# Big Mountain Summary Slides

September 25, 2020

Problem Statement

Big Mountain Ski Resort's goal is to increase this season's profits by 5% (X%) by developing a data-driven business strategy with regards to pricing and cost cutting before the start of the season.

- **CONTEXT:** Current price $81, based on premium above average price of competitors.
- Is this appropriate given Big Mountain's features relative to competitors?
- **SCOPE:** Market calibration based on provided features of competitors.

Adult weekend ticket price ($) distribution for resorts in market share
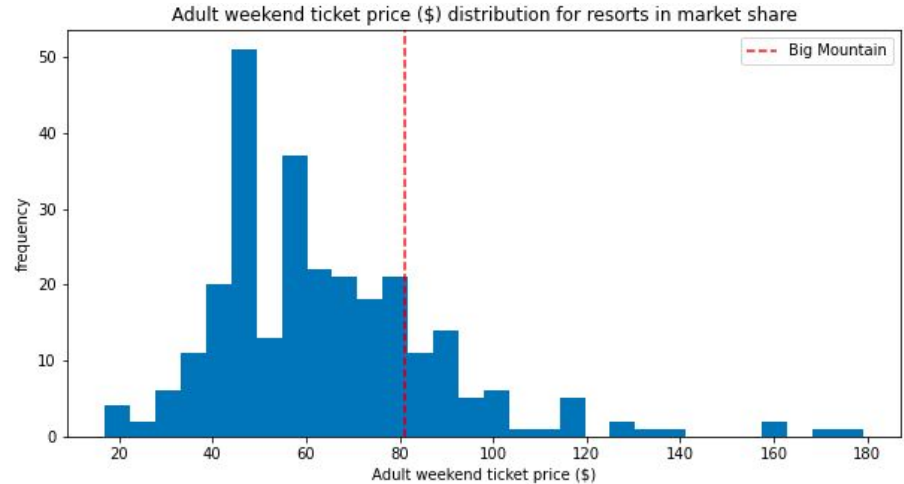
Recommendation and Key Findings

- Increase ticket price to $87 to $97 range
- Increase vertical drop by 150 ft
  - Requires installation of new chair lift
- Close 1 to 3 of the least popular runs progressively, with analysis.

Adult weekend ticket price ($) distribution for resorts in market share
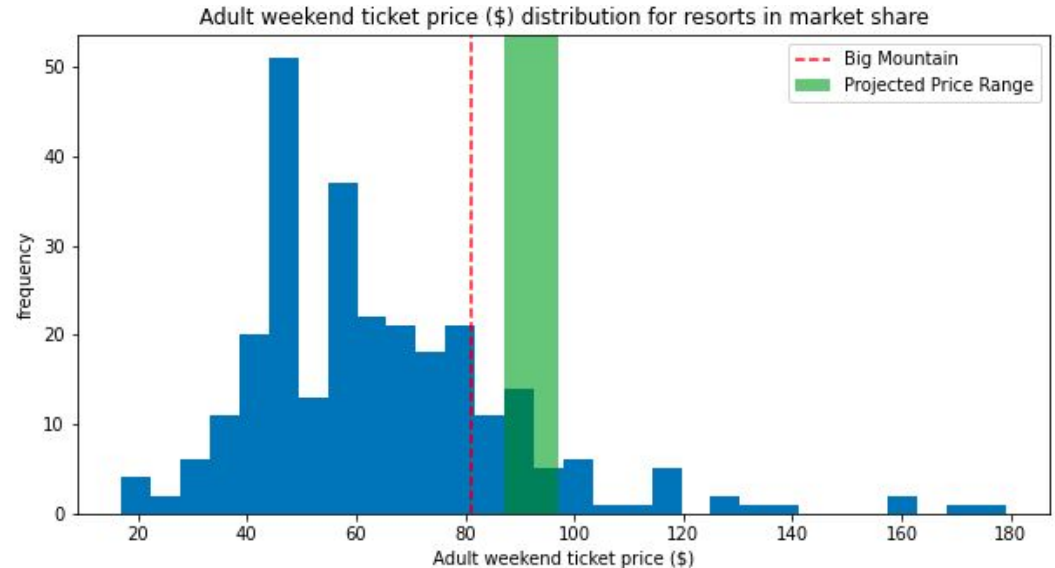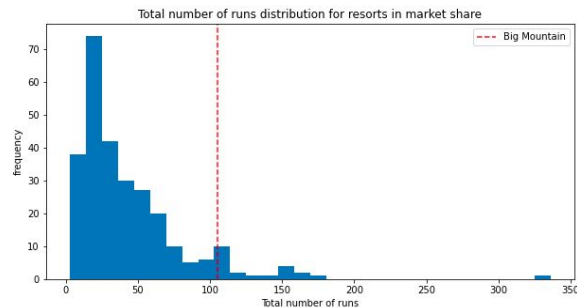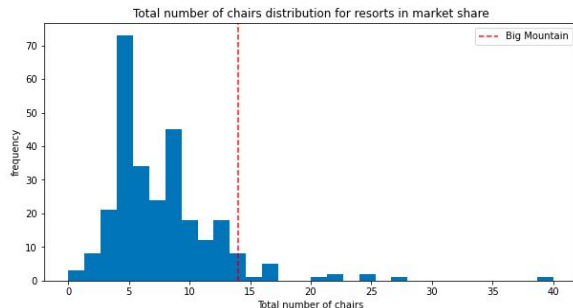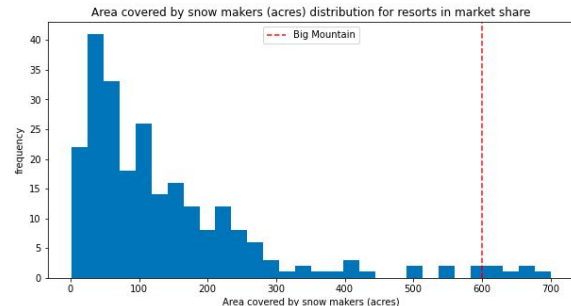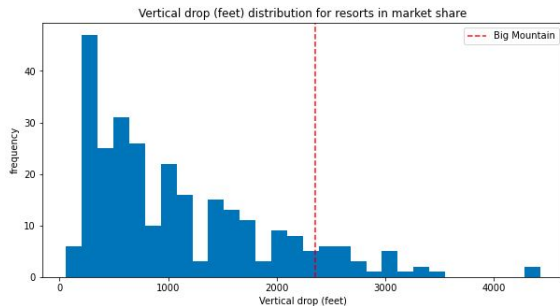
Modeling Results - Basic Feature Correlations

- Adult weekend ticket price identified as target value
- Strongest correlations with adult weekend price:
  - Skiable terrain
  - Snow making area
  - Night skiing area
  - Vertical drop height
  - Number of fast quads
  - Number of runs
- Indicates that customers may be willing to may more for these features
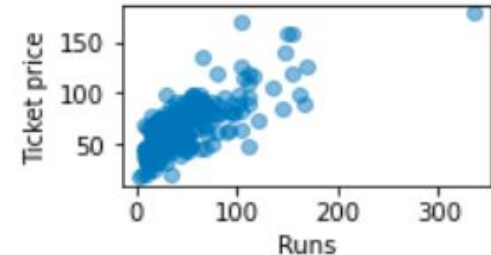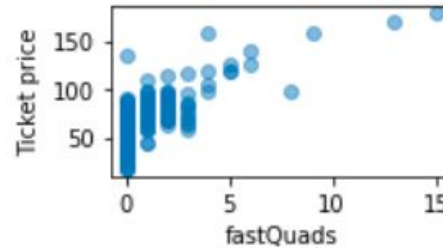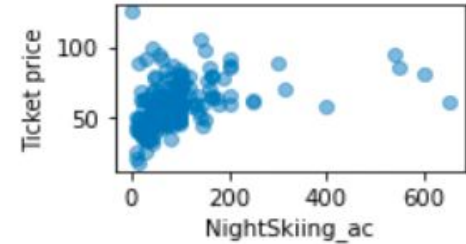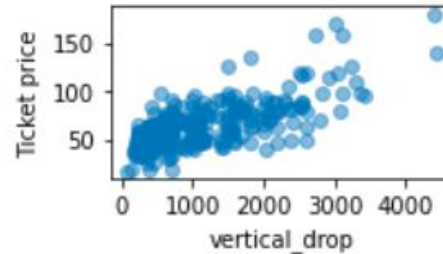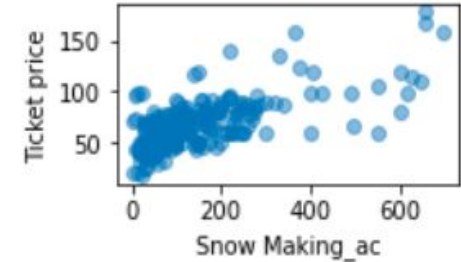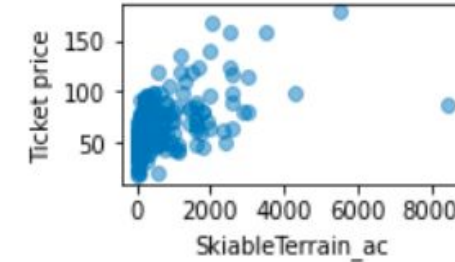
Modeling Results - Best Model Details

- Random Forest Model trained and tested on competitor data
- Optimization selected features:
  - Number of fast quads
  - Number of runs
  - Snow making area
  - Vertical drop
  - Skiiable terrain area
  - Total chairs
- Big Mountain compares favorably with competitors on these metrics
- Resulting model:
  - Mean average error: $10.40
  - Mean average error standard deviation: $1.47
  - Big Mountain recommended price increase - $14

Vertical drop (feet) distribution for resorts in market share

Area covered by snow makers (acres) distribution for resorts in market share

Total number of chairs distribution for resorts in market share

Total number of runs distribution for resorts in market share

Modeling Results - Park Modifications

- Closing runs suggests a drop in ticket price
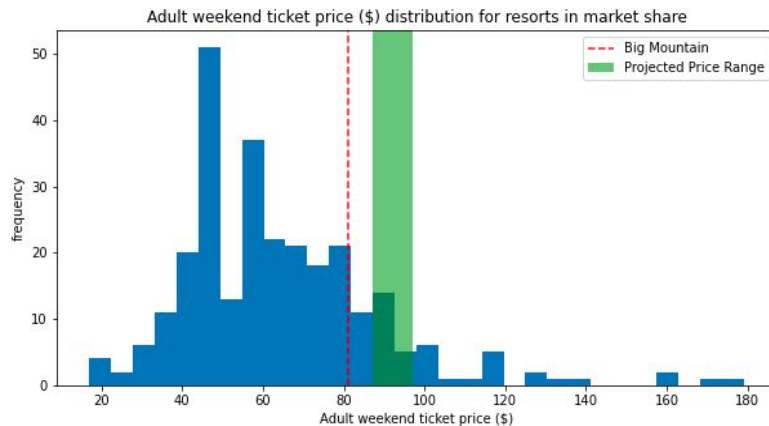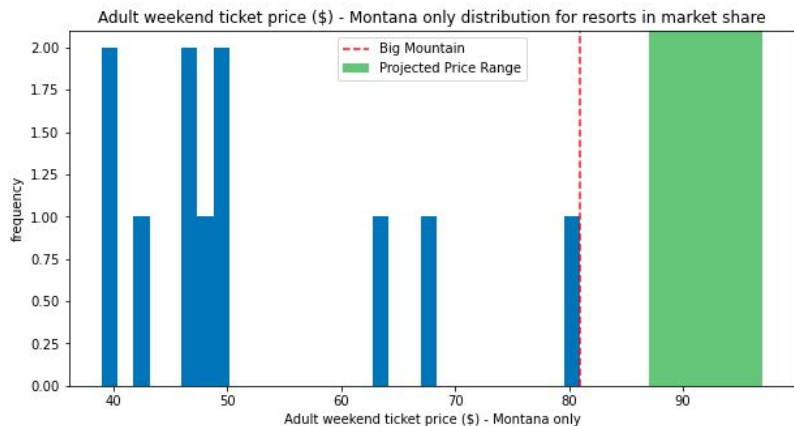- Net profit increase predicted for up to 5 runs
- Each run saves $1,540,000 in operating costs
- Recommend closing runs progressively, collect data on loads on other runs
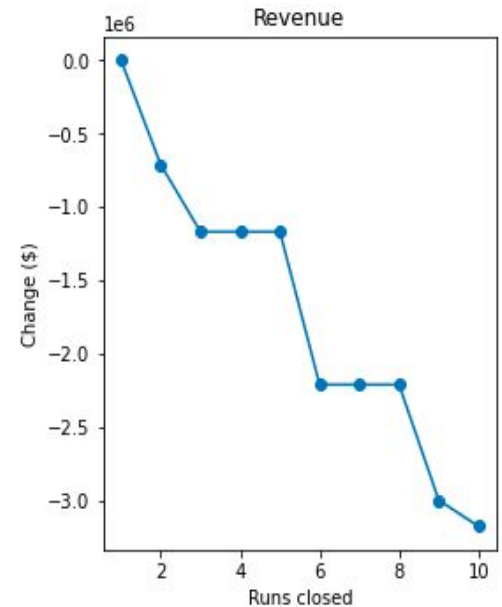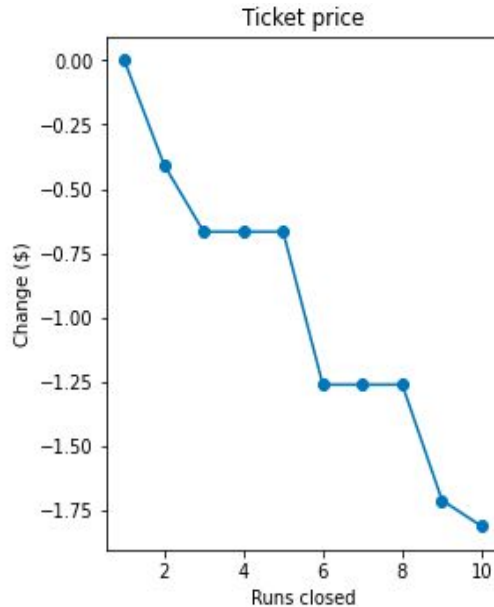
Modeling Results - Park Modifications

- Increasing the vertical drop by 150 ft supports an additional $1.99 in ticket price
- With base price increase that is a recommended price of approx $97

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

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

- Factoring in error conservatively, range of $87 to $97
- Significantly higher than in-state competitors

Summary and conclusion

- A Random Forest model was trained to calibrate Big Mountain's ticket price to its competitors
- A ticket price increase to $87 to $97 dollars is recommend along with:
    - Extending the vertical drop by 150 ft
    - Progressively closing unpopular runs
- Model can be deployed to test other park modification scenarios in the future
- Projections assume no change in ticket sales

Ticket Price	Closed Runs	Change in Revenue	Change in Operating Cost	Net Profit Change
87	0	10500000	1540000	8960000
	1	10500000	0	10500000
	2	10500000	-1540000	12040000
97	0	28000000	1540000	26460000
	1	28000000	0	28000000
	2	28000000	-1540000	29540000