Guided Capstone Project Report

Big Mountain Resort has implemented a new chair lift costing ~1.54MM, and wants to maintain its profit margins of 9.2% over the next season in spite of this investment. Our objective is to determine the ideal price point of the weekend and weekday tickets, allowing annual revenue to increase such that profit margins remain the same. We recognize this is one of several methods leadership likely intends to implement in the coming weeks.

As a lot of data is missing (e.g. current prices, amount needed to reach annual revenue, etc.), this is the first step in our review, and we thus intend to base our suggestion off of data from other resorts.

In cleaning the data, we opted not to remove the 1st and 4th quartiles to remove outliers, which would have dramatically changed our dataset, given the small sample size. We applied a linear regression, evaluating three versions of the model based on the removal of certain features (more were removed in models 2 and 3). We found that the model removing the fewest features – model one – had a Mean Absolute Error closest to zero (our goal is to look for the lowest possible MAE), and had the highest explained variance. MAE was 5.20, as opposed to our second and third models, which have MAEs of 5.54 and 8.90, respectively. The suggested price from our first model is ~$84.39/person, where current prices are $81.00. Examining different features correlated with weekend prices, we notice that most resorts will price their weekend tickets slightly more than weekday tickets, as we are proposing; we notice that prices are largely higher the more days a resort is open, perhaps the result of increased maintenance costs, and more likely a reflection of generally higher demand for those resorts; and that total chairs, generally speaking, is not correlated to higher weekend prices. However, both summit elevation and vertical drop seem strongly correlated to a resort's ability to command higher prices. (See figures below.)

summit_elev by AdultWeekend by cluster

vertical_drop by AdultWeekend by cluster

daysOpenLastYear by AdultWeekend by cluster

total_chairs by AdultWeekend by cluster