**Guided Capstone Project Report**

**Findings:**

After addressing the issue that Big Mountain Resort wanted to learn if they are maximizing their returns with their ticket pricing, we worked on a model to predict a ticket price that is more fitting, given what they offer as a resort. After cleaning up the data, removing null values, irrelevant columns, we were able to close in on creating our model. Through this we found answers to some of our questions and questions that still needed to be answered. We learned that all the resorts in Montana, the state where Big Mountain Resort is located, had no differences between the weekend and weekday ticket prices. Resorts that had different ticket prices between the two were mainly those that charged less than $100.

I gained a baseline idea of performance by simply taking the average price as the model. Predictions using this method can be off by +/- $19. Using the median as the model can have predictions close by +/- $9. The model that experienced the least amount of variability was the random forest model which was by $2 which would be the model to be used moving forward.

Big Mountain Resort currently charges $81, however after using our predictive model, the ticket price is suggested to be at $100.24 instead. The model used to predict this actually is using the prices of the other resorts in our data set and does not take into account whether or not those prices are overpriced or underpriced, so the outcome we came up with may be slightly skewed. Big Mountain Resort is also looking to add an additional chair lift and according to our predictive model, the price should then be increased by $8.48 with this addition. Our calculations suggest that this will bring an expected revenue of $14,848,485. When adding 2 acres of snow making to the scenario, it suggests that the ticket price can be increased by $9.36 and bring an expected revenue of $16,386,364. The model for run closures says closing one run makes no difference. Closing 2 and 3 successively reduces support for ticket price and so revenue. If Big Mountain closes down 3 runs, it seems they may as well close down 4 or 5 as there's no further loss in ticket price. Increasing the closures down to 6 or more leads to a large drop.