Big Mountain's Data-Driven Strategy

Guided Capstone Project

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Outline

Problem Identification

Key Findings

Results & Analysis

Summary

Problem Identification

Criteria For Success

1. Determine the current true value of the lift ticket
2. Identify an investment to support a higher ticket price
3. Identify a cutback in an area customers do not value
4. Lay foundation for continued use of data-driven strategy

Problem Identification

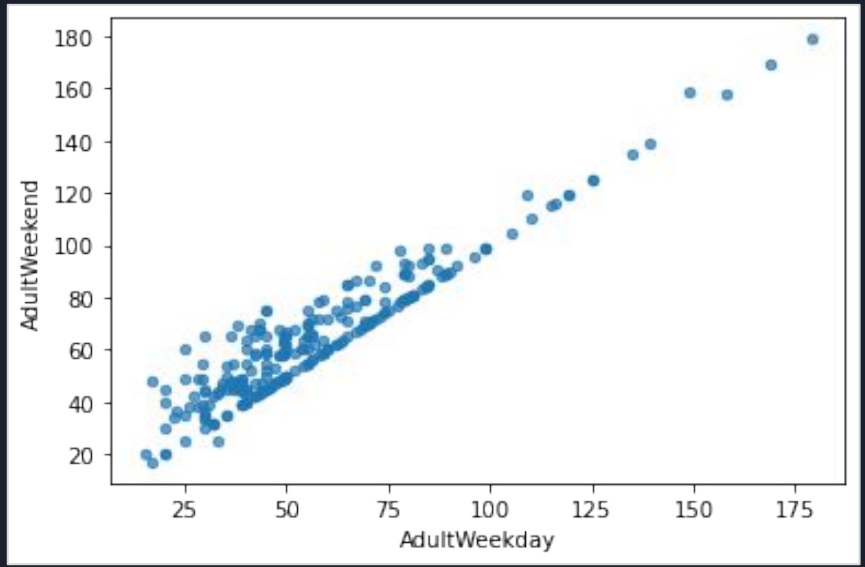
Methods

Data Used

- Alesha Eisen & State Information
- Original : 330 resorts and 25 features
- Final : 277 resorts and 30 features

Feature Engineering

- Target : Adult Weekend Price
- Removed : State & Region
- Added: Relative State Information



Demonstrates weekend and weekday equivalence

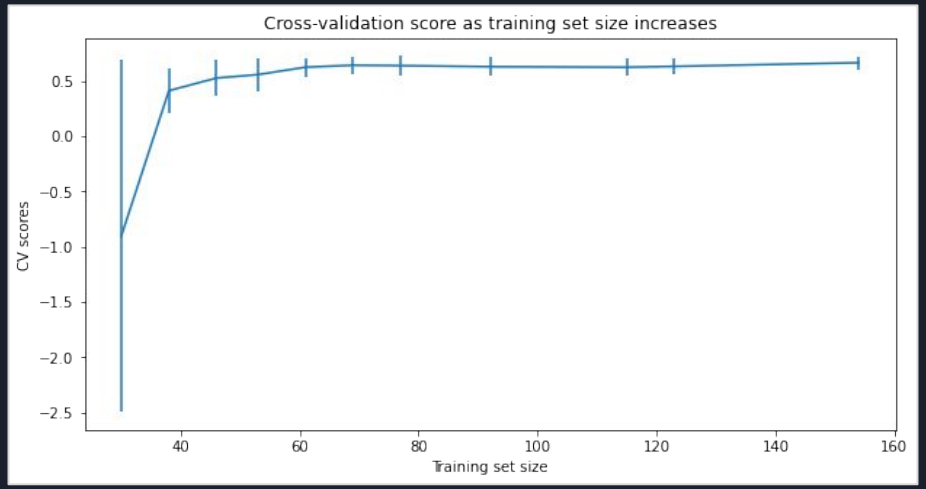
Key Findings

1. Big Mountain's data-driven lift ticket price is worth $95.87
2. Investment with greatest return is a chairlift that takes skiers to the very top of the mountain with an additional run down from there
3. Recommended cutback is removing 8 runs
4. Demographics and Expected Visitors could improve the model

Results & Analysis

Data-Driven Price Accuracy

- The average amount it was wrong at predicting the lift ticket price was about $9.53 ($1 lower than the linear model and $10 lower than using the mean!)
- 270 resorts' information was enough. In fact, the model's accuracy levels out at only about 50-60



Shows the accuracy of the model as the amount of resorts used increases

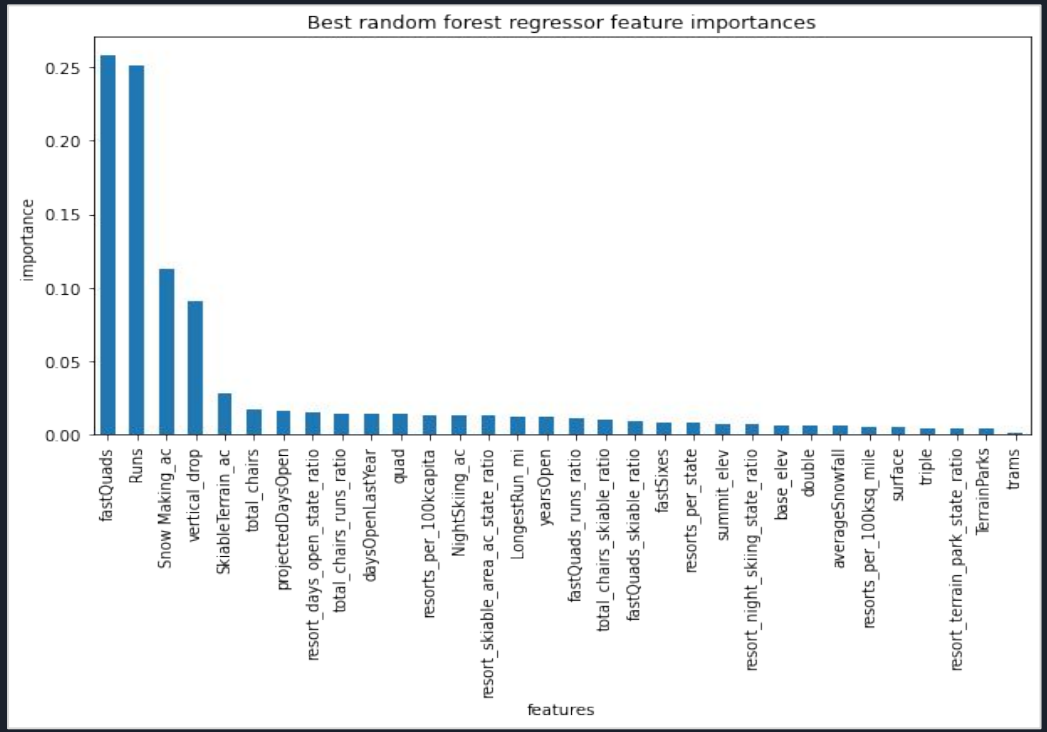
Results & Analysis

Supported Feature Importance

Linear Model

Feature Importance

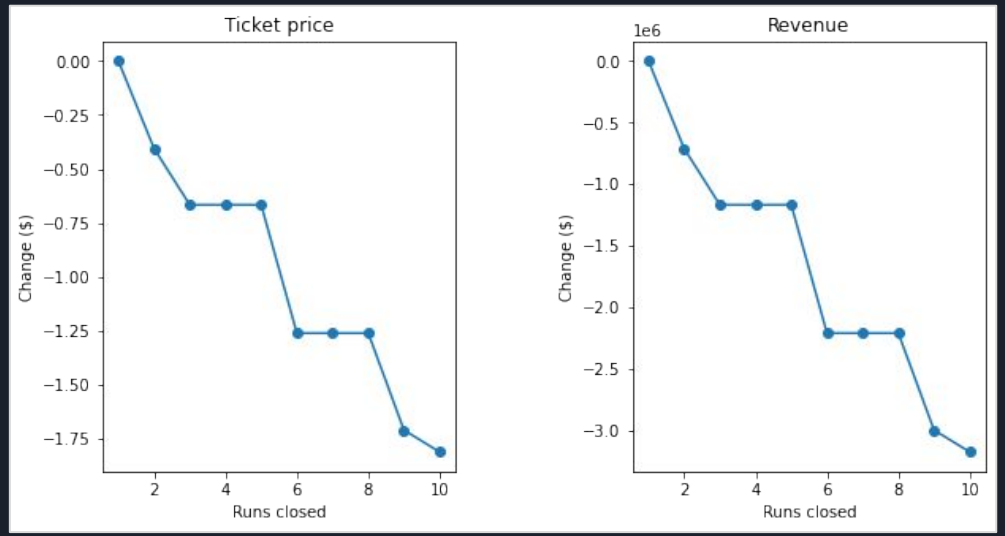
1. vertical_drop
2. Snow Making_ac
3. total_chairs
4. fastQuads
5. Runs
6. trams
7. SkiableTerrain_ac
8. LongestRun_mi



Shows the relative importance in the random forest, the model selected

Results & Analysis

Economizing Argument



Shows the decrease in predicted price and gross profit for the number of runs closed

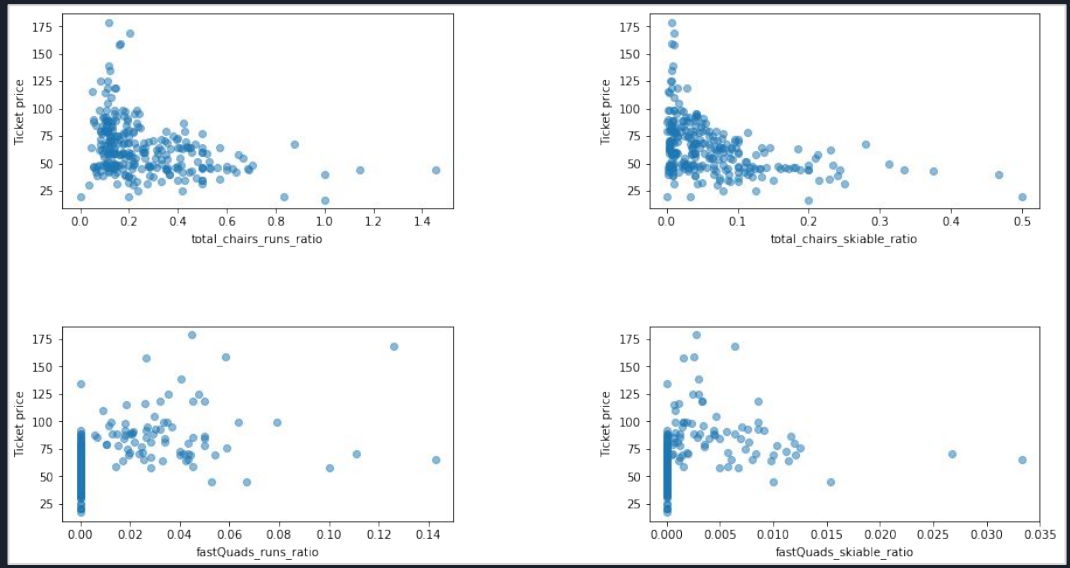
Economizing is Smarter than Investing

- Cuts align the predicted an current price to avoid increasing prices that upset customers
- Removing 8 runs has about the same effect on price as 6
- Advertise removed runs as powder areas

Results & Analysis

Shortcomings

- Exclusivity vs. mass market of number of chairs' ability to service skiers on price is neglected
- Model assumes that price is based on provided features which is sometimes false. For instance, some resorts charge higher prices by marketing to higher paying customers.



Shows the ticket price with increasing chairs to runs and chairs to skiable acreage

Summary

1. The first-version model achieved all goals
2. Removing 8 runs without changing ticket prices is our strongest recommendation
3. Including additional features like expected number of annual visitors and demographic information could improve the model