Developing A Pricing Model for Big Mountain Resort
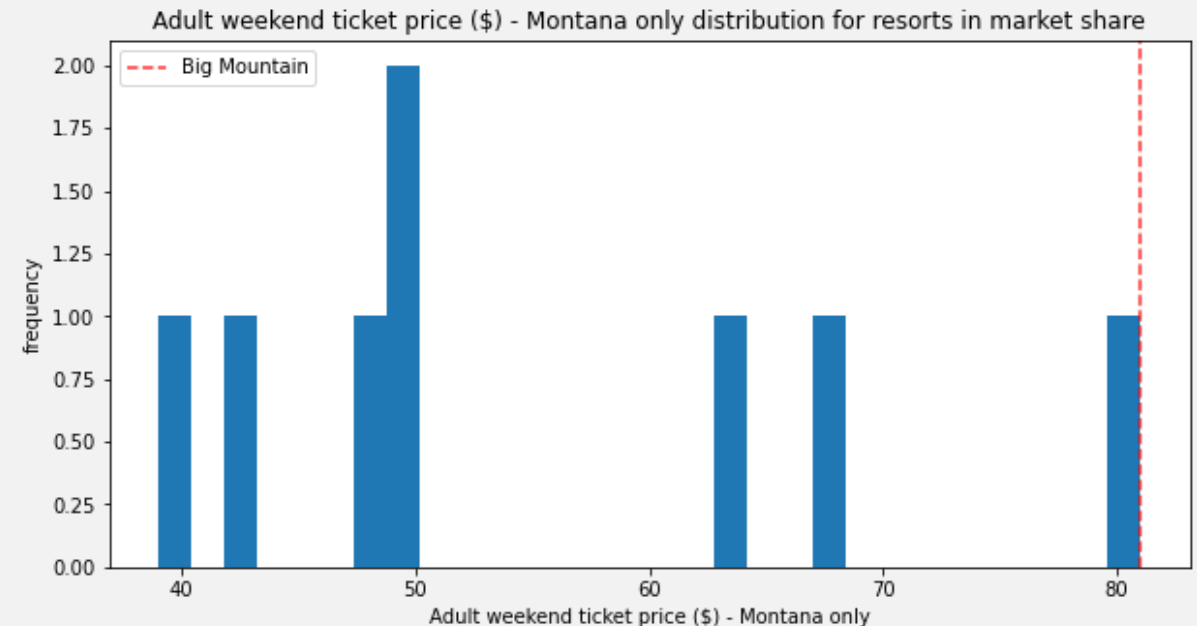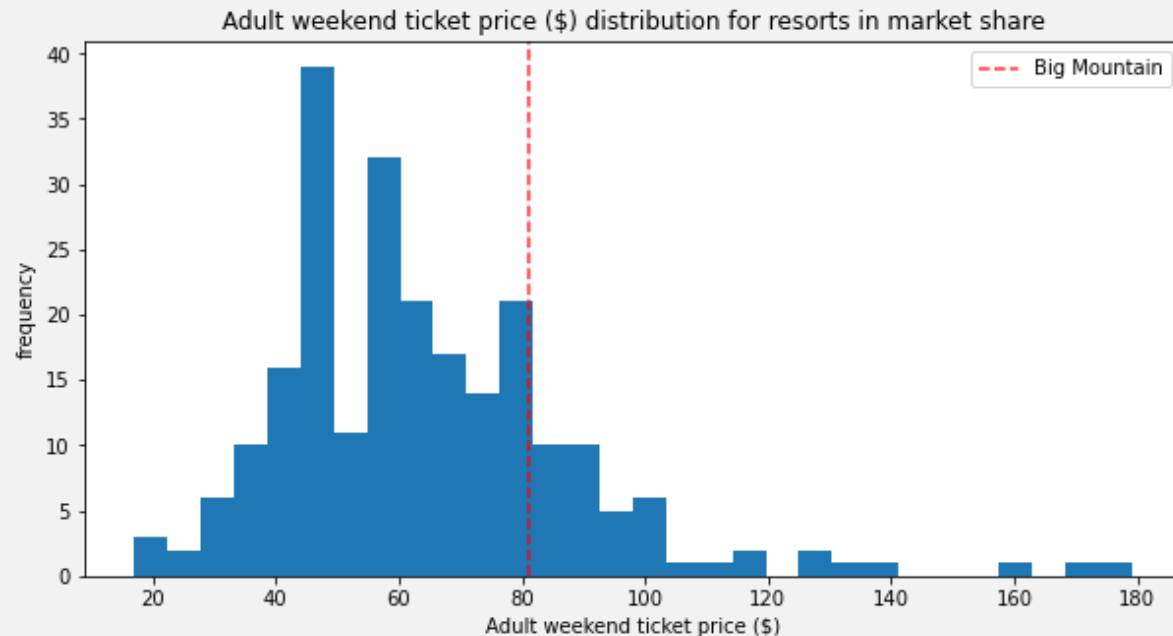
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Problem Identification

- Big Mountain Resort recently installed a new chair lift – operating costs increase of $1,540,000 in coming season

- Current pricing strategy – charge a small premium over the average ticket price in US; may not be the best strategy

- This project aims to develop a pricing model that will
    1. Compensate the additional operating costs
    2. Capitalize on the resort facilities to improve profits

- Criteria for success
    - Find acceptable ticket price range based on the state of current facilities
    - Increase ticket price or reduce the costs to offset $1,540,000 of operating cost

- Scope of solution

    - Price prediction valid only for the coming season
    - Facilities at all resorts in US are assumed to be of same quality

Recommendations and Key Findings

- We explored the relationship between ticket price and resort facilities using a Random Forest model. The most influential facilities affecting the ticket price are:

    1. Number of runs
    2. Vertical drop
    3. Snow making area

- Recommendation 1 – Increase ticket price:
    - Model suggests ticket price in range $87.49 – $107.17 may be acceptable
    - Smaller price increase should also be considered

- Recommendation 2 – Close least used runs:
    - Closing 6 least used runs may cover for $1,540,000 operating costs
    - Closing 10 least used runs may lead to > $2.3 M savings if current price is maintained

- More information is required to make better predictions
    - Visitors history

Modeling Results & Analysis

Adult weekend ticket price ($) distribution for resorts in market share

Adult weekend ticket price ($) - Montana only distribution for resorts in market share

Current ticket pricing model:
- Average ticket price across the US plus additional premium; does not take into account the available facilities.
- Current price highest among that of Montana Resorts; need to estimate customers' response before finalizing price increase.
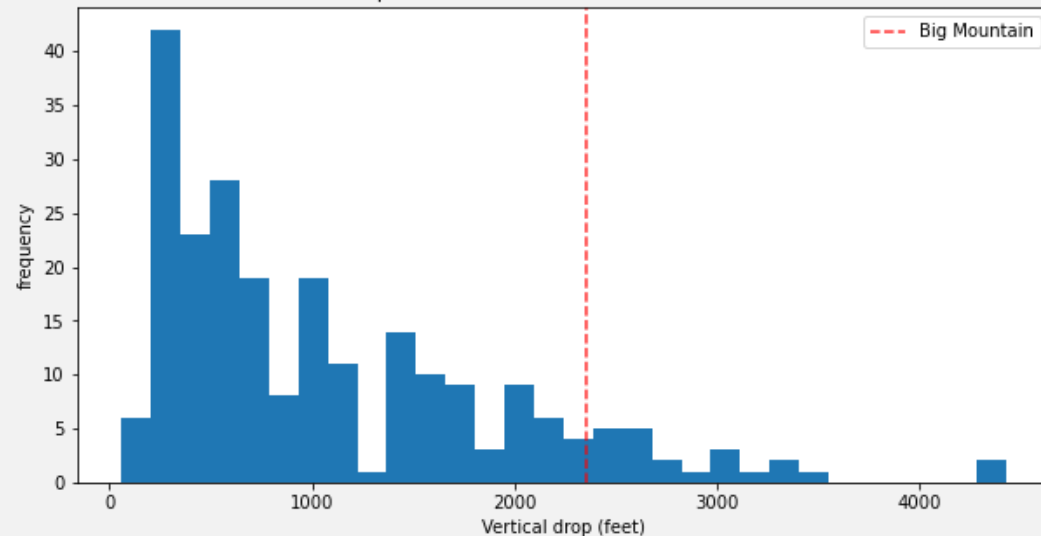
Modeling Results & Analysis

- Big Mountain resort offers above-average facilities in the US market place
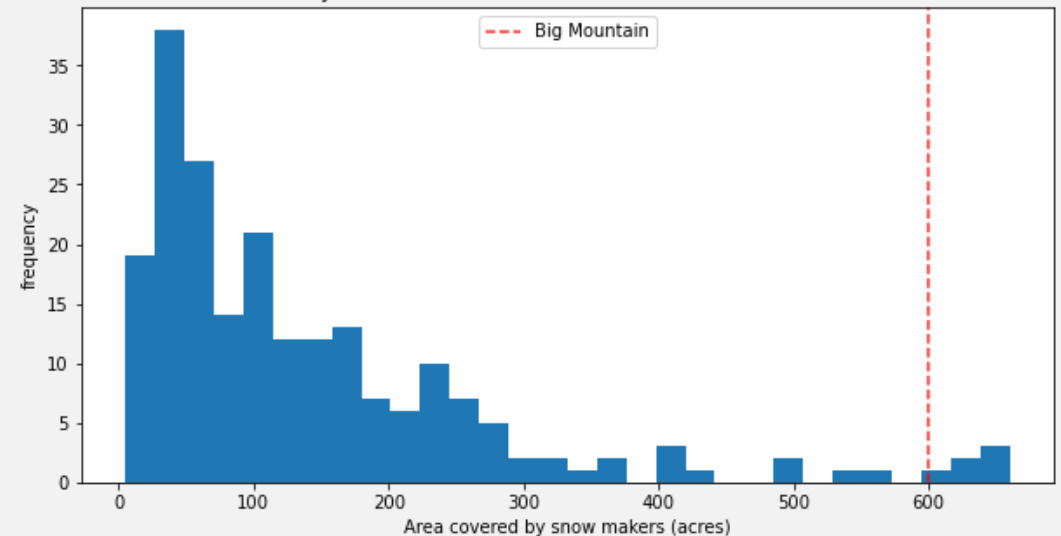- Hence, there is scope for some price increase
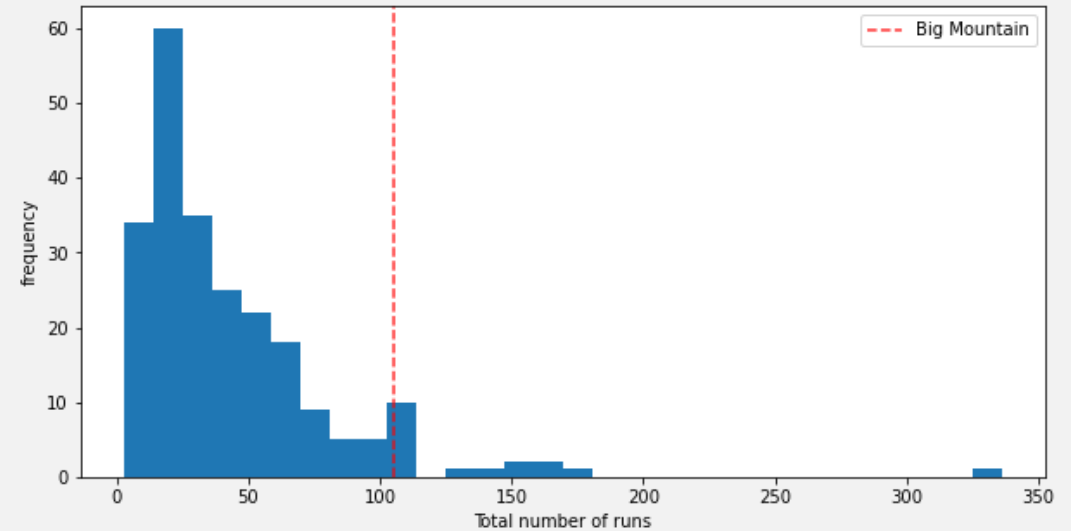
Modeling Results & Analysis

- Linear Regression and Random Forest Regression were employed to estimate ticket price.

- Random Forest approach performed better and was chosen for the project.

- Most important facilities affecting the ticket price:
  1. Number of runs
  2. Vertical drop
  3. Snow making
  4. Fast quads
  5. Number of chairs

- Importance of 'runs' several times that of other facilities

Best random forest regressor feature importances
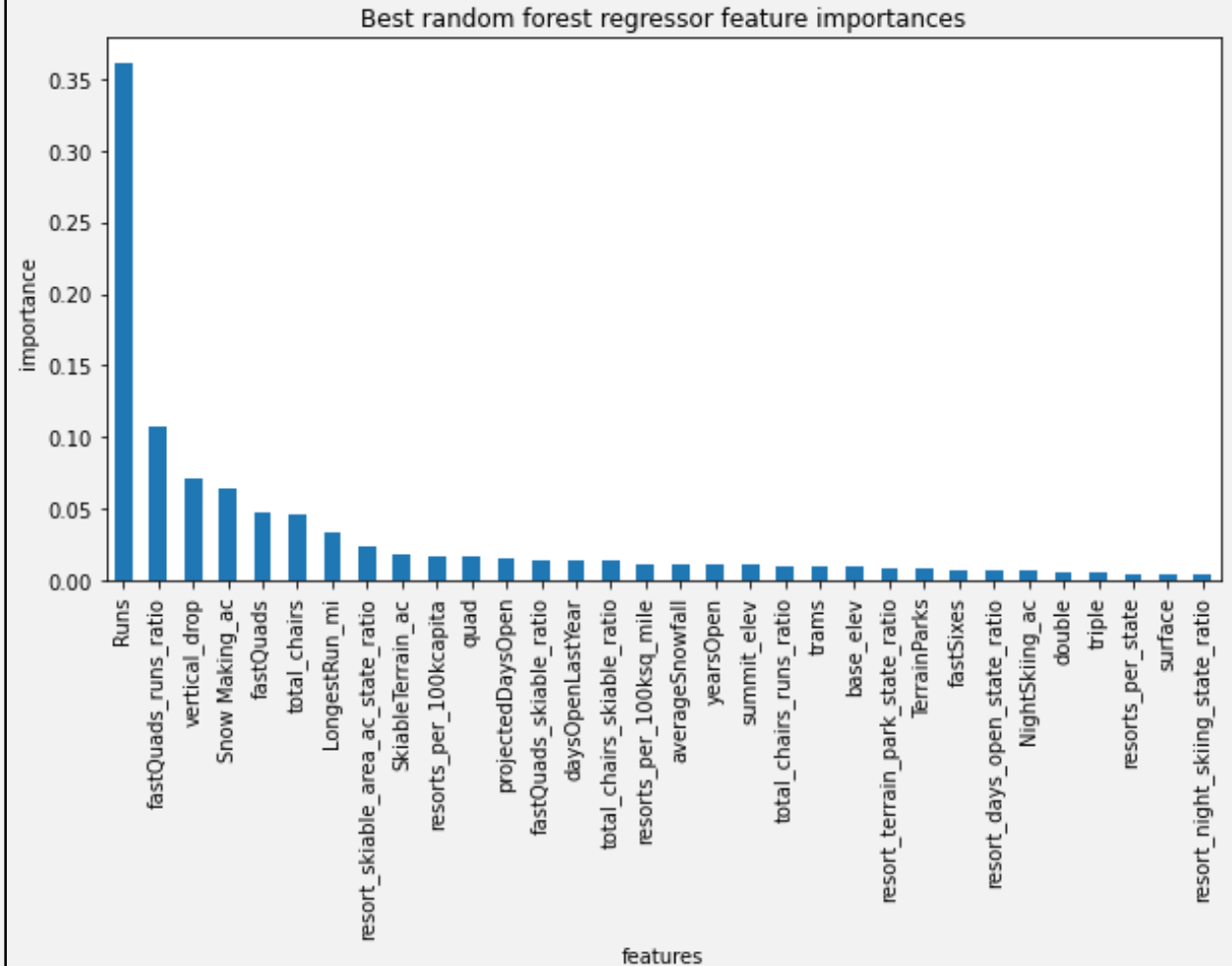
Modeling Results & Analysis
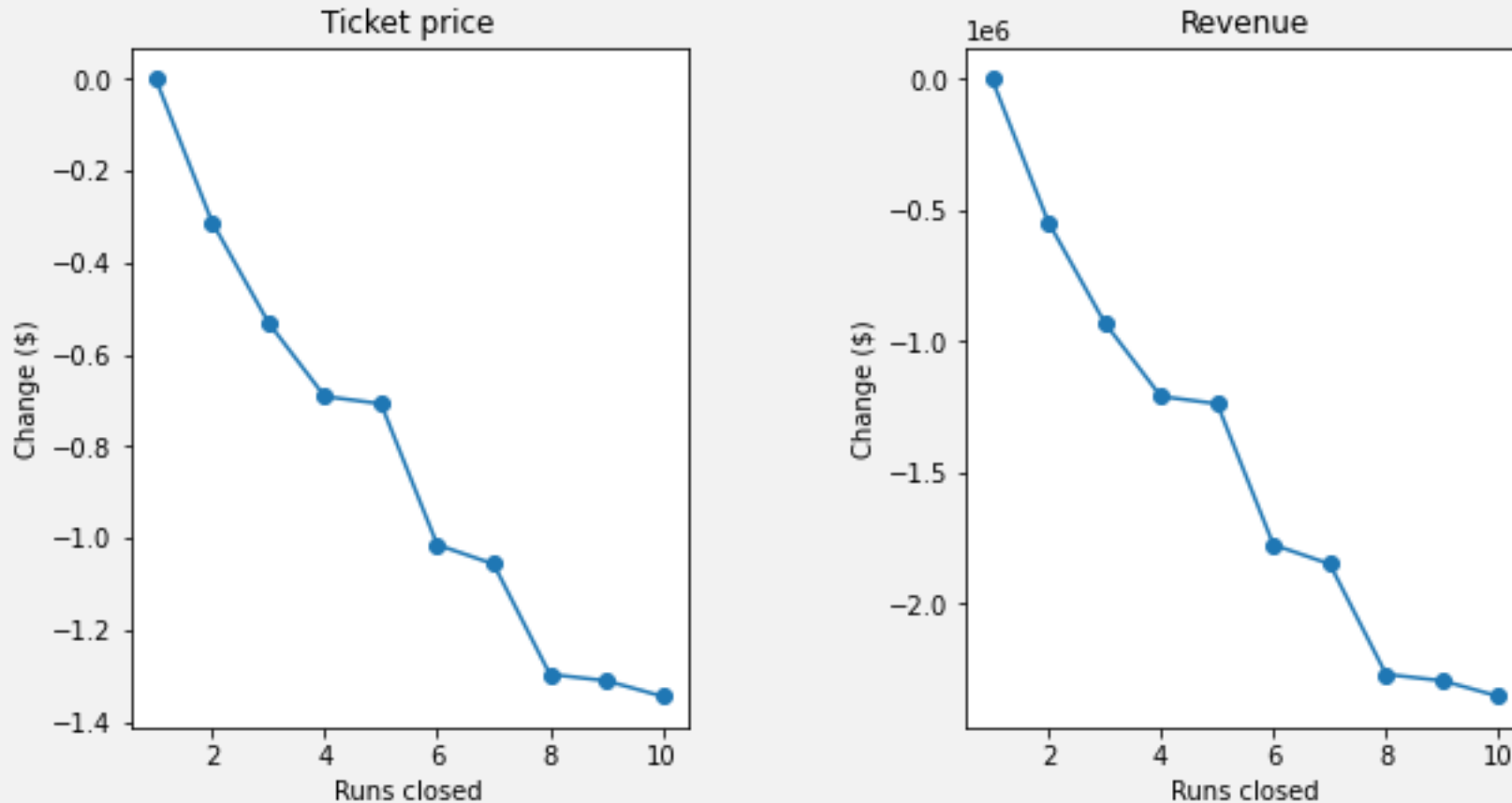
At current ticket price:

- Closing 6 runs may lead to > $1.5 M of savings

- Closing 10 runs may lead to > $2 M of savings

Summary and Conclusion

- A pricing model was developed that allows Big Mountain resort to

  1. Compensate the additional operating costs of the newly installed chair lift
  2. Capitalize on the resort facilities to improve profits

- Recommendations

  - Increase the ticket price in $87.49 – $107.17 range
  - Close least used runs to reduce operating costs

- Further work – more information required better price prediction

  - Visitors' history – number of visitors (weekdays vs weekends), age, new vs repeat visitors
  - Previous price increases and their impact on number of visitors / revenue

- Alternative approach
  - Increase weekend ticket price and receive customer feedback