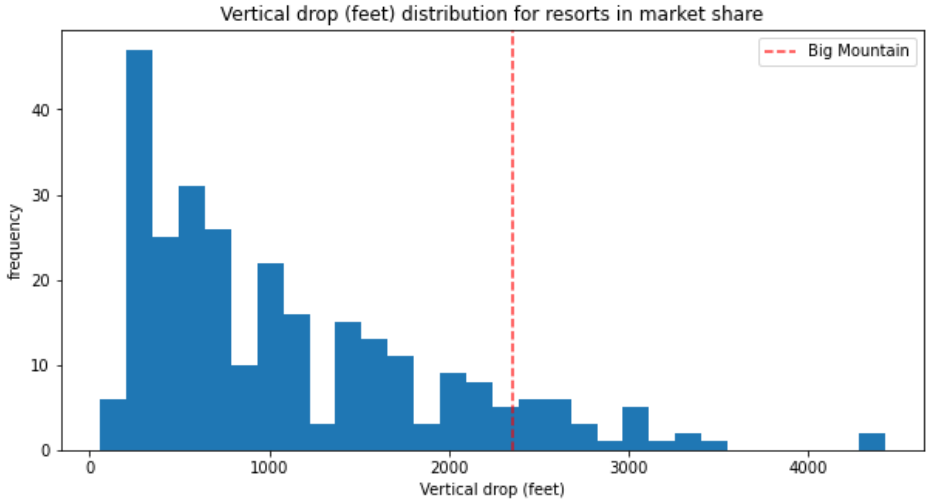
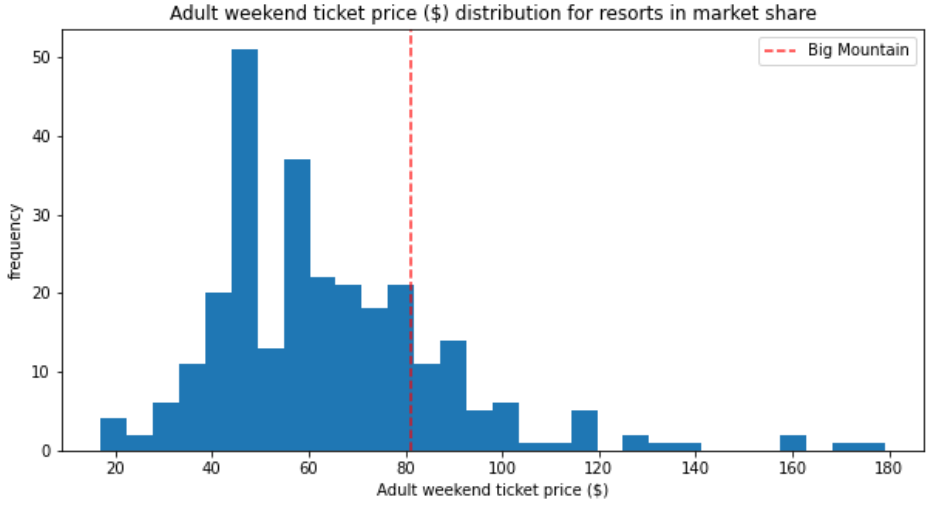
Big Mountain Resort has been faced with a challenge of selecting a better value for their ticket price based on a data-driven business strategy. The current price of a ticket is $81 and is based on charging a premium above the average price of resorts in its market segment. Because this strategy does not provide a good sense of how important some facilities are compared to others, Big Mountain is not capitalizing on its facilities as much as it could.

To see how Big Mountain Resort compares on important features, I created histograms that showed Big Mountain's ticket price is higher than many resorts in the country and the highest in Montana. Big Mountain's vertical drop is higher than many others, as well as the number of acres covered by snow makers. Big Mountain also has among the highest number of total chairs, fast quads, runs, and acres of skiable terrain. See two of the histograms below.



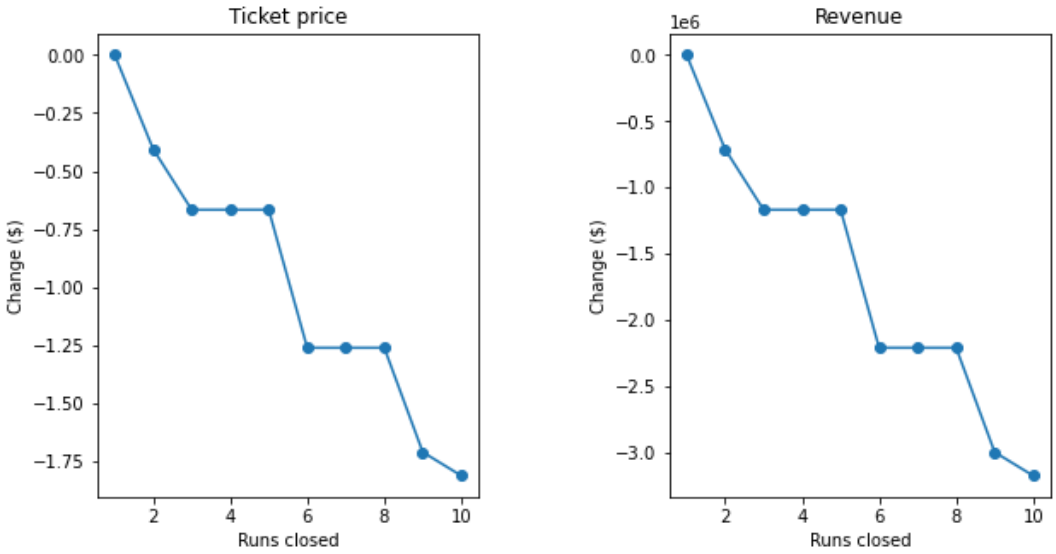


Using my model, Big Mountain Resort should have a price of $95.87. Even with the expected mean absolute error of $10.39, the price could stand to increase. The dominant four features affecting ticket price are fast quads, runs, snow making, and vertical drop.

Big Mountain has shortlisted some options in hopes of cutting costs without undermining the ticket price or of supporting an even higher ticket price:

1. Permanently close down up to 10 of the least used runs.
2. Increase the vertical drop by 150 feet with an additional chair lift, without additional snow making coverage
3. Increase the vertical drop by 150 feet with an additional chair lift and with 2 acres of additional snow making coverage
4. Increase the longest run by 0.2 mile to boast 3.5 miles length, requiring an additional snow making coverage of 4 acres

My model says that closing one run does not change the ticket price, while closing 2 and 3 runs would reduce support for ticket price (and therefore revenue). Closing down 3 runs is the same loss in ticket price as closing down 4 or 5. Closing 6 or more leads to a large drop. See the graphs below.



If Big Mountain chooses to increase the vertical drop by adding a run to a point 150 feet lower down, as well as install an additional chair lift to bring skiers back up (but without additional snow making coverage), the ticket price could be increased by $1.99. Over the season, this would be an approximate increase of $3,474,638 in revenue (assuming each visitor buys 5 day tickets). If the ski lift has an operating cost of $1,540,000 per season, there would still be close to $2,000,000 in profit. Adding in additional snow making coverage makes no difference in ticket price. Increasing the longest run by 0.2 mile to boast 3.5 miles length and increasing additional snow making coverage to 4 acres also makes no difference in the ticket price.

In conclusion, I would recommend increasing the ticket price to closer to $95, as well as adding the additional run and lift to make the vertical drop longer. It would also be worth testing closing one run, which wouldn't affect ticket price. After the changes are made, Big Mountain should send out a guest survey to find how satisfied the guests are.

In addition, it would be helpful to have operating cost data (snow making, run maintenance, staffing, etc), as well as data on guests (number of guests per season, where guests come from, etc) from other resorts. More data on other features of the resorts (restaurants, accomodations, activities, etc) could be useful too in determining appropriate ticket price.

I created prediction functions that can be used again to explore how changes would affect the ticket price. I will share this with the business analysts to use in the future, so that Big Mountain can continue to make data-driven business decisions.