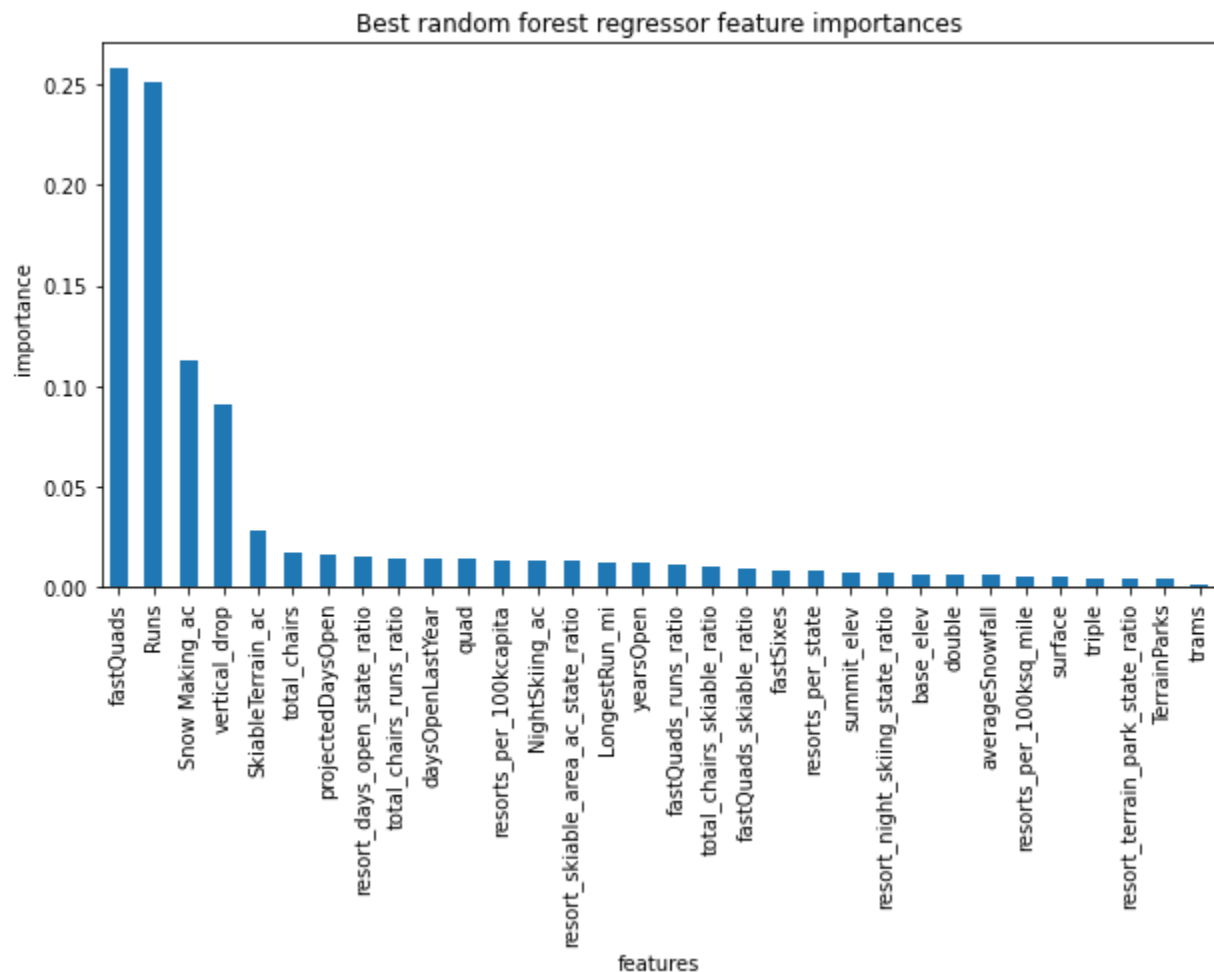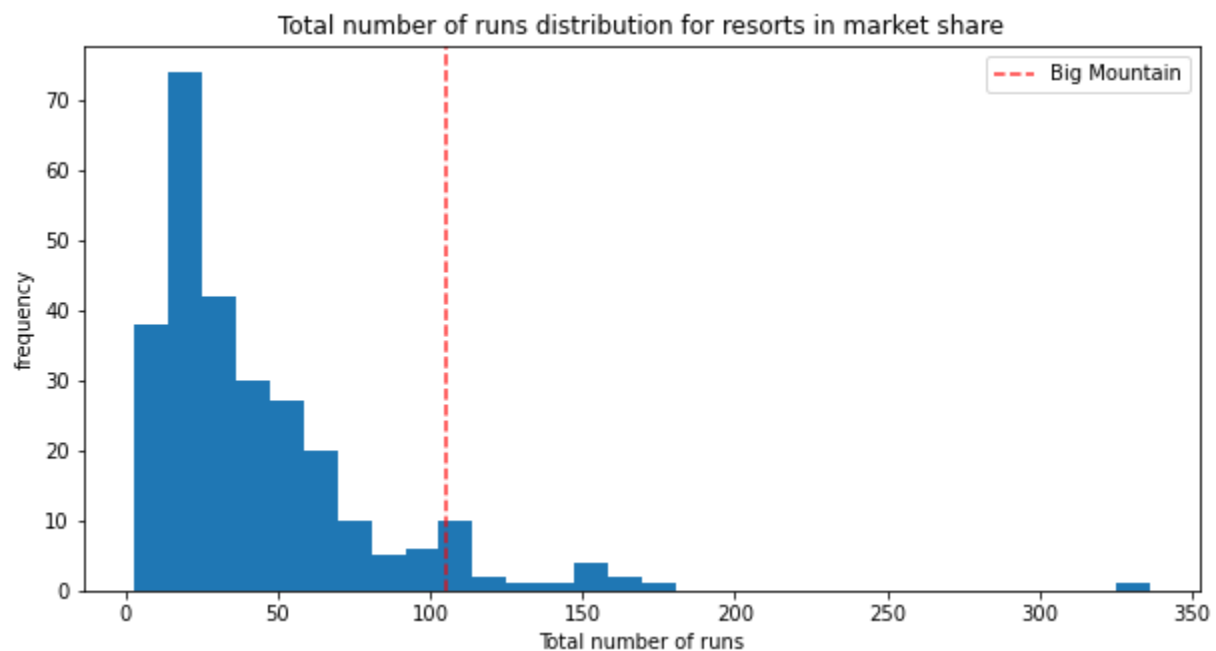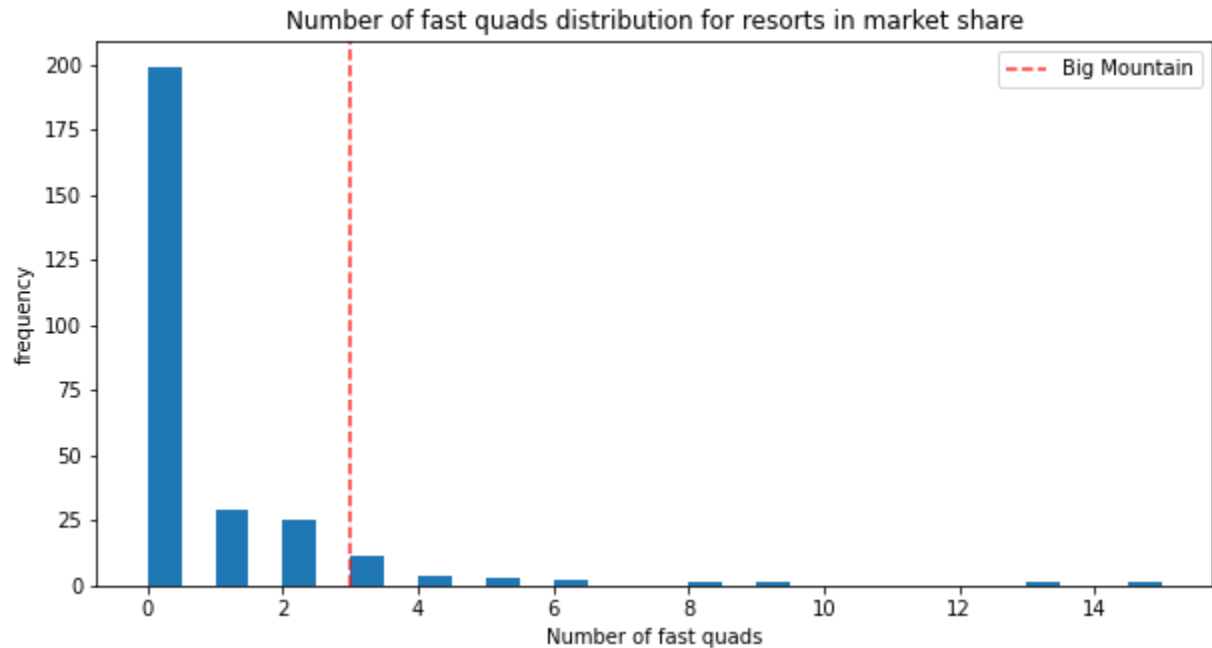To gain a more informed perspective of how Big Mountain should set its ticket prices, we looked at data from 276 other resorts across the U.S. to analyze the relationship between facilities offered at a given resort and its price. We performed a statistical analysis to identify the most important features and were able to create a modeling algorithm which could predict a resort's price with a mean absolute error of only $10.39. Currently, Big Mountain is charging 81 dollars for a ticket. However, based on the facilities that the resort provides, our model suggested that a price of $95.87 would be more suitable in the current marketplace. Given that the number of visitors per season is currently 350,000, with an average stay of 5 days, this change in ticket price would generate $15,613,500 in additional revenue per season. This more than covers the $1,540,000 increase in operating cost from the new chair lift.

Below you can see how our model (a random forest regressor) ranked the features most important to a resort's ticket price.

Best random forest regressor feature importances

Big Mountain resort rates among the best in the country in nearly all of the key features a resort can offer. Below, you can see where it lies on the distribution of resorts across the country with respect to number of fast quads and total runs, which were the two most important features.

Number of fast quads distribution for resorts in market share

Total number of runs distribution for resorts in market share

We then looked at the list of changes being considered by the business. According to our model, additional snow coverage or run length would not help increase the expected ticket price, and

closing runs would cause a decrease in the price. Of the changes being considered, we evaluated that the best was #2, where a run would be added (increasing the vertical drop by 150 ft) along with an additional chair lift. With these changes, we could expect an additional $1.99 increase to the ticket price, which amounts to $3,474,638 in additional revenue over a season. Considering that adding a chair costs $1,540,000, this seems like a reasonable proposal.