**Guided Capstone Project Report**

Big Mountain resort is located in northwestern Montana. It offers access to 105 named trails and vast bowl and tree skiing. The resort has recently installed an additional chair lift to help increase the distribution of visitors across the mountain. This additional chair increases their operating costs by $1,540,000 this season. Therefore, we asked the question whether it is possible for the Big Mountain resort increase by 20% the chair-lift ticket prices.

To answer this question, we used information obtained from Aleesha Eisen, dataset manager. She provided a dataset that contains information from 330 ski resorts in the US, including location, mountain information, transport within the resort, price, among others.

The model provides insight as what Big Mountain's ideal ticket price could/should be, and how that might change under various scenarios.

The model was trained and optimized with the provided resort data. The actual ticket price is $81.00. And the model result price is $94.22. This suggests that there is room for an increase, with an expected mean absolute error of $10.39 and standard deviation of $1.47.

Features that came up as important in the random forest modeling included: vertical\_drop, Snow Making\_ac, total\_chairs, Runs and SkiableTerrain\_ac as influential components in determining the price ticket.

A close up of a piece of paper

Description automatically generatedA close up of a map

Description automatically generated

**Figure1**: *Scatter plots of the response variable (AdultWeekend) against features with the highest coefficient according to our model (1A - summit\_elev, 1B - daysOpenLastYear). Colours in the dots represent different clusters*.

Since features such as ski resort location, mountain characteristics and transport within the resort poorly explain the outcome of the response variable, my recommendation is that it would not be justified increase the adult price tickets during the weekends just because an additional chair lift was installed in the resort. Therefore, to recover the investment in this equipment, big mountain resort should consider opportunities in decreasing the maintenance cost of the chair lifts.