Big Mountain Ski Resort

August 8th, 2024
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Problem Identification

Current Issue: Big Mountain Resort's pricing strategy is not sophisticated enough to pinpoint successful operations and cost-cutting opportunities.

Resort Context:

- Located in Montana
- Serves 350,000 visitors annually
- Features 105 trails, 11 lifts, 2 T-Bars, and 1 magic carpet
- New lift installation increased costs by $1,540,000 this season

Key Questions:

- What is the optimal ticket pricing strategy for the 2025 ski season?
- Which operational areas can be streamlined to reduce costs?

Recommendations and Key Findings

Ticket Price Recommendation: Increase ticket prices from $81 to $96

Scenario Investigations:

1. **Closing Underused Runs:**

   - **Recommendation:** Closing 1 run had no impact on ticket pricing. Closing 5 runs resulted in minimal impact.

2. **Adding a Run with Additional Chair Lift:**

   - **Recommendation:** Adding a run 150 feet lower with a new chair lift supports a price increase of $1.99, generating $3,474,638 in additional annual revenue.

3. **Adding a Run and Snow Making Coverage:**

   - **Recommendation:** Adding a run with 2 acres of snow making cover also supports a $1.99 price increase, with no additional benefit from the extra snow making coverage.

4. **Extending the Longest Run:**

   - **Recommendation:** Extending the longest run by 0.2 miles to 3.5 miles and adding 4 acres of snow making coverage has no impact on ticket pricing.
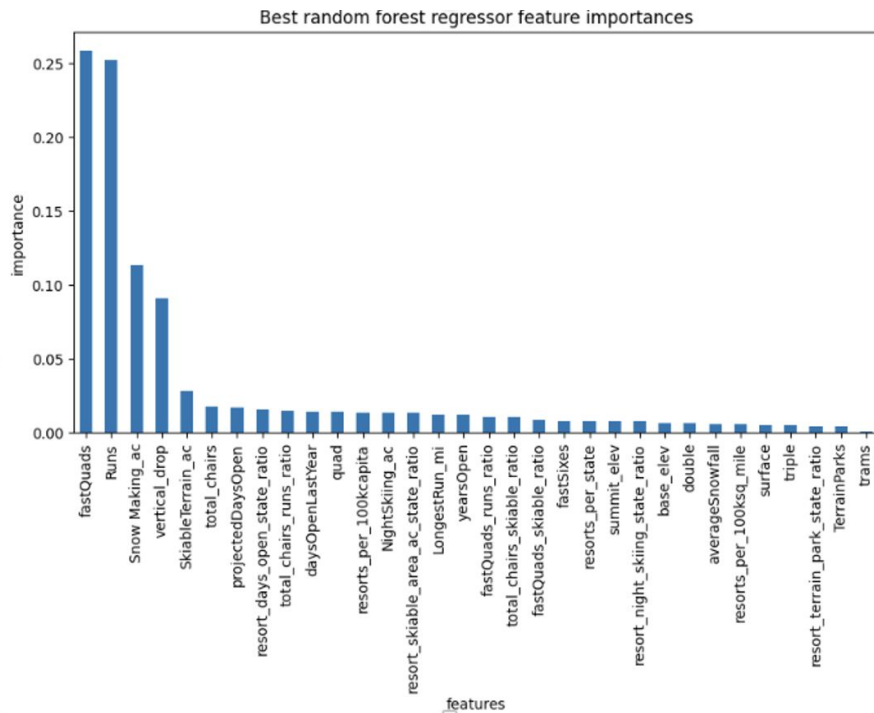
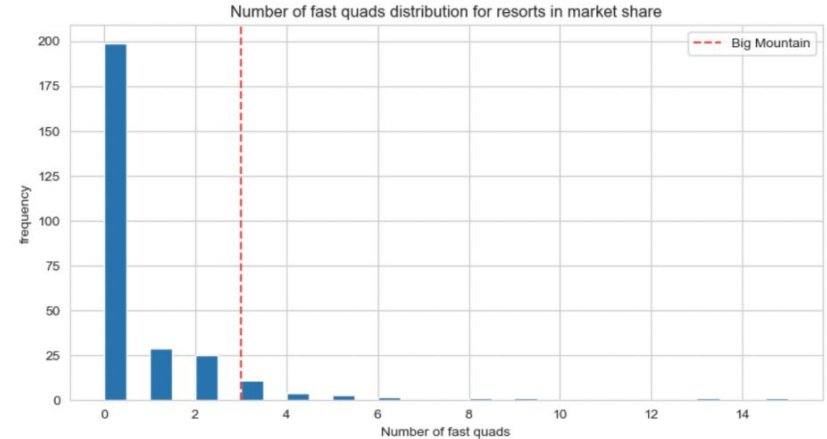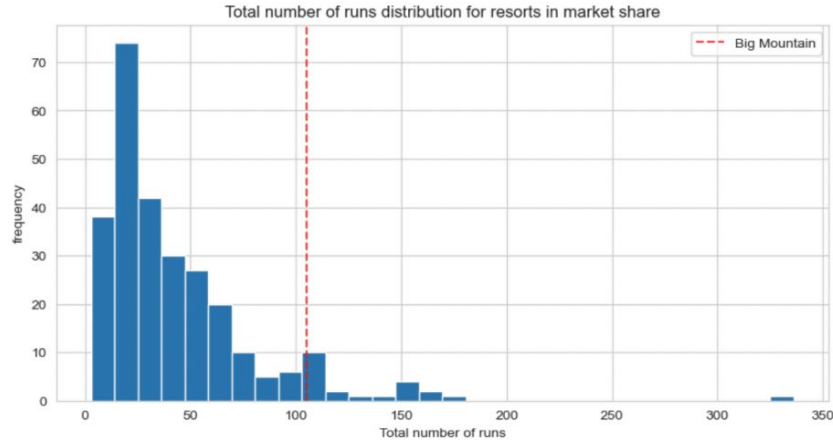# Modeling Results and Analysis - Random Forest

Winning Model:
Random Forest Regressor

Important Contributors to Ticket Price:
1. Number of Fast Quads
2. Number of Runs
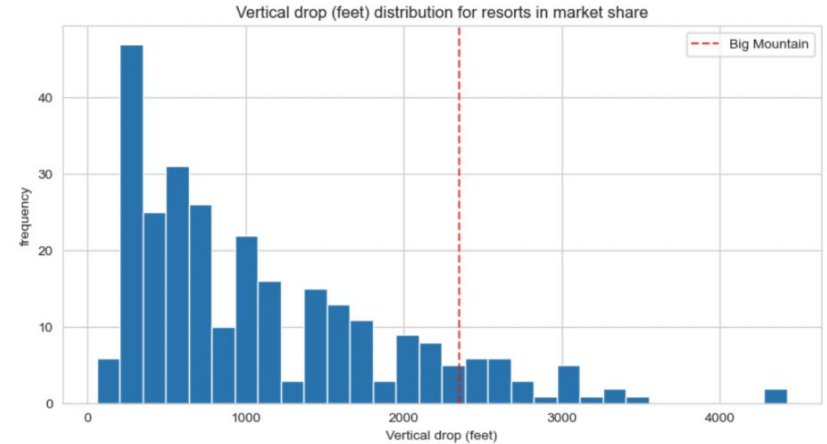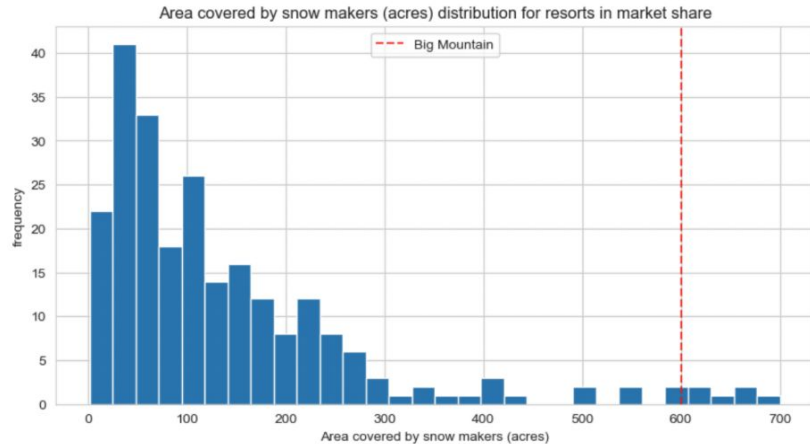3. Snow Making Acerage
4. Vertical Drop

Best random forest regressor feature importances

Modeling Results and Analysis - Runs and Fast Quads

Total number of runs distribution for resorts in market share

Number of fast quads distribution for resorts in market share

Left Graph: Big Mountain Resort has 100+ runs which is very competitive.
**Right Graph:** With 3 Fast Quads, Big Mountain is in exclusive territory.
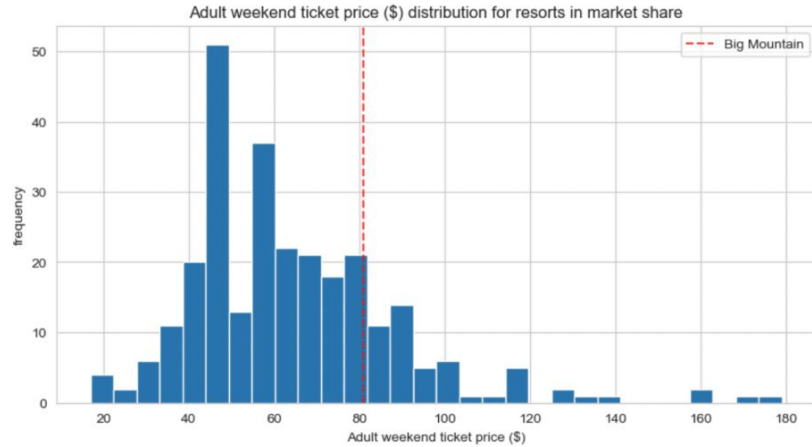
Modeling Results and Analysis - Snow Acres and Vertical

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

Vertical drop (feet) distribution for resorts in market share

<u>Left Graph:</u> Big Mountain clearly near the highest amount of Snow Acres
<u>Right Graph:</u> Again near the highest amount of total vertical drop
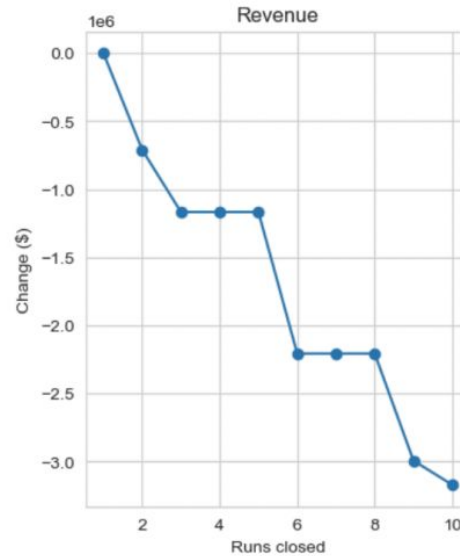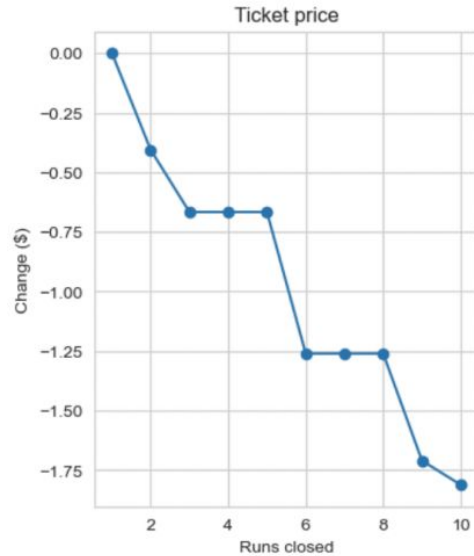
Modeling Results and Analysis - Ticket Prices
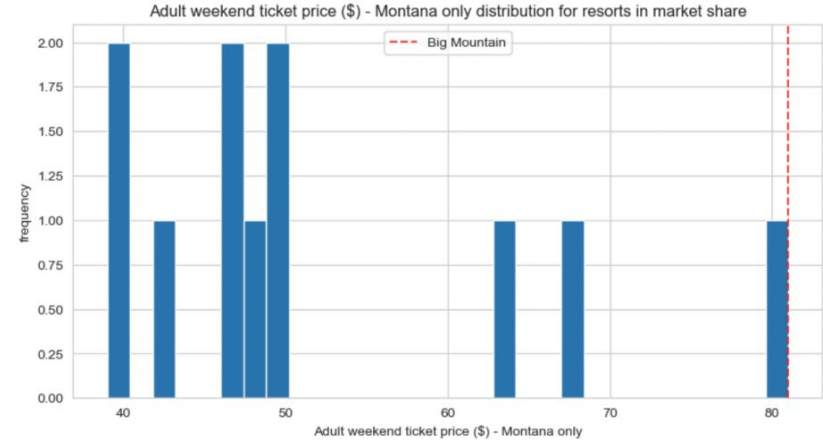
Left Graph: Big Mountain towards the upper middle with current prices
Right Graph: Big Mountain currently has the highest ticket prices in Montana

Modeling Results and Analysis - Runs Closed

1. Closing a single run does not impact ticket price (revenue)
2. Closing 4 or 5 runs looks like a sweet spot to not have a big loss of revenue

Summary and Conclusions

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- **Pricing Model:** Developed a sophisticated model to predict ticket prices and evaluate the impact of various scenarios that the resort is considering.
- **Price Increase:** Big Mountain Ski Resort can confidently raise ticket prices from $81 to $96, supported by a competitive offering of amenities for guests.

Next Actions:

- **Dashboard Development:** Create a dashboard for Big Mountain's analysts to collect data and update pricing based on the model's parameters.