**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.

Using the information provided, a machine learning model was developed to predict the Adult price ticket during the weekends. According to the ski resort dataset, the current adult price during the weekends is **81 dollars**. Interestingly, the model predicted a price of **56.32 dollars**. The variance of this model is equal to **0.71** and the mean absolute error is 5.22, suggesting that the adult price during the weekends can only be moderately explained by the features used in the model explain.

1. B)

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*.

The modest explanation from this model can be visualized by inspecting the correlation between the response variable (AdultWeekend) and 2 of the features with the highest coefficient values according to our model, summit\_elev = 2.56 and daysOpenLastYear = 2.45 (Figure 1). From the scatter plots, it is clear that the association between the response variable and the features with the highest importance is weak.

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.