

Big Mountain Ski Resort Pricing

Springboard School of Data - Spring 2023

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A dark blue diagonal gradient bar that starts from the bottom left corner and extends towards the top right corner, covering the lower half of the slide.

Problem Identification

- Big Mountain is a leader among US resorts
 - Top-tier amenities
- Big Mountain is investing in its future
 - New features = new costs
- Big Mountain's pricing is outdated
 - Price not derived from data

Problem Identification

- What do other resorts have?
- What do other resorts charge?
- How does Big Mountain compare?
- Can Big Mountain charge more for new features?

Based on the facilities at Big Mountain Resort, what should ticket prices be in order to recoup the \$1.54M increase in operating costs this year while keeping profit margins at 10%?

Recommendations

- New ticket price: \$95.87
 - \$14.87 increase per ticket
 - \$26M additional revenue
- \$10.39 Mean Absolute Error
 - \$85.48 - \$106.26 supported price range
- Add a new run & chair
 - Increases total vertical drop, number of runs, & chairs
 - Increases proj. revenue by \$3.4M

Modeling & Analysis

- Linear Regression Model
 - Median imputing
 - Standard scaling
 - Select K best
 - $K = 8$
 - 5-fold cross-validation
- Feature importances:
 1. Vertical drop
 2. Snow making acreage
 3. Total chairlifts
 4. Fast quad lifts
 5. Total runs

Modeling & Analysis

- Random Forest Model
 - Median imputing
 - No scaling
 - 69 estimators
 - 5-fold cross-validation
- Feature importances:
 1. Fast quad lifts
 2. Total runs
 3. Snow making acreage
 4. Vertical drop
 5. Skiable terrain acreage

Modeling & Analysis

- Random Forest Model

- \$9.54 MAE on test data
- \$1.35 standard deviation

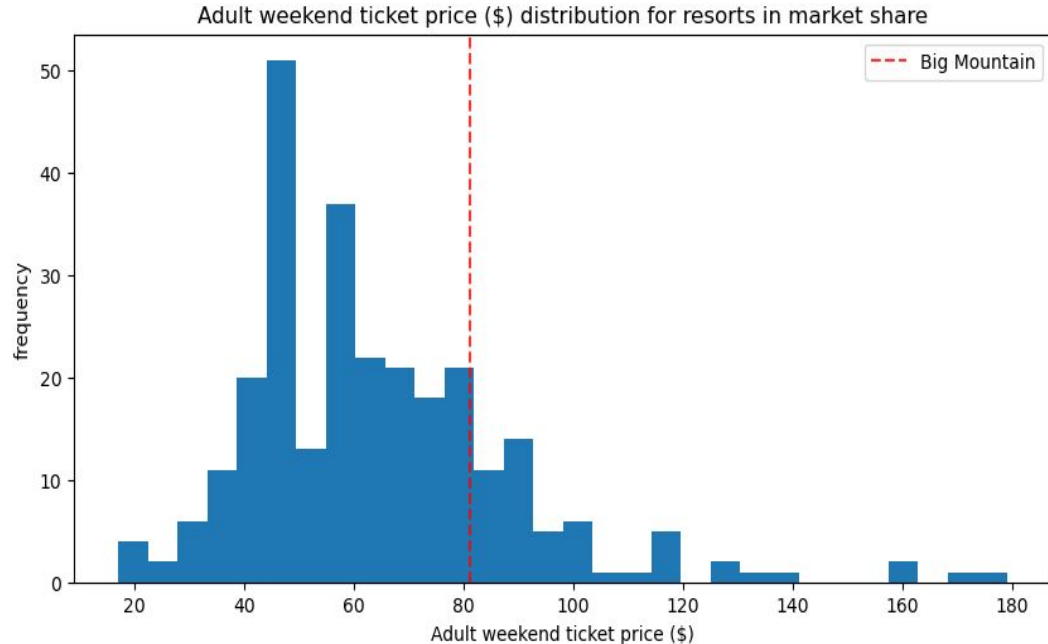
- Linear Regression Model

- \$11.79 MAE on test data
- \$1.62 standard deviation

Lower mean absolute error & less variability. This model may more accurately predict Big Mountain's fair market ticket price!

Summary

- 93rd percentile - number of runs
- 93rd percentile - fast quads
- 97th percentile - snow making
- 98th percentile - skiable terrain
- 89th percentile - vertical drop
- 81st percentile - price



Conclusion

- New ticket price: \$95.87
- Projected ticket revenue: \$167M
- Model supports adding a run & chairlift
 - Increase ticket prices by \$1.99 each
- Model supports removing up to 1 run without decreasing ticket prices