Guided Capstone Project Report

Big Mountain Resort recently installed a new chairlift to increase visitor distribution across the mountain. This install raised their operating costs by $1,450,000 for this season. In order to raise revenue to account for this, the resort needs to update their ticket prices. The resort’s current ticket price strategy was to charge a premium above the average price for resorts in their market segment. The current ticket price for Big Mountain is $81 a day for adult tickets, our goal is to recommend a new ticket price that better capitalizes on the resort’s facilities.

We first looked at whether the state the resort was in made any impact on ticket prices. Principle component analysis was done to see which state related features, such as total days open, resorts per state, and or total skiable area in the state, account for the most variance in the state related data. The first two components ended up accounting for over 90% of the variance. This was then combined with ticket prices per state to see if either of these components had a correlation with ticket prices. There was not any clear pattern to suggest that that either of the first two components, which account for most of the variance in the data, are highly impactful on a state's ticket price. This means that there is very little correlation between what state the resort is in and the ticket price, so we can treat all states equally

Following this, a model was built using a Random Forest Regressor, and used to determine which resort features made the most impact to ticket prices. After analysis, the dominant features were identified as fast quads, number of runs, snow making acres and vertical drop. Total number of chairs was also an important feature. This gave us a model that could tell us what Big Mountain’s ticket prices should be, based on these important features.

Chart, histogram

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Chart, histogram

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Meanwhile, when you look at where it ranks in ticket prices, Big Mountain is not comparably high with its price as it is with the important result features. Narrowing it down to state data, it looks like the resort could have been undervaluing its tickets to be more comparable to resorts in its state of Montana. This would explain why their ticket prices had so much room to increase.

Chart, histogram

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The resort has also been looking at different scenarios for cutting costs or increasing revenue from ticket prices. The four proposed scenarios given by Big Mountain were run in our model to investigate what additional impacts to ticket prices these changes would make. Of the four, the second scenario which included adding a run, increasing vertical drop by 150ft and installing an additional chair lift made the most positive impact on ticket prices, with an increase of $1.99 a ticket, or a season revenue increase of $3,482,500. This proposal still needs to be balanced against the costs associated with implementing the proposed changes, which was not in the scope of this project.

Big Mountains current pricing strategy was under valuing their tickets. The resort can increase their ticket prices to more accurately represent their place in their market segment. They also now have a model that will aid them in looking into different scenarios down the line for cutting costs or increasing ticket prices by offering new features.