Problem Statement

What opportunities does Big Mountain Resort have for changing its ticket prices to increase its revenues by at least $1,540,000 during the next winter season while remaining competitive with other resorts in the market?

1   Context

The Big Mountain Resort, a ski resort in Montana, has recently installed an additional chair lift that will incur another $1,5400,000 in operation costs over the next season. Their pricing strategy has been to charge a premium based on the average ticket prices of the market; however, the resort's management wishes to incorporate a strategy driven by a more complete understanding of the market.

2   Objectives

- Identify an optimal and competitive ticket price, and calculate the resulting revenue increase if applicable

- Evaluate viability of four strategies for cutting costs or increasing revenue

- Report on these findings and provide recommendations at the next leadership meeting

3   Project Scope

- Examine features of 300 resorts across the United States from prior ski season

- Build model to ticket price based on those features

- Evaluate four proposed strategies based on assumption of 350,000 customers purchasing average of 5 tickets each

Problem Statement continued

What opportunities does Big Mountain Resort have for changing its ticket prices to increase its revenues by at least $1,540,000 during the next winter season while remaining competitive with other resorts in the market?

4　Constraints and Limitations

- Cannot account for ticket sales for other resorts due to lack of access to proprietary data

- Cannot account for operating costs of other resort

- Cannot directly account for changes in customer or ticket volume in relation to ticket price

5　Key Stakeholders

Jimmy Blackburn - Director of Operations

Alesha Eisen - Database Manager

6　Key Data Sources

US Ski Resort Market Data - Big Mountain Database
 -Ticket Prices
 -Resort features (lifts, tracks, sizes, etc.)
 -Resort location
 -Operation times (night, season length, etc)
US State size and population data - US Census Data

Recommendations and Key Findings

1. **Big Mountain Resort can increase ticket prices by at least $4**
   a. This would increase revenue by at least $7 million
   b. Further increases should be introduced and tested gradually

2. **The resort can close its least-used run without any expected decrease in revenue**
   a. Subsequent run closures can be expected to cost millions
   b. Any run closures should be tested incrementally

3. **Adding another chair lift to increase the resort's maximum run descent by 150 ft. can support a $1.99 ticket price increase**
   a. This would increase revenue by $3.4 million
   b. Further increases to run length are not expected to yield benefit
   c. Further increases to snow-making coverage are not expected to yield benefit

Model Question: Based on what we know about a resort, what would that resort be expected to charge?

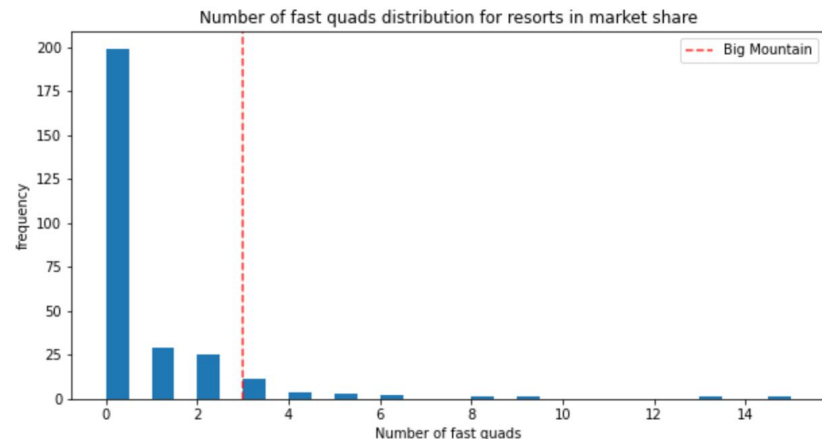| Model	Simple Average	Linear Regression	Random Forest
Error (MAE)	$19.14	$10.50	$9.54

Four most important features:

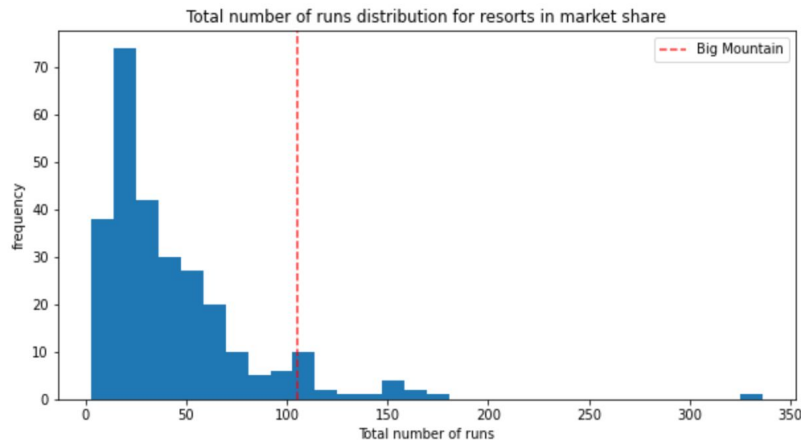- Number of fast four-person chairs
- Number of runs
- Number of snow making acres
- Vertical distance from the summit to the base

Modelled Big Mountain Resort ticket price increase: between $4.48 and $25.26!

Potential Problems:

1. Are other resorts setting their ticket prices too high or low?
2. How many tickets are other resorts selling per season?
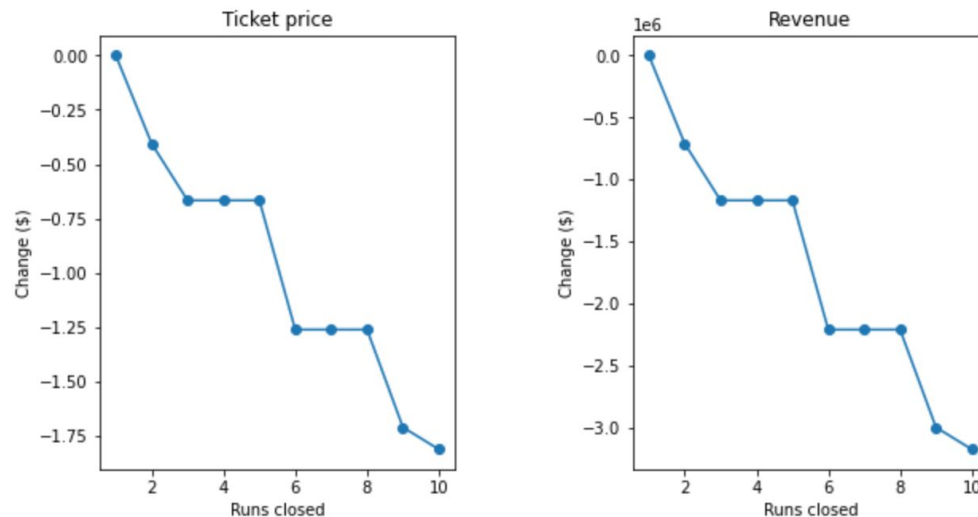3. What overhead costs are other resorts paying?

However, Big Mountain Resort lives up to its name compared to other resorts, so it probably can increase its ticket prices!

Scenario 1: Closing up to 10 of the least-used runs.

Assuming 350,000 customers buying an average of 5 tickets each:

The first run can be safely closed. Subsequent closures incur heavy revenue losses.

Scenario 2: Adding a chair lift to increase the longest run by 150ft:

Ticket price increase of $1.99, revenue increase > $3.4 million!

Scenarios 3 and 4: Increasing snow-making coverage and/or run length

No ticket price increase over Scenario 2

Summary and Conclusion

- **Big Mountain Resort is in a strong position to increase its ticket price! However, we recommend caution due to the absence of key information**

- **At least one run can be closed without any predicted loss in revenue; subsequent run closures depend on potential revenue loss in comparison to reduced operating costs**

- **Big Mountain Resort will likely benefit from the plan to install an additional chair lift; however, snow-making coverage beyond that plan suffers from rapidly diminishing returns and is not recommended**