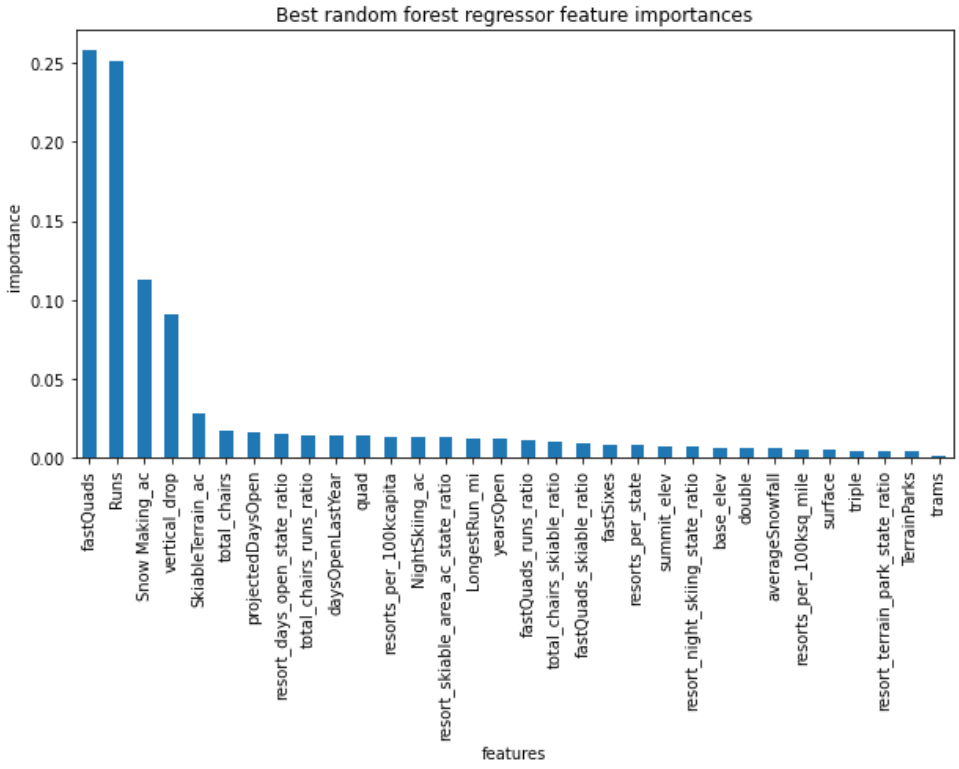
Big Mountain Resort is located in scenic Montana. It has 3000 acres of skiable terrain, a max vertical drop of 2353 ft and has on average 350,000 visitors a year. Recently, the resort added a new chair lift to better serve their visitors. This has also come with a bill of $1,540,000 for the season. In order to make up for this expense, we have analysed data from resorts across the entire United States to see how Big Mountain can tackle this new cost.

To big this analysis, we started with a data set that accounted for 330 different resorts across the country. This data included features like number of runs, number of chairs, longest run and maybe most importantly, ticket prices for weekends and weekdays. This last feature was the feature we decided to focus on and train our model around. We also chose to stick with weekend prices as we had more data for that item.

After cleaning up the data, we trained a model on a piece of that data, leaving the rest to let us know how good our model is. Now, one could use averages to predict prices as well. Using the average, one gets an error of ~$19 and using our model one gets an error of ~$9. This is a significant improvement over the average. This model also helps us to see what the most important features are in relation to price, meaning it shows us which features have the biggest impact on ticket prices. It gives us the following graph.

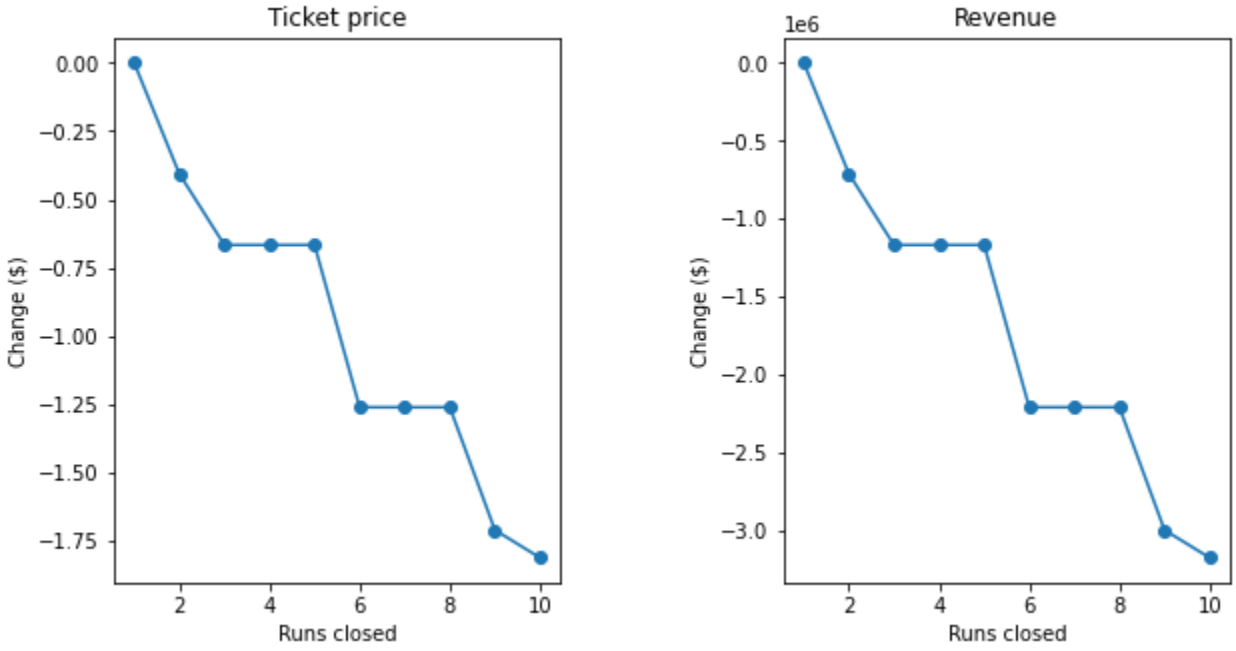


This chart shows us that fast quads, runs, snow making by acreage and vertical drop have the biggest impact on price. These may be good features to focus on when using our model and when looking to make changes at the resort.

Using this model, we found a modelled price of $95.87 for Big Mountain. As of now, the current price is $81, and with a mean absolute error of $10.39 there is room for an increase. How can this be? Big Mountain is already one of the most expensive resorts in Montana! While this is

true, the resort finds itself close to the median for country wide prices. This modelled price is supported by the fact that Big Mountain does quite well across some key features, including vertical drop, area covered by snow makers, total number of chairs, number of fast quads and runs. If we can look back at the previous chart, all of these features fall within the top ten most important features and even four of them are the top four.

Using this model, we ran a couple scenarios to see how different business choices could affect ticket pricing. We tested things such as increasing the number of runs, vertical drop, total number of chairs, snow making coverage and length of the longest run. Of these, the scenario that produced the best result was increasing the runs, drop and snow coverage. In this scenario we increased the runs by one, vertical drop by 150ft and number of chairs by one. This supported a price increase of $1.99. Assuming the average number of visitors for the year(350,000) and that they stay for five days(so five tickets), this produced a revenue increase of $3,474,638. Another thing that was explored was decreasing the number of runs and therefore decreasing maintenance costs. We didn't have data on maintenance costs, but we could show how this would impact ticket pricing.



This shows by decreasing the runs by one would make no change, while closing 2 or 3 runs would have a bigger impact. It also shows that if 3 runs were closed, 5 might as well be closed as it would produce no change in ticket price.

Using this data, we recommend adding a run, increasing the vertical drop by 150 and increasing the number of chairs by one. This produced the best result in our tests. Other ideas could be explored however.