# Model for Maximizing Profit for Big Mountain Resort

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## What opportunities exist for Big Mountain Resort to increase revenue by or cut costs by at least $1,540,000 this season by increasing ticket prices above market price or cutting operating costs?

**Big Mountain's Superior Facilities:**

- 11 lifts
- 2 T-bars
- 1 magic carpet
- 105 trails
- Vertical drop of 2,353 ft

The focus will be on current ticket pricing in comparison to results with similar facilities as well as an evaluation of operating costs of lifts.
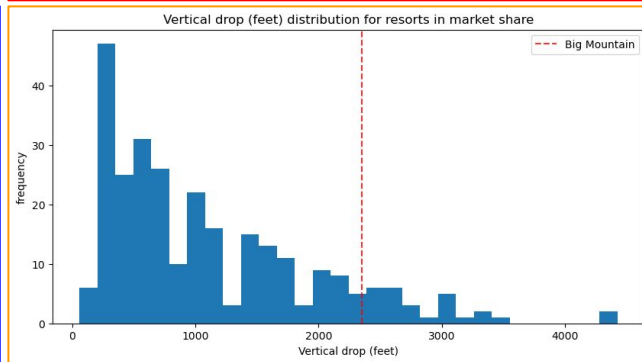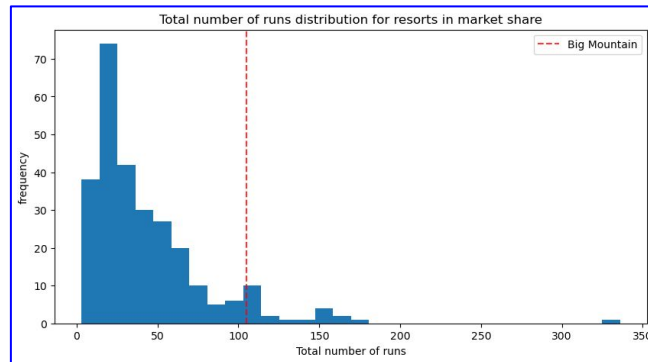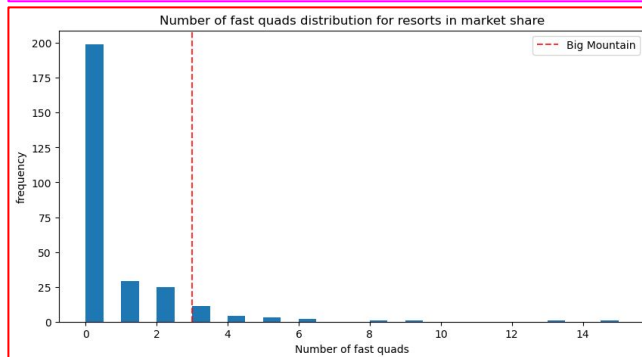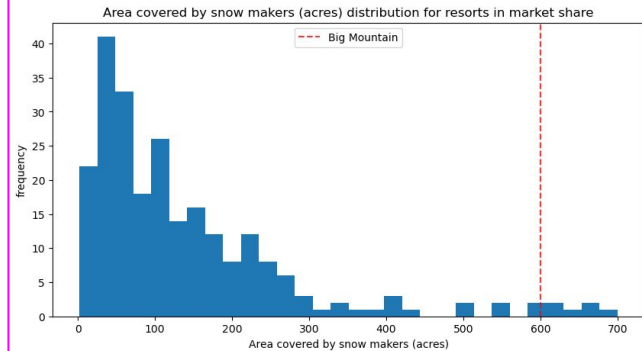
# Key Findings

1. While ticket prices are currently $81.00, resorts with facilities of a similar caliber to Big Mountain price around **$95.87**, which could increase revenue by **$26,022,500**.

2. Adding a run that **increases the vertical drop** by 150 feet and installing an additional chair lift could increase ticket price by $1.99, accounting for **$3,474,638** in revenue.

3. **Closing one run** would have **no effect on ticket pricing**, and closing more than one has the potential to minimize costs.

# Features of Value


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


Number of fast quads distribution for resorts in market share

Throughout analysis, the **number of runs**, **area covered by snow making**, **number of fast quads**, and **vertical drop** were all highly correlated with ticket price. Big Mountain is far above average in all of these valuable features, making grounds for increasing ticket prices to match market level.


Total number of runs distribution for resorts in market share


Vertical drop (feet) distribution for resorts in market share

# Ticket Pricing



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

Despite being far above average in all features of value, Big Mountain Resort's price remains only slightly above average.

A random forest model utilized data from 330 resorts to predict that Big Mountain's **ticket price at market value is $95.87**, give or take a mean absolute error of $10.39.

If the resort retains its expected visitorship of 350,000 patrons, this ticket price would **increase revenue by $26,022,500**, covering far more than the cost of the new chair lift. However, the model did not include expected visitors, so additional insight into how price increase will affect visitorship is necessary.

While Big Mountain already has the most expensive ticket price in Montana, analysis supported that **state is not correlated with ticket price** and that the features of value are a far larger contributing factor.
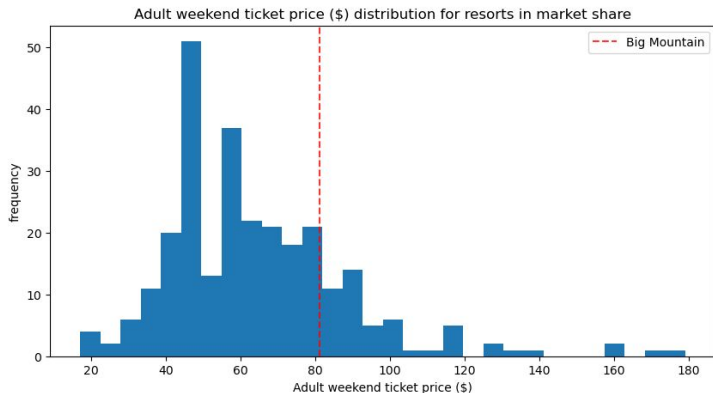
# Maximize Price by Increasing Vertical Drop

The model can also predict how changing features would affect ticket price.

Adding a run that **increase the vertical drop by 150 ft** and installing an additional chair lift maximizes features of value, which our model predicts supporting further **increasing the price by $1.99**.

This could increase revenue by **and revenue by $3,474,638**, covering more than twice the operating cost of an additional chair lift.

Increasing snow making by 2-4 acres or the longest run by 0.2 miles showed no difference in predicted price.

# Cut Costs by Closing Runs



The model predicts that closing one run would have no effect on ticket price.

Closing 2 runs has the same impact on price as closing 5, decreasing revenue by $1,166,666.67. Closing 6 or more will most likely be unprofitable.

Suggestion: assess the most popular runs and the runs with the highest operating cost, then close one and re-evaluate if closing an additional four would offset more than the decrease in revenue.
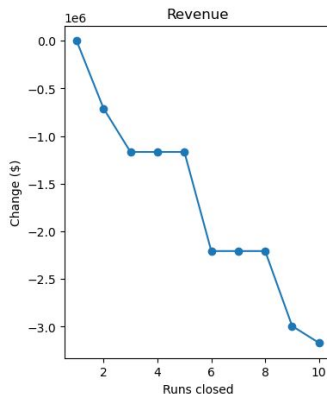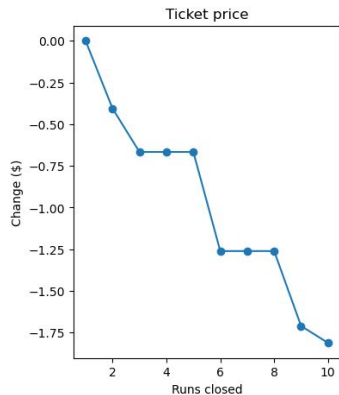
# Conclusion

- Big Mountain's current ticket price does not reflect the value of its features when compared to 330 resorts.

- Increasing ticket price from $81.00 to $95.87 could account for a **$26,022,500** increase in revenue, despite already being Montana's most expensive resort.

- Ticket price and revenue can be further increased by **increasing vertical drop by 150 ft**.

- **Closing one run** will not affect ticket price and **closing 5** may be profitable upon further analysis of run popularity and operating costs.