

Guided Capstone Project Report

Business Problem and Solution

Big Mountain, a ski resort in Montana, is looking for opportunities to increase existing profits or reduce operating costs to cover the cost of installing a new lift that will drive up seasonal costs of up to \$1,540,000. While this could be accomplished one of many ways, this report focuses on adult weekend lift price, specifically using a multiple linear regression model to find a most optimal price.

Brief Guideline of Steps Involved

Creating a robust model involves many steps. We had to first fill up missing data, do exploratory visualizations, work with outlier values and use a correlation matrix for independent variables to filter out unnecessary variables. After that, we formed a multiple linear regression model between our target ('Adult Weekend Lift Price') and all the other features; a linear relationship is indicative of a strong relationship making it a good predictive tool. To make sure it was robust, we had to use metrics (explained variance and mean absolute error) for which we received allowable results.

Results

We use our model to predict our adult weekend lift price for *Big Mountain Resort*. Our expected price is \$88.39 which is higher than the current price of \$81. Charging this new price could help offset the cost of the new lift. From a customer standpoint, the price increase makes sense once they see the new lift operating and taking them from one terrain to another more efficiently.

Next Steps

A next step could be to see how many adult weekend lift prices need to be bought in order to keep our margins at 9.2% (simple multiplication with new price).

Another option is to do analysis on other variables that exhibit a linear relationship with the adult weekend lift price. Three specific variables include: skiable terrains, days open in the previous year and project days open (see charts on next page). A follow up question, for instance, could be "*How many more days should 'Big Mountain' be open this coming season so more customers can come?*" If we want to explore skiable terrains, we could pose the idea of creating new ski routes (if possible) to allow for a greater variety of levels.

If we want to explore any of these other options, our team is more than up to the task.



