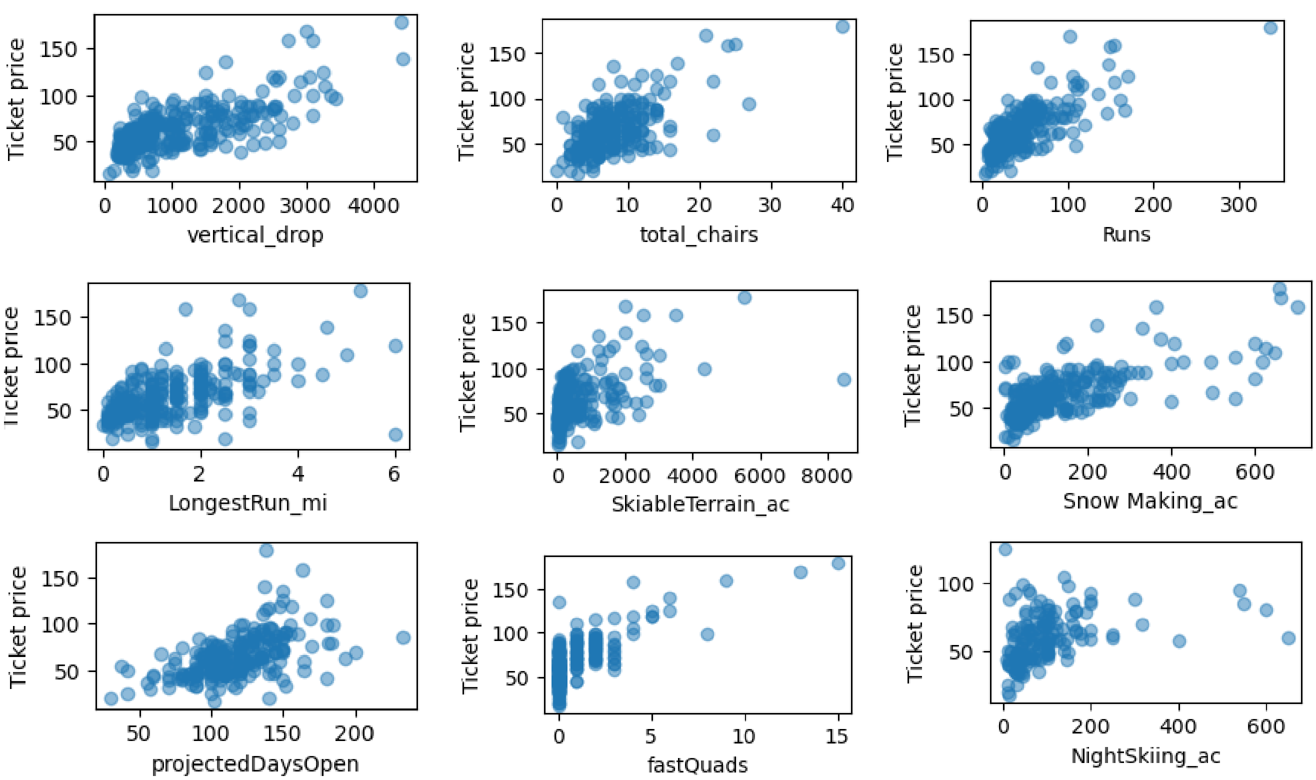
Franky A. Jul 23 Cohort
Report Submitted: August 19, 2023

Leveraging Data to Boost Revenue

Based on available market research data, we analyzed over two hundred and fifty resorts across thirty-four states. The findings revealed that, despite Montana's ski resort prices being below the average, Big Mountain Resort has successfully established competitive pricing. This is notable when compared to resorts located in states ranked within the top 20th percentile for pricing.

This positioning signifies that Big Mountain is operating on a national scale. The addition of facilities, such as the new lift chair, is poised to strengthen its competitive advantage even further. Our data analysis encompasses not just the operational expenses of the new lift chair, around $1.5 million, but also identifies potential ski facility reinvestment options, producing a data-modeled pricing strategy.

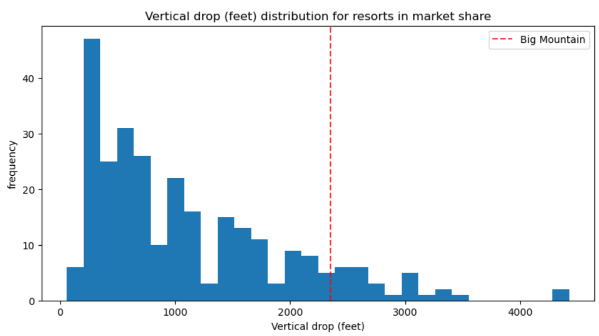
To increase the accuracy of our data model, we integrated state data to make sure we had a comprehensive understanding of any nuances related to location and population density. Early in the exploratory phase, we were able to identify trends that highlighted positive correlation between ticket price and the following resort features: height of vertical drop, number of chairs, number of runs, length of longest run, size of skiable terrain, size of snow making area, days open,number of fast quads and size of night skiing terrain (see charts below).

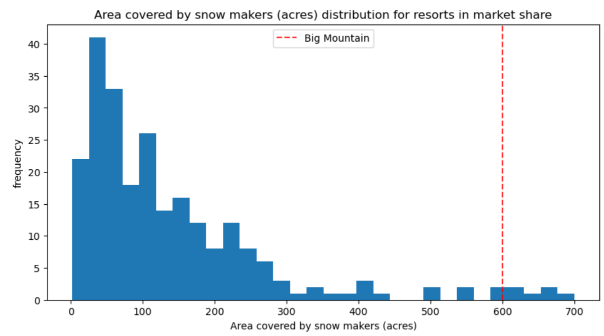


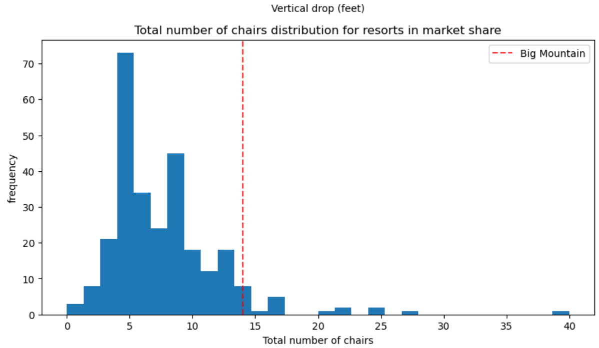
You can see that the ticket price is higher as that data goes further to the right.

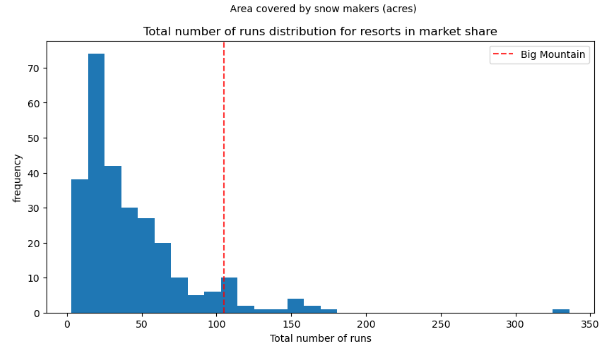
Although we needed to ensure that these trends were indeed 'tried and true', we were confident that these features would be essential in creating a successful data model. A linear regression model (model #1) and a random forest regression model (model #2) were evaluated using metrics such as R-squared, Mean Absolute Error, Mean Squared Error, and applying a Cross-Validation technique. As expected, during preprocessing & algorithm testing, the list of features identified to be the best parameters for model #1 and model #2 were almost equivalent to the features listed above. After testing the performance of both models, we found that model #2 would provide the best results and so we moved forward with a random forest regression model.

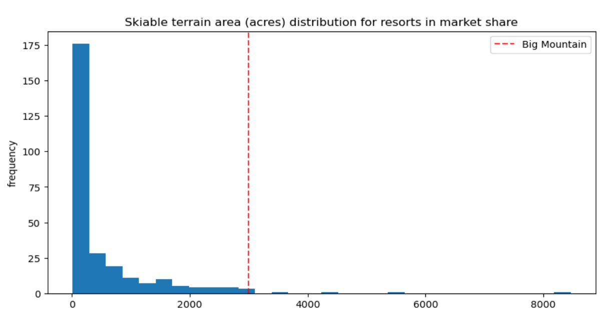
The final step was to run the model on the data set, excluding Big Mountain Resort data, to find the best pricing strategy. We arrived at a ticket price recommendation of $95.87 which is a phenomenal 18% price increase! This is not surprising as Big Mountain Resort is above average in so many areas compared to other resorts! (A few examples of where Big Mountain stands below)











To show the versatility of the model, we ran the following options:

1. Close down up to 10 of the least used runs.
2. Increase the vertical drop by adding a run to a point 150 feet lower down but requiring the installation of an additional chair lift to bring skiers back up, without additional snow making coverage
3. Same 2, but add 2 acres of snow making.
4. Increase the longest run by 0.2 mile and add snow making coverage of 4 acres.

Scenario (1) outlines the impact of closed runs on revenue. Scenarios (2) and (3) show ticket price increases of $8.61 (yielding $15M revenue) and $9.90 (generating $17M revenue), respectively. Scenario (4) shows no change. After conducting the model for these scenarios, it becomes evident that the data model functions as a pivotal tool for evaluating potential strategies and facilitating well-timed data-driven decisions.