

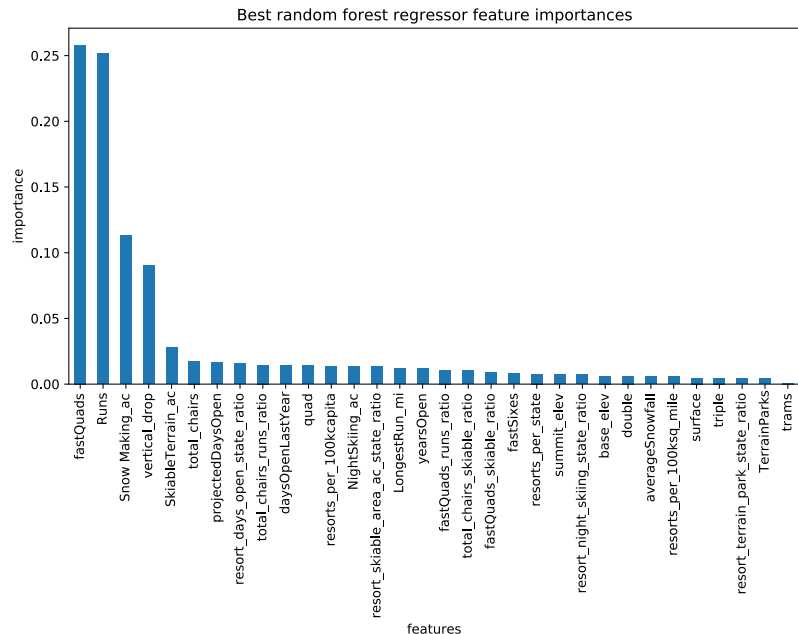
## Guided Capstone Project Report

Big Mountain Ski Resort's new facility, a chair lift to help increase visitors' distribution across the mountain, increases their operating costs by \$1.54 million this season. Meanwhile, their pricing strategy has been to charge a premium above the resorts' average price in its market segment. Yet, this pricing approach does not provide the business with a good sense of how important some facilities are comparable to others, which hampers investment strategy.

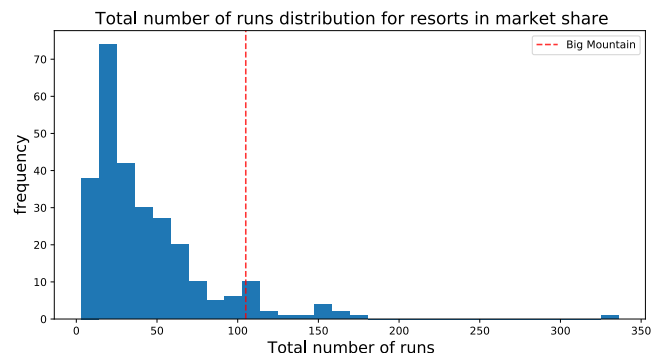
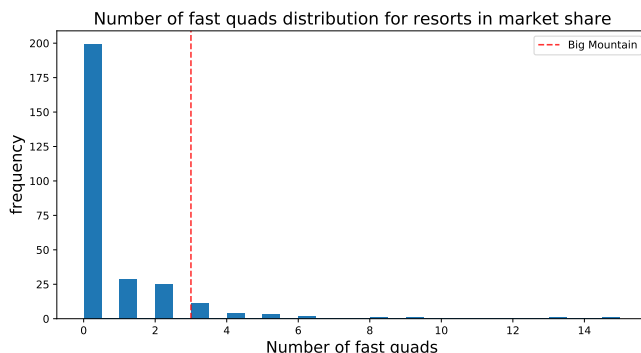
This report guides Big Mountain to **select a better value for their ticket price**. Besides, we predict how price should change under various scenarios, such as new investments or reducing a few facilities' services.

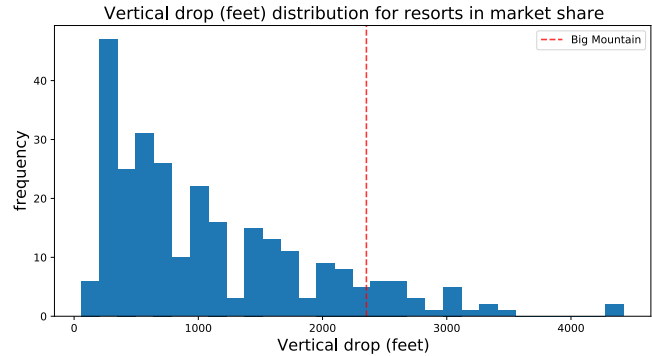
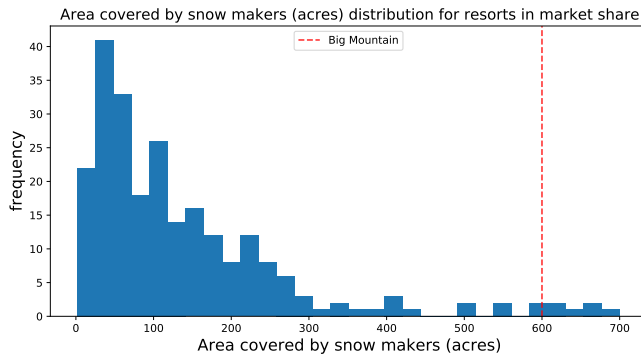
### Model for Predicting Ticket Value

- The model trained to predict the ticket price mainly considers **the facilities offered** and **the associated ticket prices** of the **276 ski resorts in the U.S.** Other factors, such as the number of visits, business operating costs, etc., are not available and not involved for price prediction.
- The top four dominated features associated with ticket price are **the number of fast-quads, runs, snow-making acres cover, and vertical drop**.



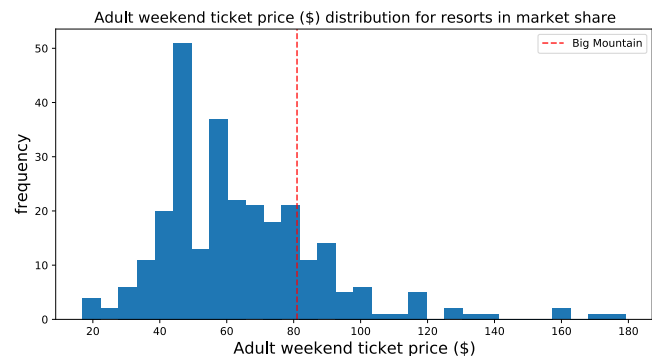
- Big Mountain (**red-dashed line**) sits higher up in the league tables across these four features (facilities).





## Suggested Ticket Price

Big Mountain Resort's **currently charge** (*Adult Weekend \$81*) is around the high-end regime amongst all resorts (plots on the right). Yet, its **modeled price** is **\$94.22**, with the expected mean absolute error (MAE) of \$10.39, suggesting there is room for an increase.



## Scenarios with Changes in Facilities

Further, we predict the adjustment to ticket prices and the expected revenue increase for various scenarios<sup>1</sup>:

1. Closing down up to 10 of the least used runs.
2. Adding a run for increasing the vertical drop by 150 feet and installing an additional chair lift.
3. Repeat the 2<sup>nd</sup> case but adding 2 acres of snow making cover.
4. Increasing the longest run by 0.2 miles (to boast 3.5 miles length) and guaranteeing its snow coverage by adding 4 acres of snow making capability.
5. Combining scenarios #1 and #2 (closing one least used run; extending the longest one with 150 feet vertical drop and adding one lift).
6. Decrease snow making area down up to 35 acres (it also decreases the skiable terrain area).

## Predicted outcomes

1	Closing one run makes no difference in the ticket price but helps to <b>reduce the operating costs</b> .
2	It <b>increases the ticket price by \$1.99</b> . That is, Big Mountain could expect to <b>\$3.47 million</b> increase over the season, which could cover the cost of running the new chair lift (\$1.54 million).
3	Small increase in the snow making acres makes <b>no difference</b> compared to 2 <sup>nd</sup> one.
4	It makes <b>no difference in the ticket price</b> .
5	Combining scenarios #1 and #2 <b>supports for ticket price by \$1.99</b> and <b>reduces the operating costs</b> .
6	Decrease snow making area down up to 35 acres makes <b>no difference in the ticket price</b> but helps to <b>reduce the operating costs</b> .

Scenarios **#1, 2, 5, and 6** are recommended for the business to do the planning and testing.

<sup>1</sup> The expected number of visitors over the season is **350,000** and, on average, visitors ski for **five days**.