Problem Identification

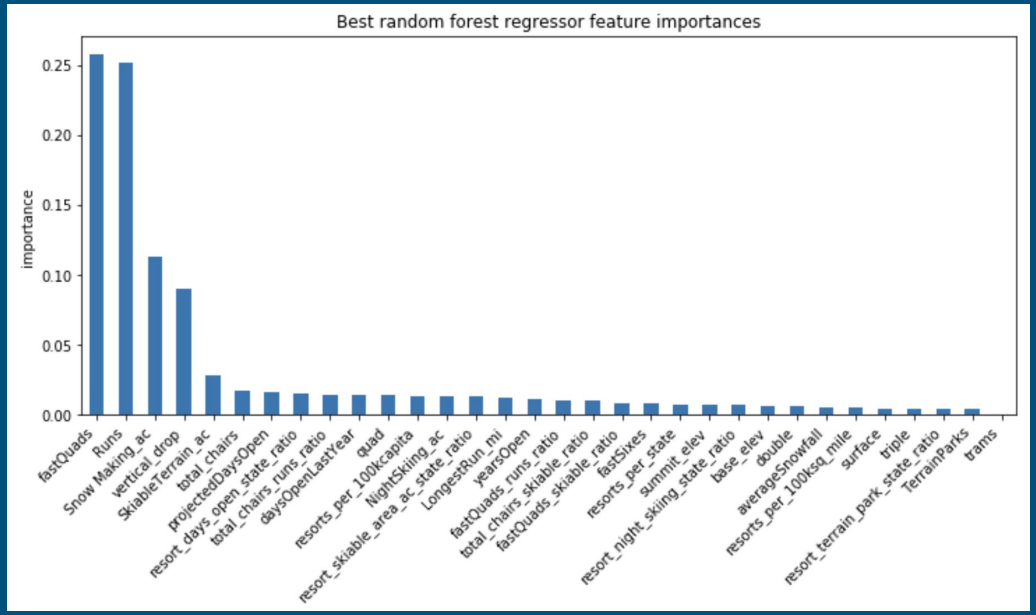
- An additional chair lift increases the operating cost by $1,540,000
- Goals:
  - Increase ticket price to at least cover the increased operating cost
  - Provide some guidance on future facility investment plans
- Scope of solution space: build a prediction model based on the number of facilities owned by all the resorts in Big Mountain's market share
- Possible constraints: limited amount of facilities and properties; visitors like to pay more for certain facilities and less for others

Recommendation & Key Findings

- While the current ticket price of Big Mountain is $81.00, the model suggests an increased ticket price of $95.87
- Recommendation option 1: Increase the vertical drop by adding a run to a point 150 feet lower down, and install an additional chair lift.
- Recommendation option 2: Permanently close down one or more of the least used runs. Depending on the operating cost of one run, the suggested number is either 2 or 5.

Modeling Results

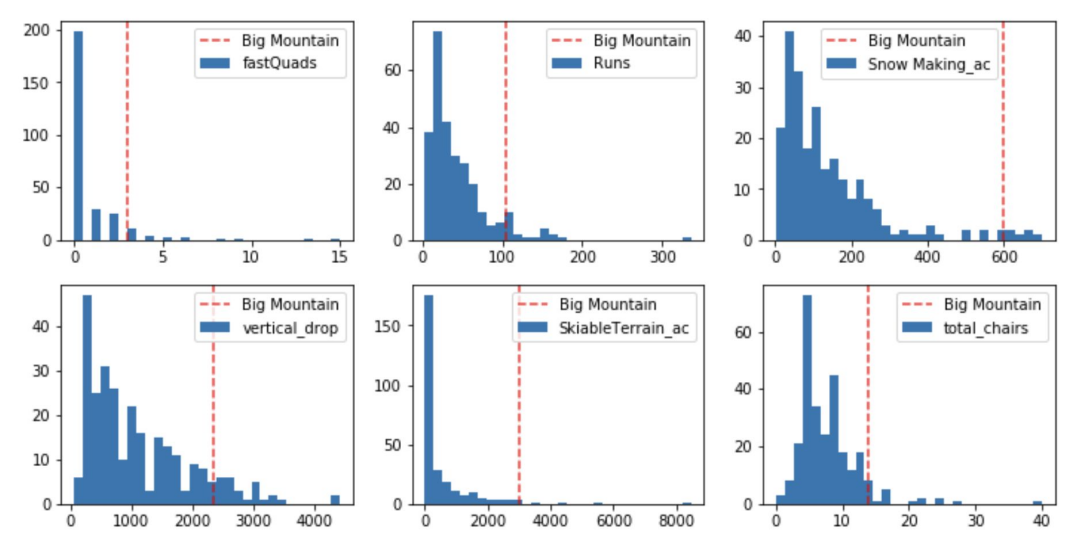
- The most important features in random forest regressor



- fastQuads
- Runs
- Snow Making_ac
- vertical_drop
- SkiableTerrain_ac
- total_chair
- ……

Modeling Results

- Distribution of the value of the most important features for all resorts in Big Mountain's market share

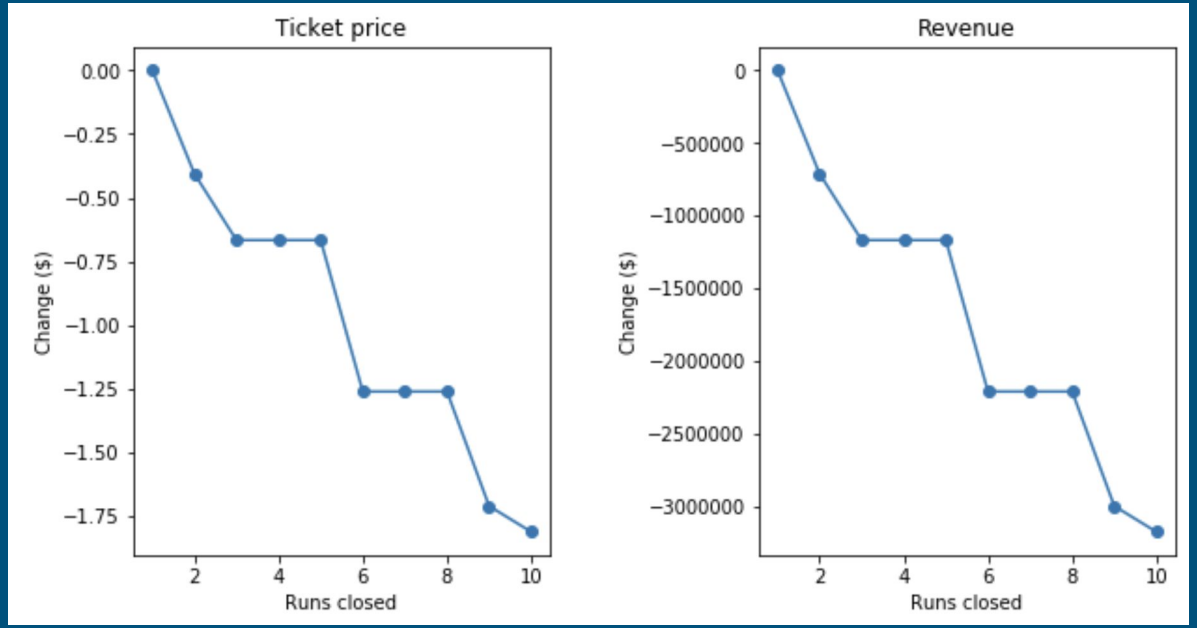


Modeling Results - Scenario 1

- Increase the vertical drop by 150 feet, add a run, and install an additional chair lift
- Model shows the ticket price can be increased by $1.99, and the total revenue can be increased by $3,474,638

Modeling Results - Scenario 2

- Close down some of the least used runs



- The operating cost of one run is unknown
- Closing down one run will reduce operating cost, while maintaining revenue
- Depending on the operating cost, the model suggests closing down either 2 or 5 runs

Summary

- Increase the current ticket price to $95.87 based on Big Mountain's positive in its market share
- Future investment option 1: increase the vertical drop by 150 feet, add one run and install another chair lift, increase the ticket price by $1.99
- Future investment option 2: close down one of the least used runs, keep the same ticket price
- Future investment option 3: close down either 2 or 5 runs, depending on the operating cost of one run, reduce the ticket price accordingly