, fast-quad chairlifts, total lifts, and snow-making acreage were the strongest predictors of price. Scatterplots confirmed these findings, illustrating that ticket prices tend to rise with improvements in these specific features. The Principal Component Analysis (PCA) further supported these results, identifying terrain size and infrastructure capacity as major drivers of value across resorts.

To explore potential strategic options, several operational scenarios were simulated and visualized. When testing the permanent closure of up to ten of the least-used runs, the model showed that closing one run made no significant difference, but closing two or three reduced both the ticket price and revenue. Closing three to five runs produced the same negative effect. In contrast, the model responded positively to improvements that expanded terrain and lift capacity. Adding one run, increasing the vertical drop by 150 feet, and installing an additional chair lift increased the supported ticket price by $1.99, which could generate an estimated $3,474,638 in additional annual revenue. Adding two acres of snowmaking capacity to this scenario did not produce any further gain, and extending the longest run by 0.2 miles along with an additional four acres of snowmaking showed no measurable impact on price or revenue.

Based on these findings, Big Mountain Resort should focus on enhancing its vertical terrain and lift capacity rather than reducing operations or marginally expanding snowmaking. Specifically, the data supports adding one run, increasing the vertical drop by 150 feet, and installing an additional chair lift, as this combination yields the most substantial revenue potential with minimal risk to customer satisfaction. To refine these recommendations, the resort should collect more detailed data on competitor pricing strategies and elasticity of demand, as well as a deeper breakdown of its operating costs to balance capital investments with expected returns.

Overall, the analysis demonstrates that targeted infrastructure improvements can increase Big Mountain Resort’s perceived and modeled value, supporting a higher ticket price while maintaining competitiveness. Implementing these data-driven recommendations could increase annual revenue by approximately $3.47 million and strengthen the resort’s long-term pricing and investment strategy.