**Introduction:**

Big Mountain Resort, a ski resort located in Montana, recently installed a new ski lift to help increase the distribution of visitors across the mountain. The increase in costs has called the resort’s pricing model into question. There are doubts that the current pricing of the tickets does not reflect the value of the facilities offered. Management would like to update the pricing model of the resort to take a more data driven approach. We would like to determine how Big Mountain Resort should update their pricing strategy to better reflect the operating costs of the facilities provided to visitors prior to the end of the year.

**Data:**

To conduct this analysis, obtained data around 330 different ski resorts in the US. This data contained 27 attributes. After removing inaccurate/irrelevant columns, the data was left with 277 rows and 25 columns. To conduct further analysis by state, I imported state data from Wikipedia.

**Analysis:**

As there were a total of 27 attributes in the provided data, it was important to determine which attributes had higher effect on the ticket price than others. To determine the attributes that most highly correlated with the ticket price, created a heatmap.

*Fig 1.*

A picture containing text

Description automatically generated

Noted that the following features are significant to further analysis as they are highly correlated with ticket price: vertical drops, fastQuads, runs, total chairs, snowmaking\_ac. I created a model that used the ski resort attributes as inputs to determine ticket price as an output. Using this model noted that the Big Mountain Resort modelled price is $95.87 with a mean absolute error of $10.39, while the actual price is $81.00. This suggested that there is room for an increase. Then used the model to predict the result of 4 scenarios. The first scenario predicted the effect on ticket price if Big Mountain Resort closes up to 10 of their least used runs.

*Fig 2.*

Chart, line chart

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Noted that closing 1 run makes no difference, however closing 2-3 runs decreased the price, but at that point closing an additional 1-2 runs will not change the price. Once you close 6 runs, the price drops significantly. In the second scenario, Big Mountain determines effect on ticket price if they add a run, increase the vertical drop by 150 feet, and install an additional chair lift. This scenario increases support for ticket price by $1.99. The third scenario is the same as Scenario 2 but also accounts for the addition of 2 acres of snow making. Noted that this made no difference and still showed an increase in ticket price by $1.99. Scenario 4 is determined the effect of increasing the longest run by .2 miles and guaranteeing its snow coverage by adding 4 acres of snow making capability. This scenario showed no difference as well.

**Results/Recommendations:**

Based on the above results, accounting for the $10.39 mean absolute error, Big Mountain should increase their ticket price to $85.50 which is $4.50 more than the current price. Additionally, I'd recommend that Big Mountain add an additional ski lift along with an increase to their vertical drop by 150 ft and adding an additional run. They should then close 2 of their least used runs in order to save on operation costs. This would justify an increase to their ticket price by an additional $1.99 which would make the price $87.50 after rounding, which is a total of $6.50 higher than the current price.

As the expected number of visitors over the season is 350,000 and, on average, visitors ski for five days, this would indicate a season revenue increase of $11,375,000. As the additional ski lift increases operation costs by $1,540,000, this would mean additional profits of $9,835,000.

**Conclusion:**

Based on the analysis done, Big Mountain Resort can increase their profits by nearly $10 million by making a few changes. Additional details on the other current operating costs and details on the cost to implement each change would be beneficial to further assist with making decisions. Additionally, as it may be difficult to implement a drastic price increase all at once, business may choose to gradually change the ticket price.

We will provide Big Mountain Resort access to the model so that you can use it in order to test scenarios and assist with decision making in the future.