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Guided Capstone: Summary

Our client, Big Mountain Resort (BMR), requested our help with evaluating their ticket pricing strategy based on their facilities and amenities offered to their visitors. To achieve this, I will build a ticket pricing model based on nationwide ski resort data that will help determine where BMR ticket prices should be within the market share. The data will be presented to the client and used to provide suggestions on BMR ticket prices and improvements in facility use.

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Description automatically generatedTo begin, we explored the ski\_data DataFrame and conducted several key finding and analysis procedures. We were first interested in the statewide distribution of ticket prices. From the graph we can see that ticket prices are widely distributed, and that our client’s ticket price is in the upper range for the state of Montana. This data is not enough to create a model for ticket pricing, so the next step was to explore the various features and their correlations to ticket price.

Correlations between ticket prices and various features were examined, identifying several features like vertical drop, fastQuads, total chairs, Runs, Snow Making\_ac, and resort\_night\_skiing\_state\_ratio that showed potential for price modeling.

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Description automatically generatedWe can see in the heatmap graph that there were strong correlations between features such as Snow Making\_ac, Runs, fastQuads, and vertical\_drop. Now that we have an idea of what features may be used in our modelling, we can begin with our data analysis.

We first separate our target resort, BMR, with the rest of the data to predict BMR’s ticket price. Linear regression and random forest regression models were developed to predict ticket prices. Both models verified that the features previously shown in the heatmap to have high positive correlation to ticket price were also the most A picture containing text, screenshot, diagram, plot

Description automatically generatedimportant features in determining ticket price. The random forest regression model outperformed the linear regression model, exhibiting lower MAE and variability and was chosen for our final modeling.

The modeling results indicated that the predicted ticket price for Big Mountain Resort (BMR) could be increased from $81.00 to $95.87, with a margin of error of $10.39. Further scenarios were explored, including the impact of run closures and facility improvements on ticket pricing.

From our exploration of scenarios, we suggest that BMR increase vertical drop by 150 feet and install a new chairlift, which will support a ticket increase of $1.99 resulting in increased revenue of $3,474,638 over a season. In conclusion, the modeling results provided a foundation for BMR to explore different pricing scenarios and evaluate the impact on revenue. The model's versatility allows for further analysis and exploration, while considering additional data and input from business stakeholders.