Good afternoon and thank you for taking the time out of your day to read this report. Our initial reason for collaborating was to solve a financial issue that Big Mountain ski resort is currently facing. This season the resort has added an additional chair lift to the resort in order to facilitate more visitors on their accent up the mountain. This new chair lift has increased the operating costs of the resort by $1,540,000. Initially we wanted to look at our current spending and see what it is that we might be able to cut back on in order to cut our expenses by at least $1.6 million, or see if there were any opportunities to increase our prices to increase our revenue by the same amount. After spending some time analyzing the data and running models, we have come up with a couple different ideas of what can work to offset costs and end up in the green instead of the red in our finances.

Currently, our ski resort has been doing so well in the state of Montana that we needed to add an additional chair lift. This is a great problem to have as it shows how popular our resort is. Now that we are able to facilitate more people, we have an even larger opportunity to grown int the future. The only issue is that we are spending an additional $1.56 million in operating costs on that lift, however, that is a miniscule problem because of the research and the findings we came up with, we have multiple different strategies that we can implement so that we will not only be able to make up that additional cost, but we will make even more money beyond that so we can further invest in the resort whether it is adding additional facilities, or increasing the pay for our staff.

The first thing we want to break down is this: how did we arrive to our conclusion? We gathered data from all the ski resorts around the country and categorized their data into several different categories such as prices, state, the number of runs, skiable area, and snow making. We then examined what features were closely related to higher ticket prices. We saw that vertical drop, fast quads, the number of runs, snowmaking, number of days open last year, and the projected days open were the biggest factors affecting ticket price. We then ran several machine learning algorithms and came with some interesting charts and comparisons.

A graph of a number of tickets

Description automatically generated with medium confidence

A graph of snow making

Description automatically generatedA graph of a vertical drop

Description automatically generated

A graph of blue and red bars

Description automatically generated

A graph with numbers and a red line

Description automatically generated

A graph of a number of runs

Description automatically generated

A graph with a red line

Description automatically generated

A graph of a number of land area

Description automatically generated with medium confidenceThese graphs show how Big Mountain compares to all the other ski resorts in America in terms of the features that are the most closely corelated to the lift ticket price. These graphs show that in most features, Big Mountain resort is in the top percentile, meaning that Big Mountain has more of those features than most of the other parks in the country. Now let’s compare this against the ski resorts within the state of Montana:

A graph with blue lines

Description automatically generatedA graph of a bar chart

Description automatically generated with medium confidenceA graph of a bar

Description automatically generated with medium confidenceA graph of blue rectangles

Description automatically generatedA graph with numbers and a bar

Description automatically generatedA graph with blue lines

Description automatically generatedA graph with blue bars

Description automatically generatedA blue line with red lines

Description automatically generatedA graph of blue rectangular bars

Description automatically generated with medium confidence

The first thing you will notice about Big Mountain is that our current price is higher than every other resort in the state of Montana, but why is that? That is because we are the leaders in almost every category in the state. We have one of the highest vertical drops, with only 3 other resorts leading ours. There is only one other resort with more ski runs than us. We have the most skiable terrain, the longest run length, the most fast quads, the most chairs, and the largest area covered by snow making machines. These features alone show why we currently chare the highest prices as compared to every other pack in the state, we are just better. But what does that mean when it comes to our ticket price?

Big Mountain Resort modelled price is $95.87, actual price is $81.00.

Even with the expected mean absolute error of $10.39, this suggests there is room for an increase.

Wow, so according to our model, the price that we really should be charging is $95.87 but we are only charging $81. Why is that? Well, at $81 we are already charging higher than every other resort in the state and if we charge too much, we face the risk of running off some of our visitors to the other resorts no matter how much better we are than them. Let’s look at some of our options: We could cut back on certain features that we currently have, or we can charge a higher ticket price.

First thing is cutting back on some of our features, in particular, the idea of closing some of the ski runs: A graph of a price

Description automatically generated with medium confidence

The model says closing one run makes no difference. Closing 2 and 3 successively reduces support for ticket price and so revenue. If Big Mountain closes 3 runs, it seems they may as well close 4 or 5 as there's no further loss in ticket price. Increasing the closures down to 6 or more leads to a large drop. The sad part is that closing runs ultimately does not equate to increasing revenue, on the contrary it is the opposite, our revenue would actually decrease as out ticket price would have to come down as well. This is not an option that I would recommend.

Our next option is to increase the ticket price. If we increase the ticket price, we will also have to add a couple more features to our park so that visitors will understand and appreciate the increase in ticket price. Our model shows that the best features to improve upon would be to increase the vertical drop by 150 feet, add an extra run and add an extra chair. With these extra features, we can increase the ticket price by $1.99, bringing the price up to $83.99. Over the season, this could be expected to amount to $3,474,638 in total extra income if we consider that the average season sees 350,000 visitors with each of them skiing for about 5 days. However, we would really need to consider the additional operating costs for that idea. I ultimately believe that increasing the overall ticket price to $86 will be the best idea. That amount will cover the additional operational cost of increasing the drop, runs, and chairs, as well as offsetting the cost of the lift and providing us with additional capital to do whatever we please such as reinvesting back into the resort or increasing worker’s salary. It is not such a huge increase is to deter visitors and when they see there is a larger vertical drop and an extra chair and run to go alongside the new ski lift, they will feel like their money is well spent.