**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 and recent suspicion 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 wrangling the data and removing inaccurate/irrelevant columns, the data was left with 277 rows and 25 columns. In order to conduct further analysis by state, I imported state data from Wikipedia.

**Analysis:**

In order 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 and ticket price as an output. Using this model noted that the Big Mountain Resort modelled price is 95.87, while the actual price is 81.00. Even with the expected mean absolute error of 10.39, this suggested that there is room for an increase. Then used the model to predict the result of 4 scenarios. The first scenario predicted if they should close up to 10 of the least used runs.

*Fig 2.*

Chart, line chart

Description automatically generated

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 is adding a run, increasing the vertical drop by 150 feet, and installing an additional chair lift. This scenario increases support for ticket price by 1.99. The third scenario is the same as Scenario 2 but adding 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 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 price was previously. Additionally, I'd recommend that Big Mountain should add an additional ski lift along with increasing the vertical drop by 150 ft and adding an additional run. They should then close 2 of the least used runs in order to save on operation costs. This would increase their ticket price by an additional 1.99 which would make the price 87.50 after rounding, which is a total of 6.50 more.

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.