Guided Capstone Project Report - Big Mountain Resort

Project overview and context:

Big Mountain Resort is a ski resort located in Montana. Big Mountain Resort has recently installed an additional chair lift with the goal of helping increase the distribution of visitors across the mountain. The resort's pricing strategy has been charging a premium above the average price of resorts in its market segment; however, there are limitations to this approach. Big Mountain Resort is not capitalizing on its facilities as much as it could and the business does not have a good sense of how important some facilities are compared to others, which hampers the investment strategy. The business needs help and guidance on how to select a better value for the ticket prices. They are also considering implementing changes that can cut costs without undermining ticket prices or will support an even higher ticket price.

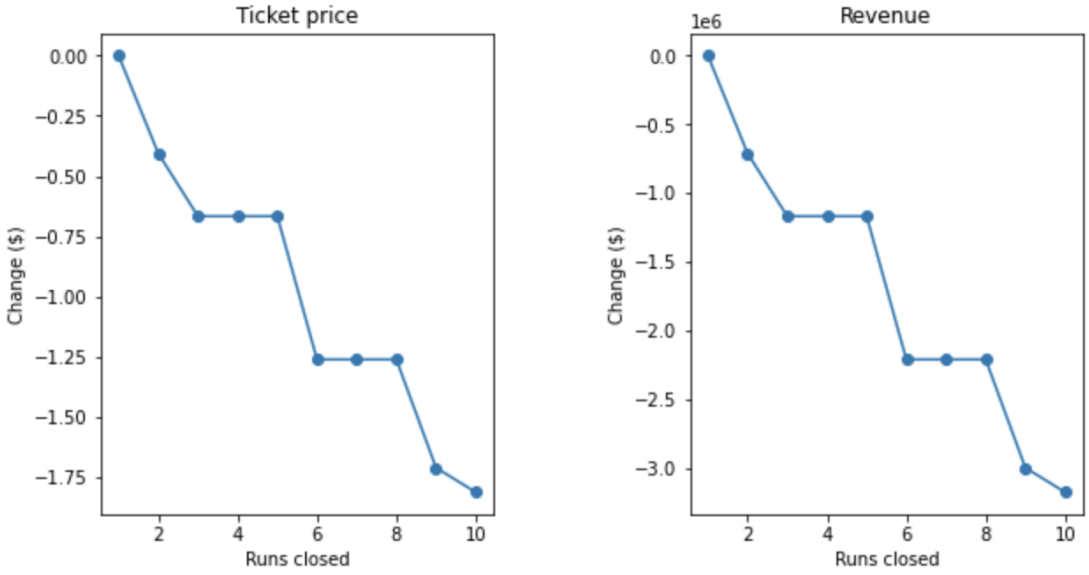
Recommendations:

1. Increase the adult weekend ticket price by at least $0.88 and up to $85.48.

Big Mountain Resort currently charges $81 for an adult weekend ticket. The predicted price from using the Random Forest model is $95.87 with a mean absolute error of $10.39. Big Mountain Resort is on the high end when it comes to the snow making area, total number of chairs, number of quads, runs, skiable terrain area. These high rankings can justify a price increase; however, we should first try to determine if the model overpredicts or underpredicts the ticket price. If the model underpredicts, we recommend Big Mountain increase the adult weekend price to $95.87 using the model's prediction. However, if the model overpredicts, we recommend Big Mountain Resort to increase its adult weekend price to $85.48 (model prediction minus the absolute mean error), which is still higher than the current price. A sudden increase in price can also deter some customers from purchasing tickets, so I would first recommend a more conservative increase of the ticket price.

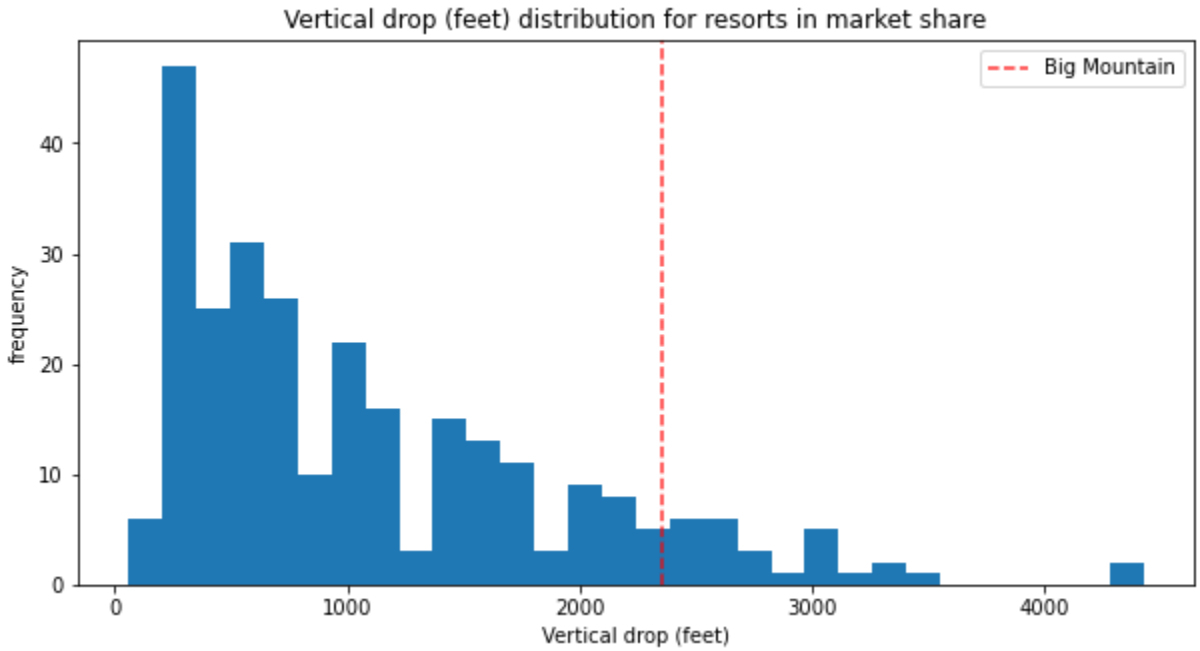
An increase of the ticket price from $81 dollars is necessary to cover the operating costs of installing the additional chair lift ($1,540,000). Assuming that Big Mountain Resort maintains an average of $350,000 staying an average of 5 days, if daily prices were to increase by 0.88 dollars, the operating costs of 1.5M will be covered ($1,540,000 / $350,000 / 5 = $0.88). Therefore, I would recommend an increase of $0.88 dollars at the very minimum and up to 85.48 dollars (the lower range of the model prediction).

2. Close 5 of the least frequently used runs without compromising the ticket price cost.



Our analysis showed that closing up to 5 runs is the most optimal strategy that won't compromise the ticket price.

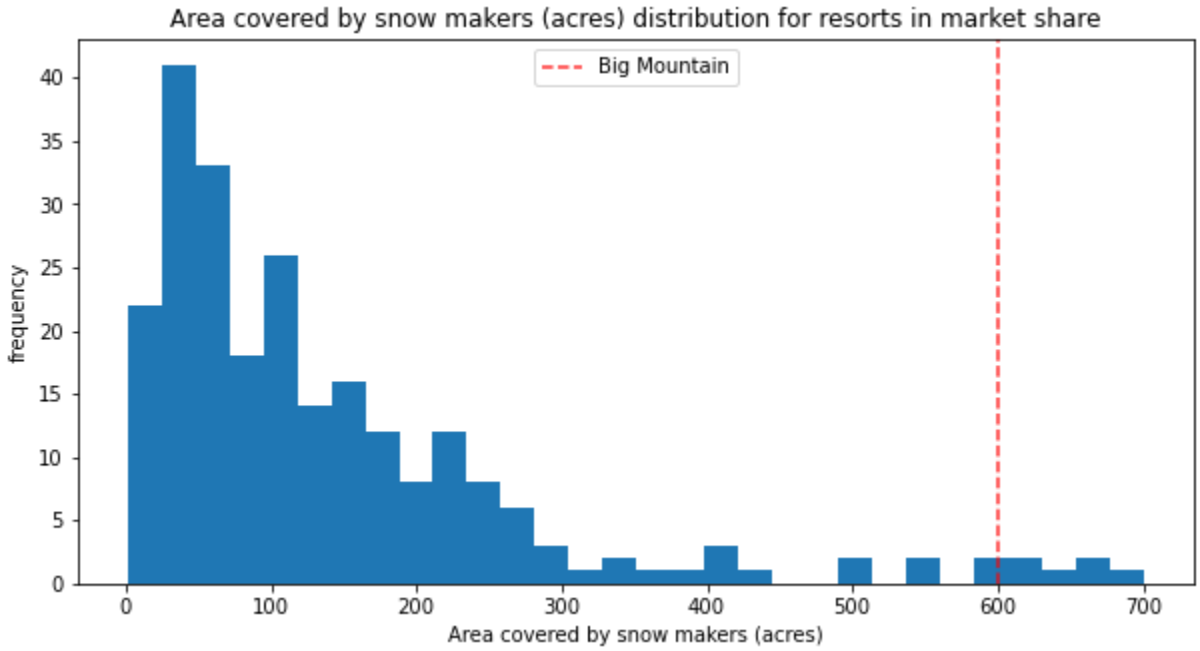
3. Investigate the impact of adding a run that increases vertical drop by 150 feet.

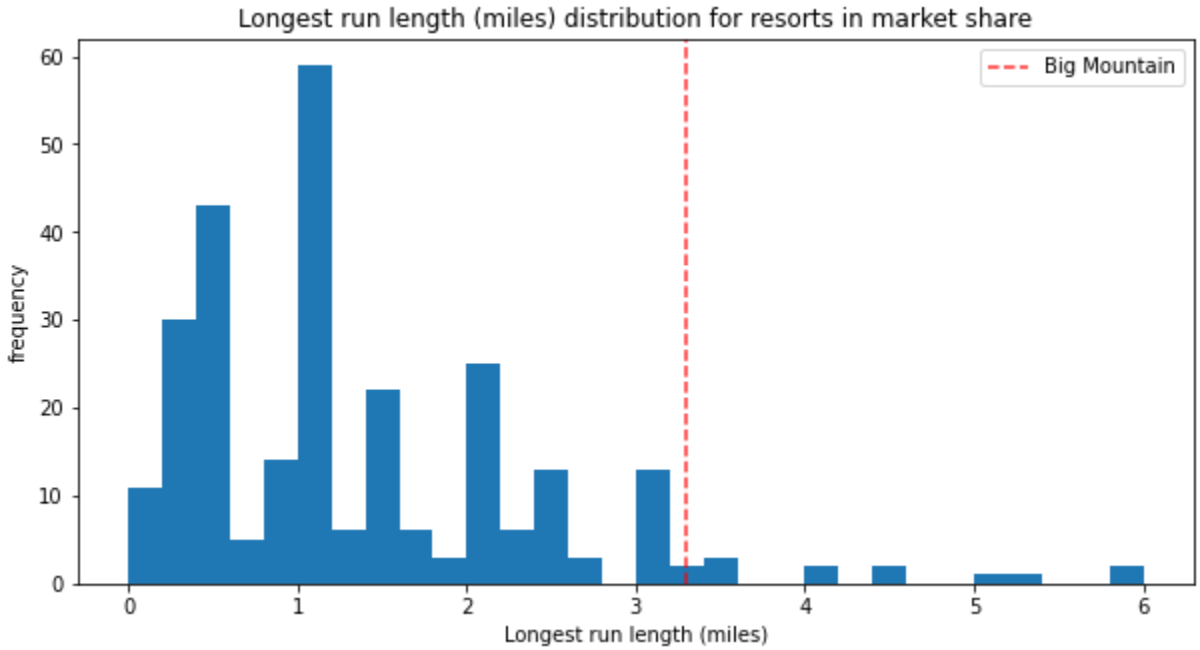


This scenario increases support for ticket price by $1.99. Over the season this can lead to an annual revenue of $3,474,638.

4. Other recommendations

The other 2 scenarios that we looked at (increasing snow making cover and increasing the longest run by 0.2 miles) did not result in increased supported ticket price and are not recommended. Big Mountain Resort is already on the high end in these areas.





Recommendation summary:

1). an increase of at least $0.88 dollars and up to $85.48 is necessary to cover the cost of installing the new chair lift,

2). closing 5 of the least frequently used runs to reduce operating costs without compromising the ticket price,

3). investigating the impact of adding a run that increases vertical drop by 150 feet.

4). increasing snow making cover and increasing the longest run are not recommended since they did not have any effect on the ticket price.