

Recommendation for Big Mountain Resort

Big Mountain Resort, a ski resort in Montana recently installed an additional chair lift to increase the distribution of visitors across the mountain. The operating cost is increased by approximately 1.54 million USD due to the extra chair lift. Big Mountain Resort wants to know whether the additional chair lift will be beneficial at all. The Resort ticket pricing is based on the average ticket cost in its market segments. The resort keeps their price at above average to boost profit. The management wants to revisit the pricing strategy or whether to cut down on the operating costs as it may not return enough dividends.

Based on a provided dataset, which contains details of various resorts spread across the United States, a machine learning model is developed to predict the ticket price for Big Mountain Resort.

The model predicts an increase of \$14.87 from \$81.00 to \$95.87 with a mean absolute error of \$10.39. The MAE suggests there is still room of increasing the ticket price.

The features *fastQuads*, *Runs*, *vertical_drop* and *SnowMaking_ac* are the most important parameters to the random forest model used for predicting the ticket price.

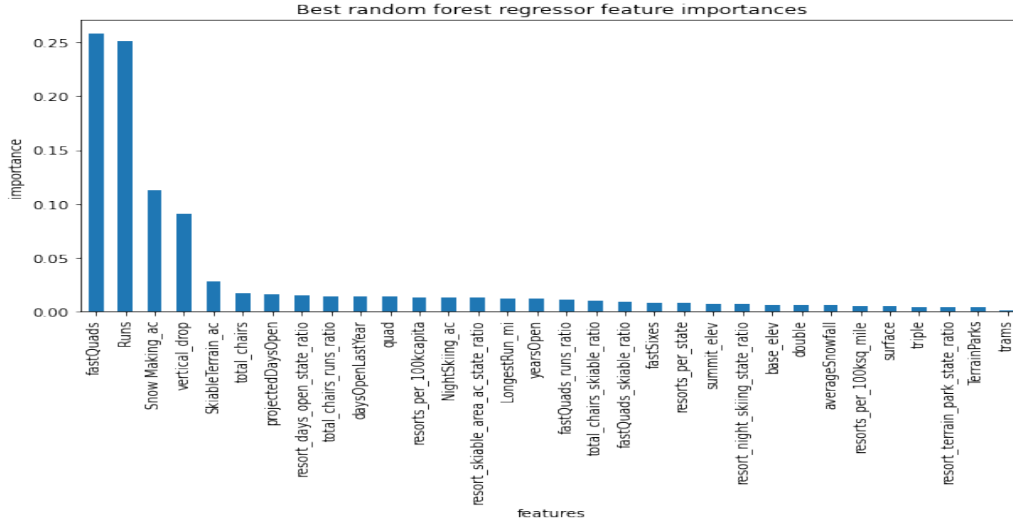


Figure 1: Feature Importance

Based upon scenarios provided by the management the following are the recommendations to obtain an profitable resort,

- Closing Runs: It is advised not to close runs. With one run closed there is no change, but as the number increases the revenue generated starts to drop, so does the ticket price. Refer to the figure 2 for an understanding.

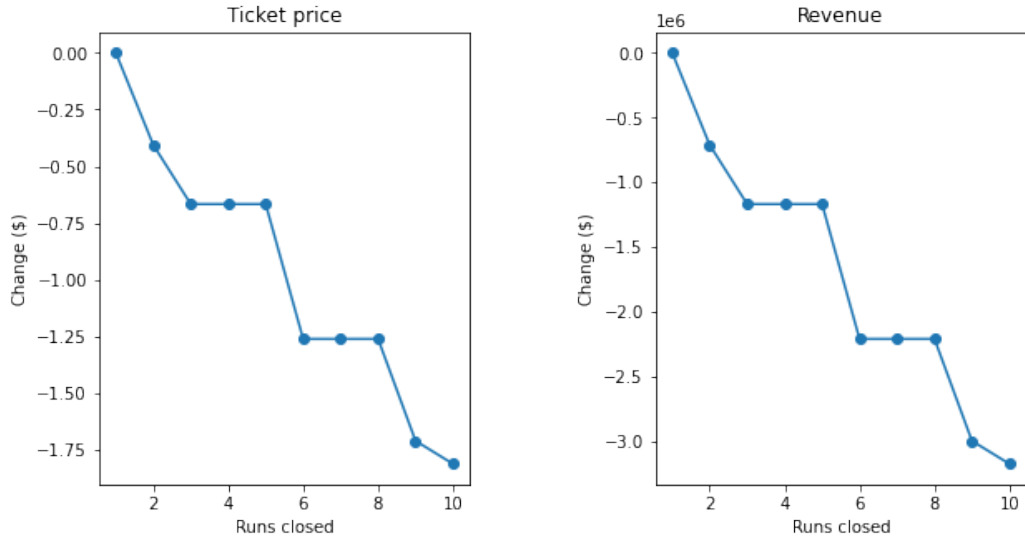


Figure 2: Closing Runs-Ticket Price and Closing Runs-Revenue Relationship

- Increasing the number of *Runs*, length of *Vertical Drop* and number of *chairs* increases the revenue exponentially. These actions are recommended.
- Increasing the length of a *Run* or increasing total *snow making capability* has no effect on the revenue generated at all. Instead this may increase the operating cost of the resort.