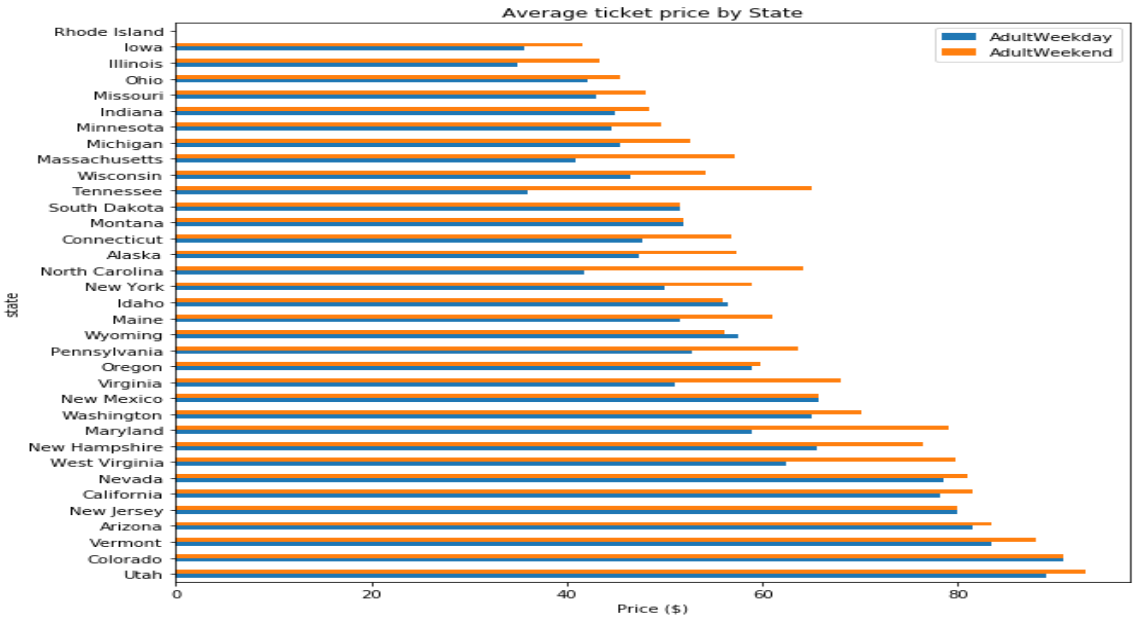
Big Mountain Resort Project Report

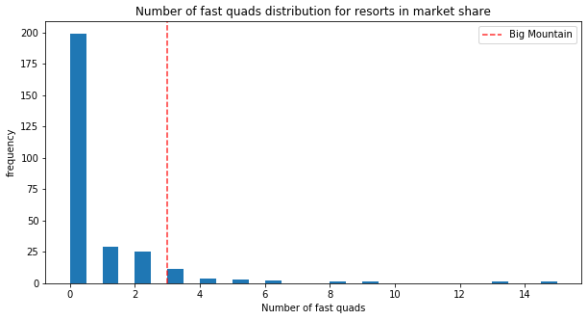
Big Mountain, a ski resort, offers spectacular views of Glacier National Park and Flathead National Forest, with access to 105 trails. Every year about 350,000 people ski or snowboard at Big Mountain, with several resources available for visitors. Those resources are serviced by 11 lifts, 2 T-bars, and 1 magic carpet for novice skiers. The longest run is named Hellfire and is 3.3 miles in length. The base elevation is 4,464 ft, and the summit is 6,817 ft with a vertical drop of 2,353 ft. With an addition of another chair, the resorts operational cost has increased by $1.54M. The resort needs to find a way to increase their profit to cover for their operational cost. With the variety of resources being provided by the resort, their actual price is $81, and as we can see, Montana charges the same price for Weekend and Weekday tickets.

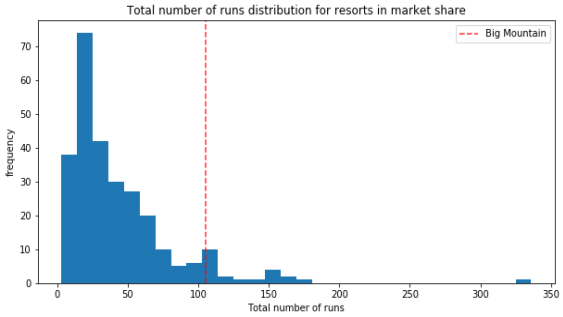


After cleaning the data, emptying out the rows with no values, and adding a few columns, we found that price is correlated with a few variables:

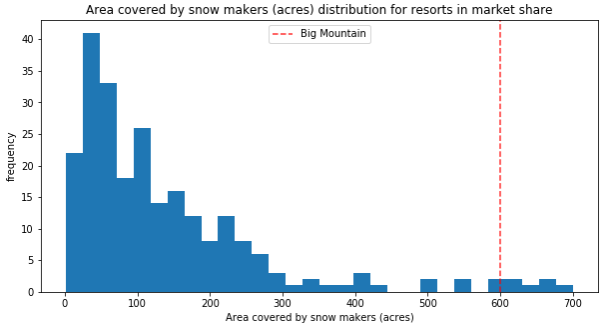
- fastQuads
- Runs
- Snow Making
- Resort night skiing state ratio
- Total chairs
- Vertical drop

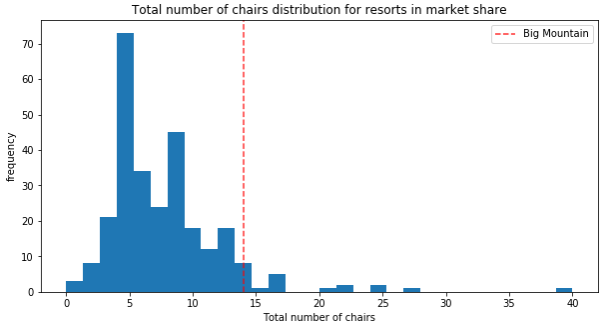
Now given that information, we went on to see how big mountain differs in these resources with the other resorts in the country.



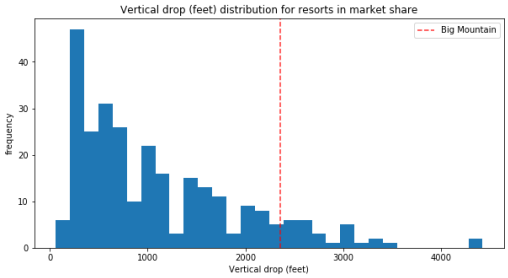


Big Mountain has 3 quads which puts them high up that league, along with the total number of runs, now there are some resorts that provide more runs but not many.





Big Mountain is among the top in snow making area, along with number of chairs provided.



There are couple of resorts with a higher vertical drop, but Big Mountain has a vertical drop that can attract audiences.

Along the way we also found that the actual price ($81) is less than the modeled price ($94.22). To get that, we used the random forest regression model, filling up the missing values with median. Along that model, we created a function (predict_increase) that would tell us the amount of price we will increase and revenue we will generate if we were to add a few features. The model helped us find that, if we add one more run, raise the vertical drop by 150, add a chair, we can increase our prices by furthur $8.46 which over the season will generate $14M more in revenue. Now, If we add two more acres of snow in this scenario, this will give us room to raise our prices by around $9.75, which over the season will accumulate to $17M in additional revenue.

To summarize, Big Mountain resort needs a dynamic price strategy to differentiate the price they charge on Weekdays and Weekends, along with raising their ticket prices to $93. The resources this resort provides, already puts them high league at the table, and if they were to add a few more resources, it can provide a significant amount of additional revenue, which can help them offset the incurred operational costs.