



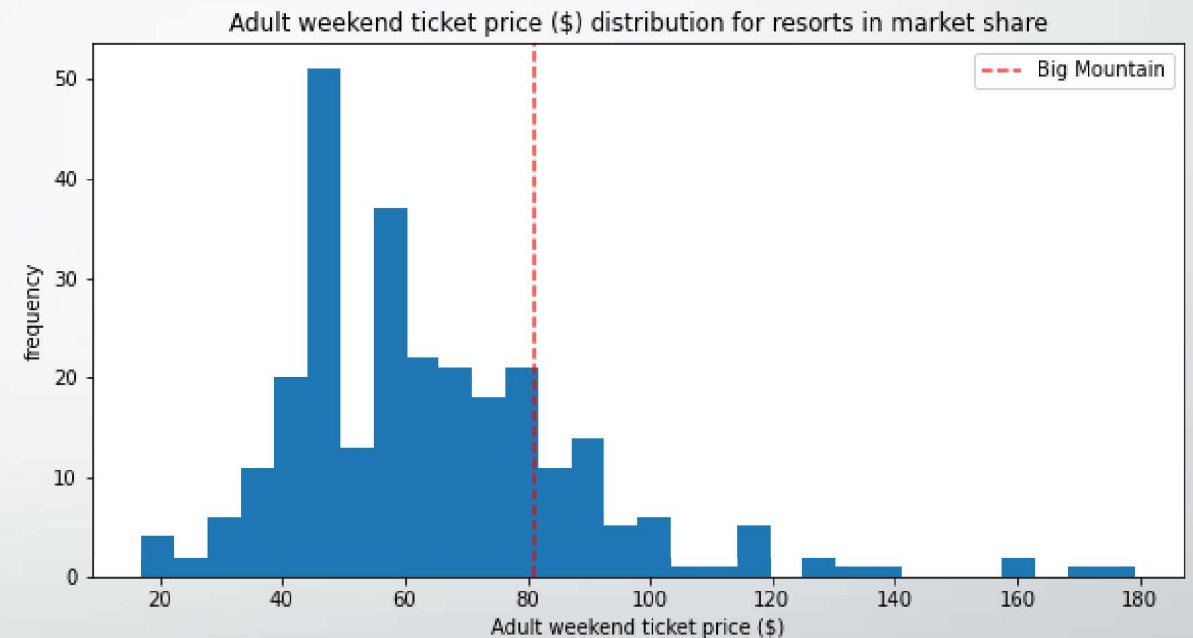
Big Mountain Resort Ticket Pricing Strategy

A Data-Driven Business Strategy Proposal

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What is the Problem?

- New chair lift installation will result in \$1.54 million in additional operating costs each year
- Current pricing model simply adds an arbitrary premium to the market average
- Profits may not be maximized based on the current capabilities of Big Mountain Resort
- The pricing impact of further site developments cannot be predicted



Problem Statement

How can Big Mountain Resort reduce operational costs and/or increase ticket price (revenue) so that profits increase by at least \$3 million by the end of the year?

Scope:

- Focus mainly on ticket price by analysing the market for typical pricing
- Methods of cost reduction will be considered based on resort specifications
- Parameters outside of the scope of the provided dataset will not be considered at this time

Constraints:

- An increase in ticket price will not guarantee increased revenue as consumers may not be willing to pay the new price
- It may be difficult to predict the impact on costs due to the scope of the provided dataset
- Additional data on operational costs may be necessary

Data provided:

- CSV File from Alesha Eisen (Database Manager) containing site data and pricing for over 300 resorts

Proposal Overview

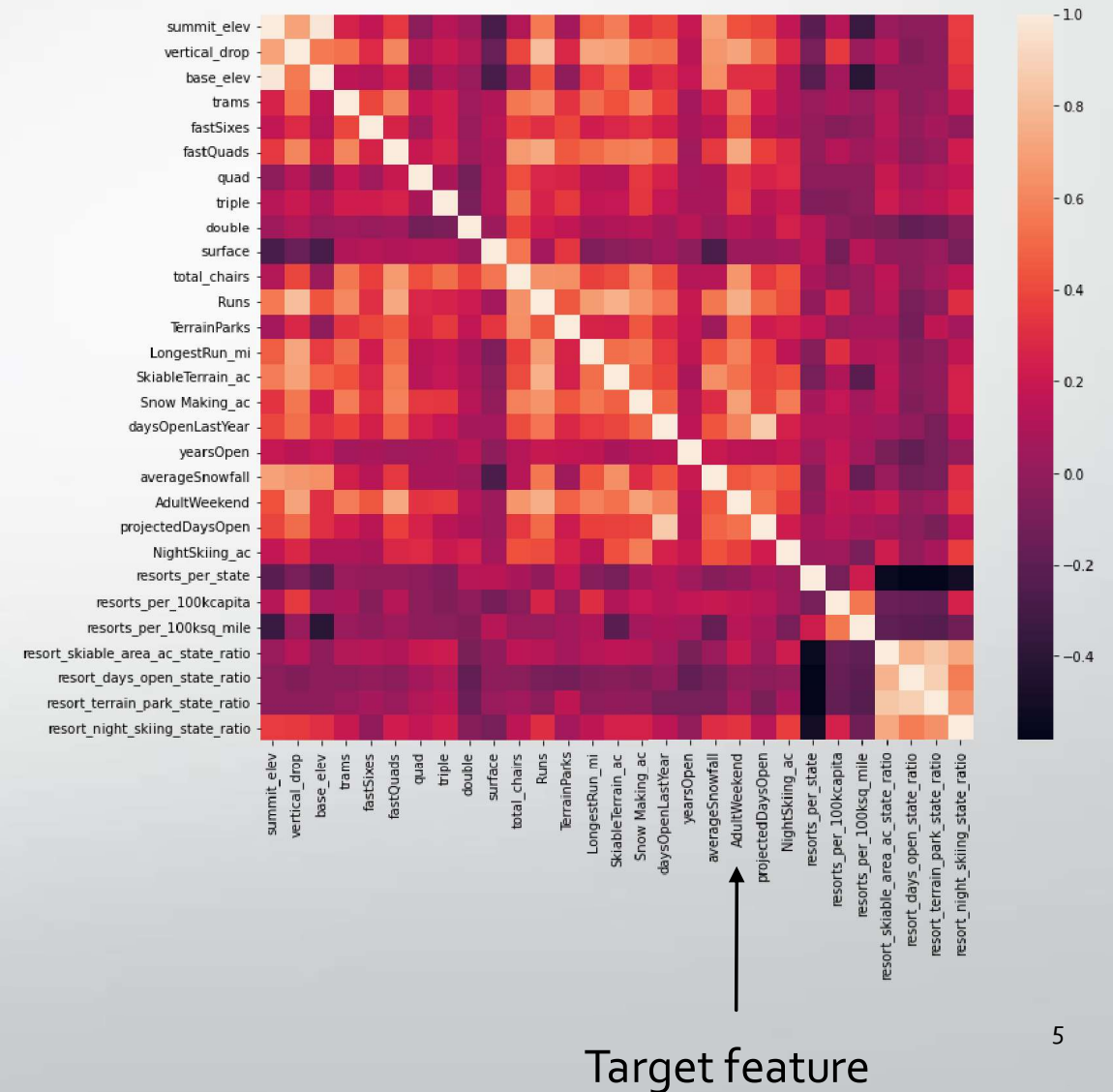
- Model suggested weekend ticket price: **\$95.87**
 - Up from \$81 for ~\$26 million annual revenue increase
 - Bottom prediction of \$85.48
- Most valuable assets:
 - # of FastQuads, # of Runs, Snow Making area, maximum vertical drop
- Most profitable renovations:
 - One additional run
 - 150 ft additional vertical drop
 - One additional chair lift

Scenario	Ticket Price (\$)	Additional Annual Revenue* (\$ million)
Current	81.00	-
Proposed Increase (no renovation)	95.87	26.0
Renovations	97.86	29.5

*Revenue based on projected 350,000 annual visits and 5-day average ticket

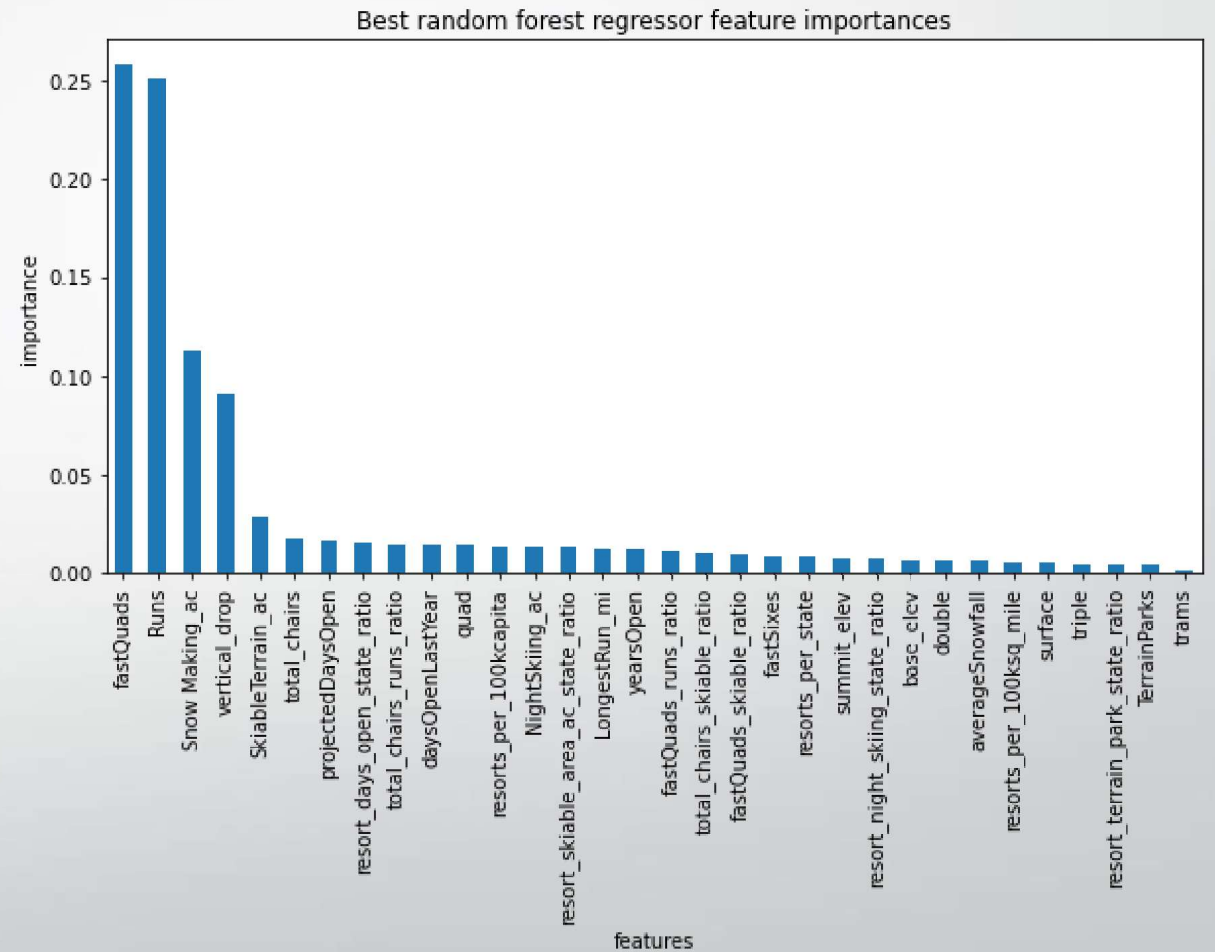
Data Wrangling & Exploratory Data Analysis

- Data that could be inferred (obvious data entry error) was filled
- Data that could not be inferred was dropped
- Resorts missing all price data was dropped
- State data (total area & population) added
- Only weekend prices were included
 - AdultWeekend \geq AdultWeekday in all cases
 - Values equal in many cases
- Valuable features include:
 - fastQuad, Runs, Snow Making_ac, vertical_drop, total_chairs, resort_night_skiing_state_ratio



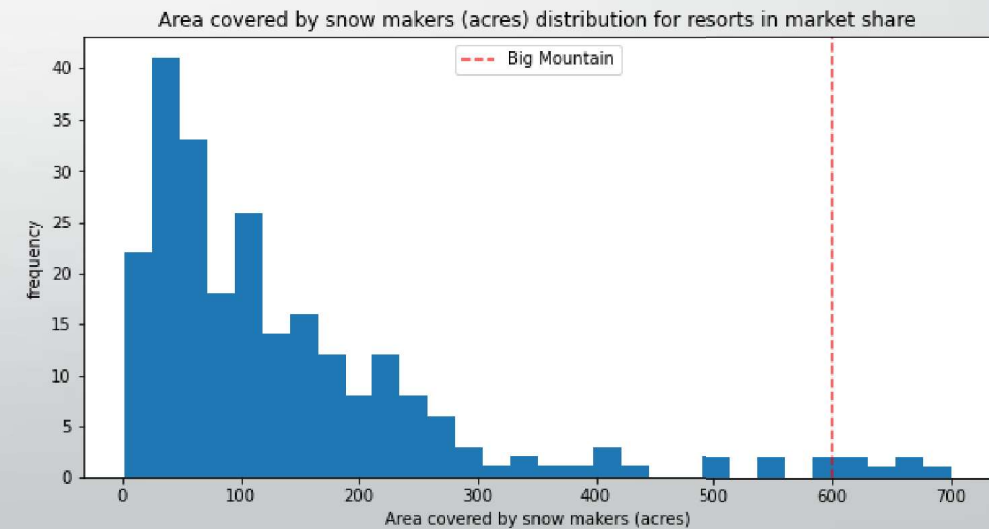
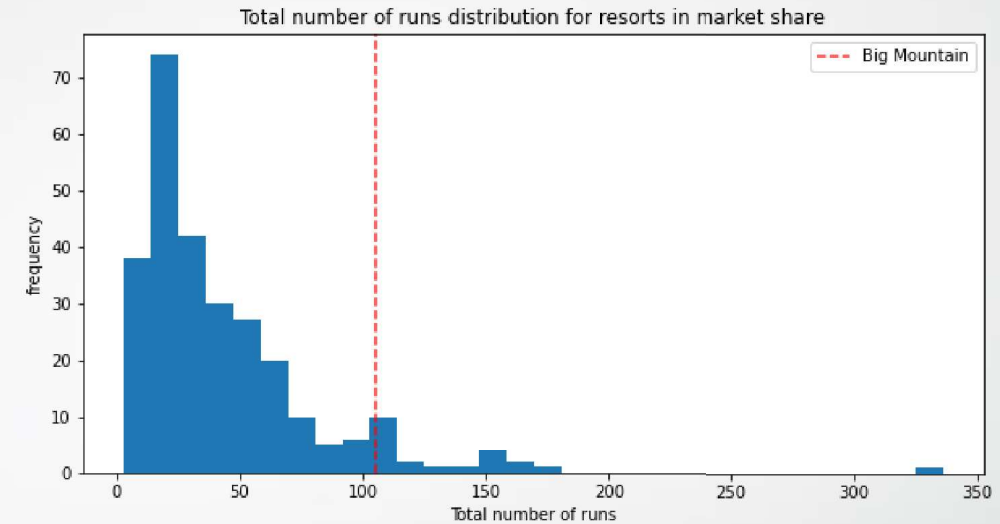
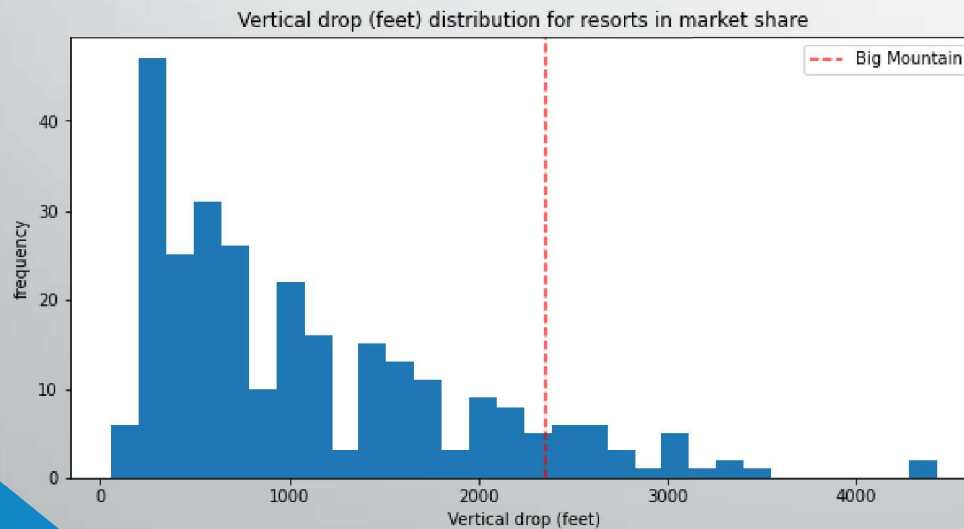
Preprocessing & Model Development

- Considered linear regression model & random forest model
- Considered imputing missing data with mean or median
- Considered scaling data to mean zero and unit variance
- Best Linear Model:
 - K-best features: 8
 - CV Mean absolute error: \$10.499
- Best Random Forest Model:
 - N-estimators: 69
 - CV Mean absolute error: \$9.645



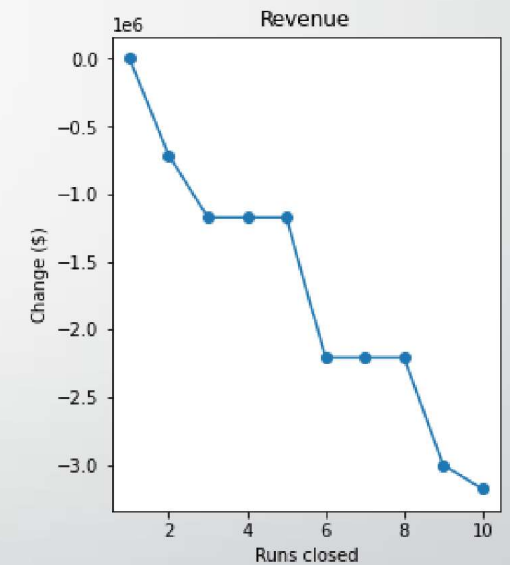
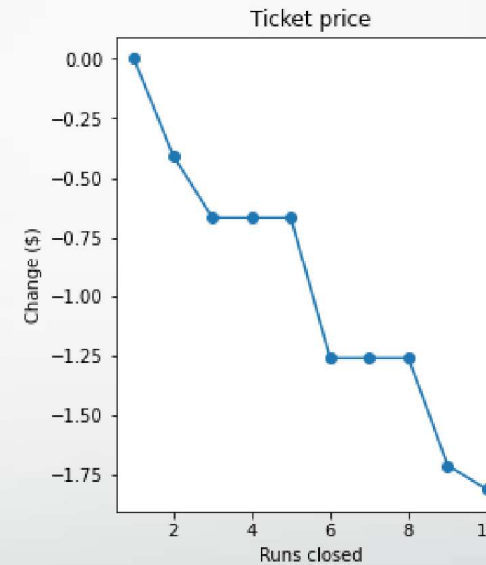
Application of the Model

- Based on the current facilities present at Big Mountain Resort (BMR), the model predicts a weekend ticket price of \$95.87 with an error of \$10.39.
- BMR outperforms most resorts on features correlated with elevated ticket prices.
- There is room for ticket price increase of at least \$4.48 without any site improvements.



Potential Site Improvements

- Closing 1 run will not impact pricing.
- Closing subsequent runs will have the impact shown to the right.
- **Adding a run, increasing the vertical drop by 150 feet, and installing an additional chair lift will support a ticket price increase of \$1.99.**
- Adding 2 acres of snow making in addition to the previous point will not justify a further ticket price increase.
- Increasing the longest run by 0.2 miles and adding 4 acres of snow making will not justify a ticket price increase.



Summary & Future Considerations

How can Big Mountain Resort reduce operational costs and/or increase ticket price (revenue) so that profits increase by at least \$3 million by the end of the year?

- The model produced suggests that the problem statement's success criteria can be met by increasing ticket price to \$95.87 in the resort's current status.
 - This increase would yield approx. \$26 million in additional annual revenue.
- An additional \$1.99 increase in ticket price resulting from adding a run, increasing the vertical drop by 150 feet, and installing an additional chair lift is supported.
 - This would yield another \$3.5 million in additional annual revenue.
- Further consideration of the operating costs associated with such renovations must be considered.
- A live model should be implemented to keep up to date with the market.
- Customer surveys can be used and considered by the model to improve its ability to predict what a consumer will pay.