Big Mountain Resort is a ski resort in Montana that charges $81 for a ticket on a weekday or a weekend. The purpose of my analysis is to help Big Mountain determine a new pricing structure for their ticket prices. After a thorough investigation it has been determined that Big Mountain is undervaluing its ticket prices by more than $10 and could be charging $93.48 per weekend adult ticket.

The first step in doing this analysis was to gather the data needed to pursue this problem. With the help of the database manager, I received a data set detailing more than 250 ski resorts around the country and information about more than 25 features at each of these resorts, including ticket prices for both weekdays and weekends. I also added state population data and state size to the existing data. By gathering this data, the goal was to be able to compare the prices of all the different ski resorts based on their location, proximity to population centers and the amenities they provide. Once a model has been built that is able to predict a resort’s price given its features, I would be able to predict the price of what Big Mountain should charge based on its features.

To start this analysis, I got a better feel for the data we were using. Ticket prices range from less than $25 per ticket to over $175 per ticket at different resorts. Features at resorts vary widely as well from the different types and speeds of chairlifts to snow making ability and the total vertical drop that a resort boasts.

With the goal in mind of sorting through this data to arrive at a pricing strategy, the first major task was to group ski resorts by state and region to see if different states or regions had significantly different prices than other states or regions. Although this seemed plausible–especially near population centers like New York City, my analysis showed that the state or region did not have an effect on ticket prices. After establishing this, I decided to treat the entire United States as the market for skiing. There was no evidence to support only using ski resorts in Montana or the Mountain West as its own market separate from the rest of the United States.

The next step in the project was to build a model for the data. I built two models using different techniques to both see which model was better and to be able to double check that the results from my model were accurate. Both models returned similar results, so I am confident that the results are dependable. Both models showed that Big Mountain is significantly undervaluing its ticket prices, and with the features it offers could be charging $93.48 per adult weekend ticket. There are several variables that our model shows are most important in this analysis, and both of the models we created agreed on these variables. Here are the top four drivers of ticket prices:

1. A larger vertical drop at a ski resort is indicative of higher ticket prices. Big Mountain’s total vertical drop is in the highest 25% of ski resorts in the country.
2. The area covered by snow making is the next important factor. In this area, Big Mountain is in the top 5% of ski resorts in the country.
3. The total number of charges is the third important driver of ticket prices. Again, Big Mountain is in the top 5% of ski resorts in total number of chairs.
4. The fourth major determinant of ticket prices is the number of fast quads that a ski resort has. Big Mountain is in the top 10% of resorts in the country in this category.

As you can see Big Mountain is a premier ski resort and is in rare company around the country with its breadth of important features and amenities. Up to now, Big Mountain has been comparing its prices to other ski resorts in Montana, where it is the most expensive ski resort. However, our analysis shows that the ski market is a national one, Big Mountain is a national player, and should be charging ticket prices like other premier ski resorts around the country. Based on the features Big Mountain boasts, we estimate that Big Mountain should be charging $93.48 per adult weekend ticket. The mean absolute error in our model was $10.40. Since ticket prices are currently set at $81, so even a conservative price increase of $2 or $3 per ticket would fall on the very low end of the price expectation for a resort with the features Big Mountain has.

Additionally, I used the model to do some analysis on other cost reduction and revenue increasing strategies. Here are a few takeaways:

* Closing 1 run will have no negative effect on ticket prices. Closing 2 runs would decrease expected ticket prices by about $.25, while closing 3,4 or 5 runs would decrease the expected ticket prices by around $.40. Closures of 6 or more runs decrease ticket price by more than a $1 per ticket.
* Installing an additional chairlift to increase the total vertical drop by 192 feet would increase the expected ticket price by $.92.
* Neither increasing the total number of acres covered by snow making capabilities by 4 acres nor lengthening the longest run at the resort by .2 miles had any effect on the expected ticket price that can be charged.