Big Mountain Resort Executive Slide Deck

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Problem Identification

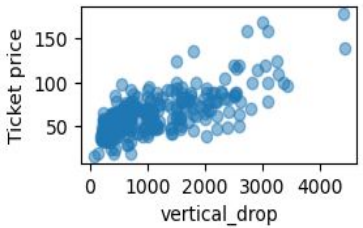
- Big Mountain Resort’s current pricing model (CPM): Pay a premium above the average cost of a ticket for similar facilities.
- CPM ignores the importance of various features present at the resort.
- CPM doesn’t take into account recent increase in yearly operating cost of $1,540,000.
- Goal: Update CPM to a new pricing model, such that it takes into account the importance of various features at the resort and recoupes the increase in yearly operating cost at least over the course of 1 year.

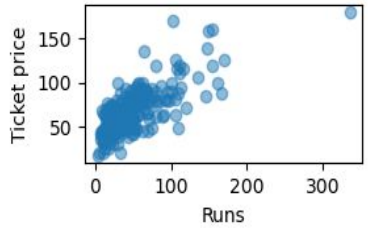
Results and Recommendations

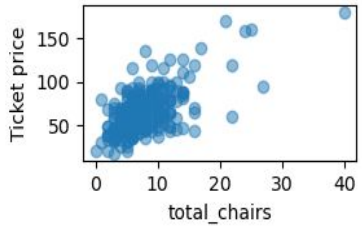
- Current ticket price (CTP) = $81.00.
- Predicted ticket price (PTP) = $95.87
- Mean Average Error (MAE) = $10.39.
- Lowest recommended ticket price: $85.48.
    - Assuming 350,000 yearly visitors and an expected 5 tickets per visitor, this would increase yearly revenue by $7,840,000.
- Recommended scenarios:
    - Closing 1 run leads to no decrease in revenue (see next slide).
    - Adding 1 run, 150 ft in vertical drop, and 1 chair leads to a predicted increase in ticket price by $1.99. This increases yearly revenue by $3,474,639.

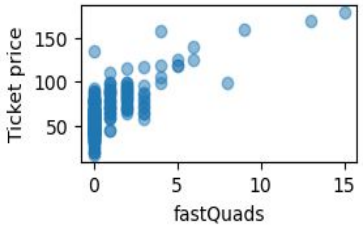
Modeling results and analysis

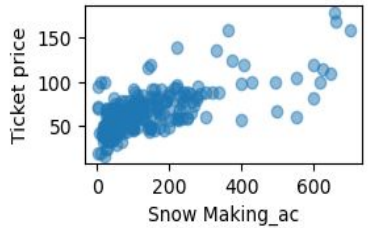
- From exploratory data analysis: ‘fastQuads’, ‘Runs’, ‘Snow Making_ac’, ‘vertical_drop’ seem to be highly correlated to ticket price.

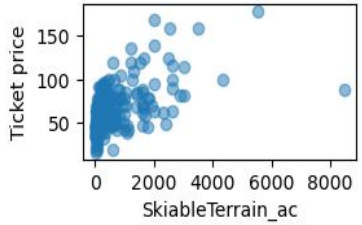










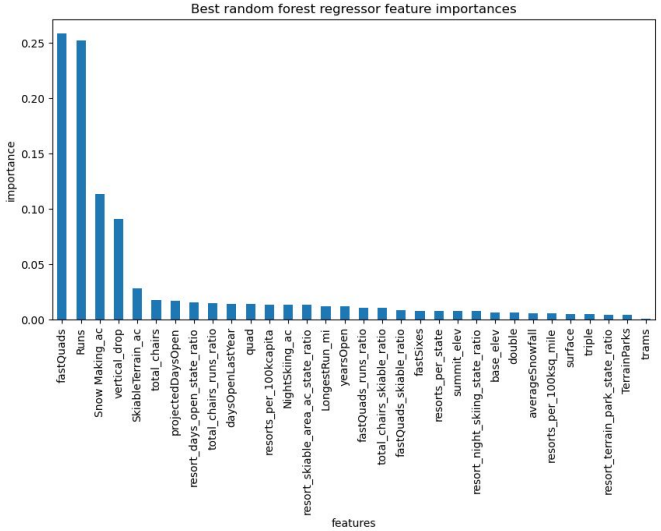


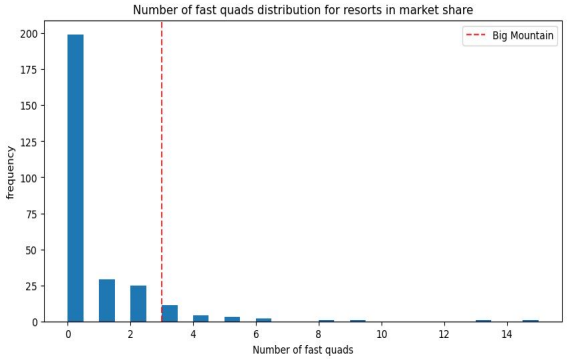
Modeling results and analysis

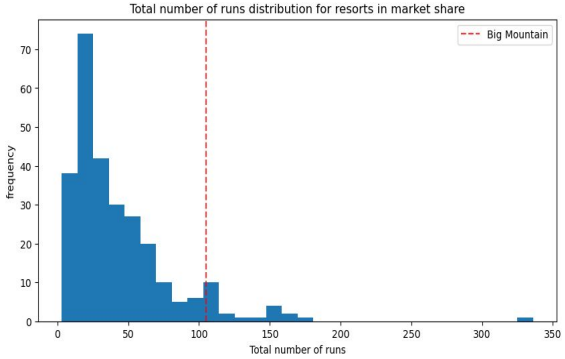
- Tested Linear Regression model and Random Forest model on ski resort data. Train/Test split was chosen to be 70/30.
  - Linear Regression MAE = $11.79 on the test data.
  - Linear Regression mean cross-validation score = 0.633.
  - Random Forest MAE = $9.54 on the test data.
  - Random Forest mean cross-validation score = 0.698.
- Random Forest model was chosen to model the ticket price due to a higher CV score and a lower cross-validation MAE.

Modeling results and analysis

- PTP was found to be $95.87 with a MAE of $10.39 for the full data set.
- As predicted in EDA, ‘fastQuads’, ‘Runs’, ‘Snow Making_ac’, ‘vertical_drop’ were the most important features.
- Due to Big Mountain Resort being in the upper echelon for all the important features, the PTP was found to be higher than the CTP.



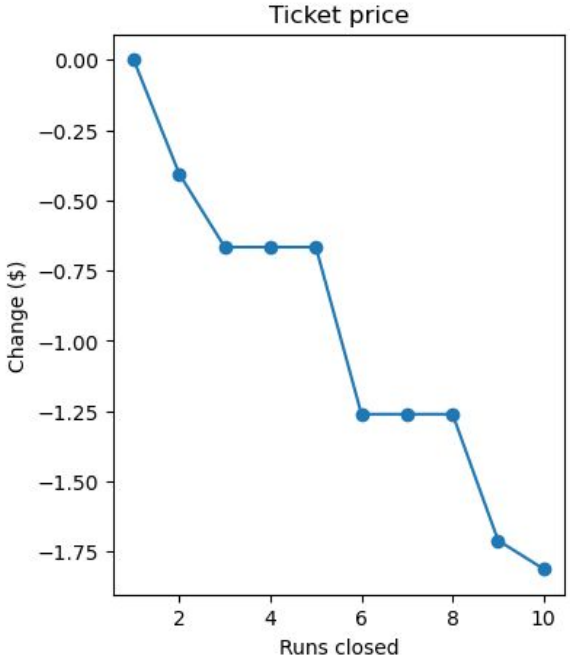


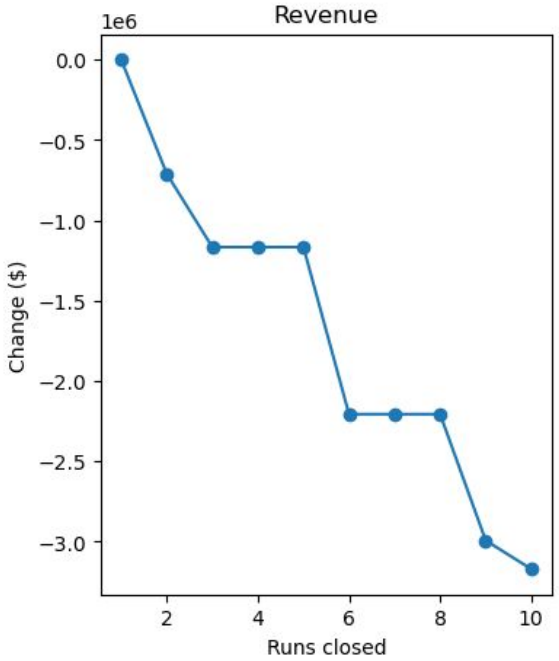


Modeling results and analysis

- Lowest recommended ticket price: $85.48.
- Stays within the MAE of the PTP.
- Assuming 350,000 yearly visitors with 5 expected tickets bought per visitor, increases yearly revenue by $7,840,000.
- Other modeled scenarios:
  - Closing 1 run: no effect on PTP.
  - Closing more runs: decreases in PTP (see next slide).
  - Adding 1 run, 150 ft in vertical drop, 1 chair: increased PTP by $1.99 (yearly revenue increased by $3,474,639).

Modeling results and analysis





Conclusion and summary

- Goal: Update current pricing model to a new pricing model, such that it takes into account the importance of various features at the resort and recoupes the increase in yearly operating cost at least over the course of 1 year.
- Random Forest model was chosen to model ticket prices.
- Big Mountain Resort was found to be in the upper echelon for all important resort features.
- Predicted ticket price for Big Mountain Resort based on USA ski resort data was found to be $95.87 with a mean average error of $10.39.
- Lowest recommended ticket price increase was $4.48, which would lead to an increase of $7,840,000 in yearly revenue.
- Other modeled scenarios:
    - Closing 1 run had no effect on ticket price.
    - Adding 1 run, 150 ft in vertical drop, 1 chair: increased PTP by $1.99 (yearly revenue increased by $3,474,639).