Big Mountain Resort Recommendations

Problem:

Big Mountain Ski Resort suspects it is not maximizing the resorts potential financial returns based on its position in the market. The goal of this project was to analyze data on facilities from ski resorts around the country and build a predictive model for ticket prices for big bear.

This model will also guide Big Bears investment strategies going forward to optimize investments to better aspects that drive ticket price and consumer experience.

Data Wrangling:

The goal of data wrangling was to take measures to preprocess the data, determine the variable you want to model, and correct for null variables. In this case ticket price is the variable we wish to explore. There is data for both weekday and weekend tickets so that is one problem to address, but a more pressing issue is the null values. While Big Mountain Resort is not missing any values, but that is not the case for other resorts. After some analysis it was determined that certain variables were to be dropped because of high percentages of missing data or otherwise deemed not important. Rows with missing price points were dropped and there were outlier variables that were investigated, and either not included or dropped. The methods utilized here transformed our data into a much more usable information.

Exploratory Analysis:

In this stage of the analysis, I looked at important features utilizing PCA analysis. The resulting data from this analysis allowed us to identify key features that affected price point. We were then able to combine some of these features into ratios that are very helpful for evaluating a resort by its most important features.

Preprocessing:

This phase of the project was to train and test different models and use cross validation techniques to optimize performance. Utilizing a train/test split of 70/30% a variety of models and statistical analyses were tested. The Random Forest model has the strongest cross validation mean absolute error and low variability and is the model we used to assess feature importance.

Modeling:

The purpose of modeling was to utilize out random forest model to draw empirical conclusions about how Big Mountains facilities match up with other mountains, and how the ticket price is reflected. Using the model Big Mountain’s ticket price should be $98.10, but is currently $81.00. a series of histograms were created to display how Big Mountain’s facilities match up with other mountains.

Recommendation:

The most important features that influence ticket price are as follows:

* vertical\_drop
* Snow Making\_ac
* total\_chairs
* fastQuads
* Runs
* LongestRun\_mi
* trams
* SkiableTerrain\_ac

These were supported by multiple models.

Big Mountain is already a fairly expensive resort; however it is above average in many of the key areas including Vertical drop, snow making, chair lifts, fast quads, runs, longest runs, and ski able terrain area. I think based on this analysis it is reasonable to gradually begin raising the ticket price to the projected 98-dollar mark due to the high quality of the resort’s facilities. While trams are not a huge factor, the fact that big bear has zero could be one area for improvement. In addition, a large effort should be made to make sure that as many trails are open as possible because there is a obvious drop off in revenue from ticket sales when large segments of the mountain are closed. Increases in snow making in these areas would be. A good way to make sure these trails are open and not subject to randomness of snow fall. Big Mountain is well ahead of the curve in terms of fast quads; however this is by far and away the most important feature influencing ticket sales and expansion in this arena is always a good idea. Perhaps adding a highspeed quad that goes higher up the mountain would be a good idea for future investment as well. This would increase skiable area, increase trails, increase vertical drop, and increase in high-speed quads. These investments would yield a measurable increase in revenue. However, to definitively make that recommendation I would need to do further analysis on a few different metrics. I would need the exact details of how this lift would increase each feature and rerun it through the model. That would give you a new value for ticket prices, and in turn revenue. I would also need an estimated cost of building this lift to see if the investment will return enough revenue to make it worth while.