Big Mountain Resort

Big Mountain Resort has recently installed an additional chair lift to better serve visitors. The additional installation increases operating costs by $1,540,000, which negatively impacts the profit. If the company knows what facilities matter most to visitors, particularly which ones they're most likely to pay more for, it will set the best value for ticket price to make sure return supports the future investment plans.

Analyzing data about the 330 resorts in the US as well as information about states provided some insightful information about the market. Some of most finding was as follows:

1) Distribution of resorts by states (Fig 1) showed that New York accounting for the majority of resorts. Big Mountain in Montana came in at 12th place.
2) There was a clear line where weekend and weekday prices were equal (Fig 2). Weekend prices being higher than weekday prices seemed restricted to sub $100 resorts. Besides their relationship, less missing values for weekend price resulted into choosing weekend price as a target feature in modeling.
3) Runs and vertical_drop were the most important features in setting price and consequently expected revenue. Ticket price was very sensitive to closing down more than 6 Runs (Fig 3).
4) Features like Snow Making_ac, fastQuades, total_chairs, LongestRun_mi, trams and SkiableTerrain_ac were other important features that the ticket price was sensitive to their changes but not small changes (Fig 4).
5) There were other features like Resort night skiing state ratio (ratio of resort night skiing area to total state night skiing area) seemed the most correlated with ticket price (Fig 4). Perhaps seizing a greater share of night skiing capacity is positive for the price a resort can charge. Such features were correlated with the ticket price but they had relative importance in setting price.

Based on the result of learning curve function, we had plenty of data. In other words, Big Mountain doesn't need to collect more data, since increasing the size of training sample (more than 60) in Cross Validation didn't result better scores (Fig 5).

Fig 1. Distribution of Resorts by State

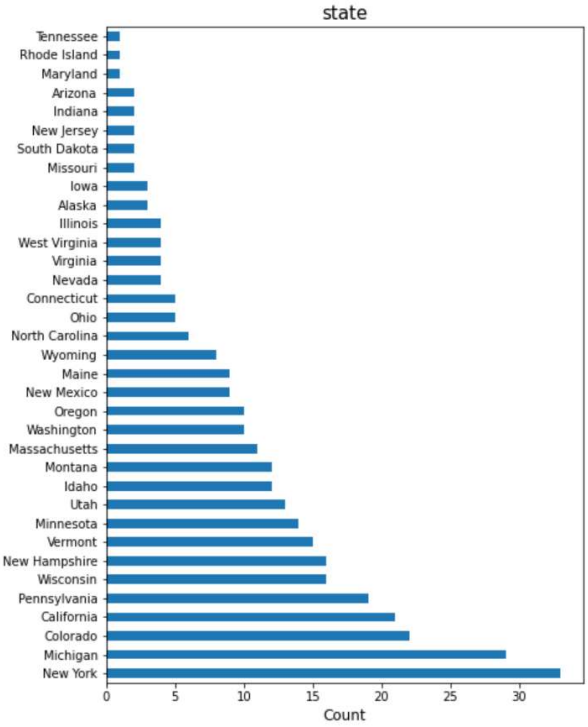

Fig 2. Relationship between Weekend and Weekday Prices

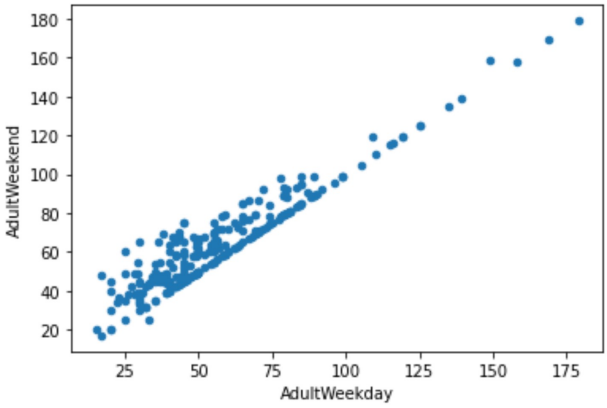

Fig 3. Sensitivity of Ticket Price to Number of Run Closures

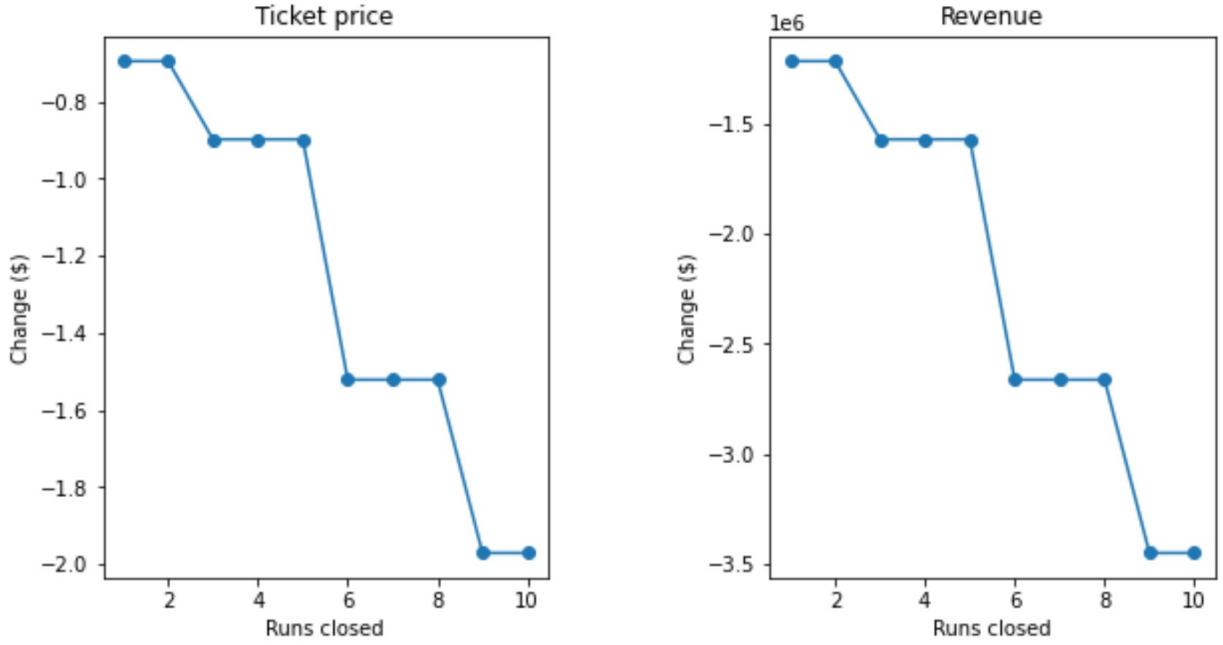

Fig 4. Most Important Features on Ticket Pricing

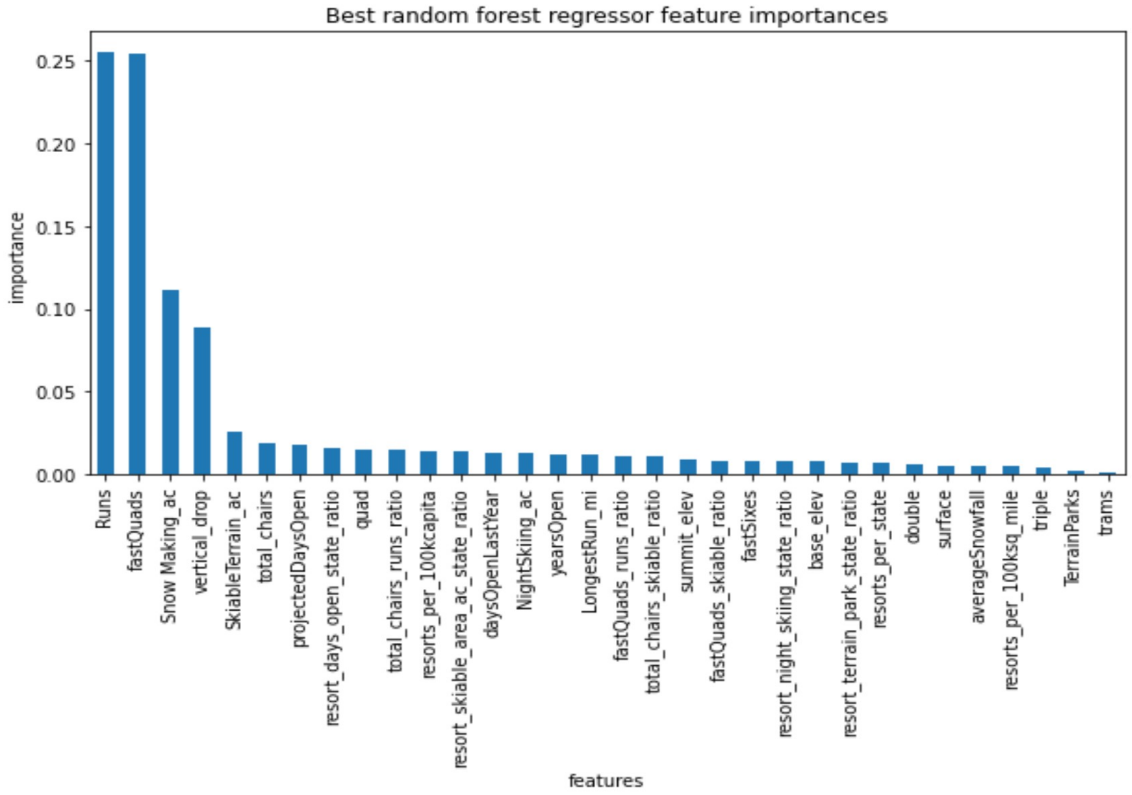

Fig5. Data quantity assessment