

Guided Capstone Project

Big Mountain Resort
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Problem identification

How can we improve our facilities' ROI by 5% this season by identifying facilities with higher capitalization rate and introducing a higher pricing, or by reducing costs while maintaining the ticket value?

Context

We accommodate about 350,000 customers/year. There are 11 lifts, 2 T-bars, and 1 magic carpet for novice skiers. The longest run is 3.3 miles in length. The base elevation is 4,464 ft, and the summit is 6,817 ft with a vertical drop of 2,353 ft. We have recently installed an additional chair lift which costs \$1,540,000.

Criteria for Success

By the beginning of ski season, we will identify the connection between ticket value and facilities, and improve facilities' ROI by 5%.

Scope of Solution

We will focus on comparing and researching ski facilities capitalization and ticket price of ski resorts. We will not investigate other services or products.

Recommendations and Key Findings

Key features

Below is the list of facilities (features) that closely correlate with ticket price.

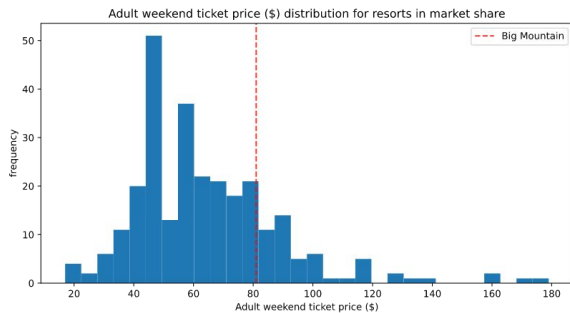
- Vertical drops
- FastQuads
- Runs
- Total chairs
- Snow Making area
- Night skiing capacity

Recommendations

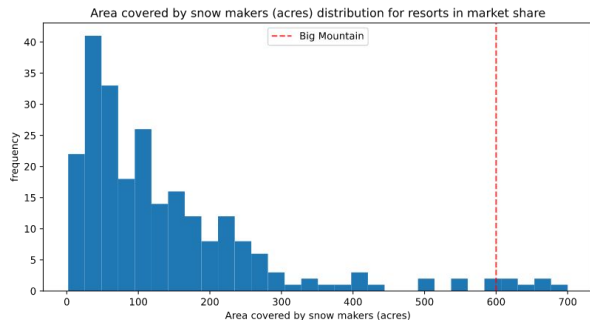
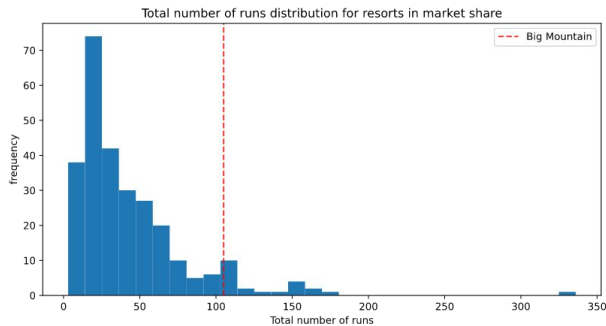
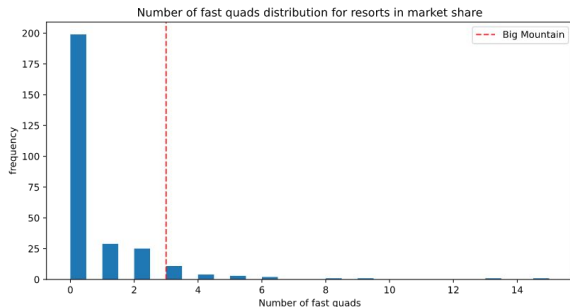
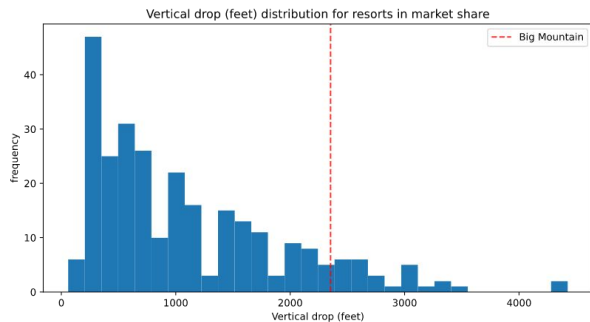
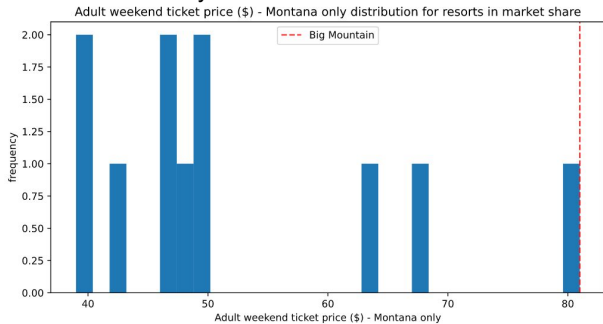
- Acquiring additional data (i.e: Big Mountain's customers, visitors, operating costs) to improve the accuracy of the model
- Analyzing business performance in different scenarios, such as increasing or decreasing certain facilities, introducing a new pricing model, or both.

Big Mountain resort in the market

All state



Montana only



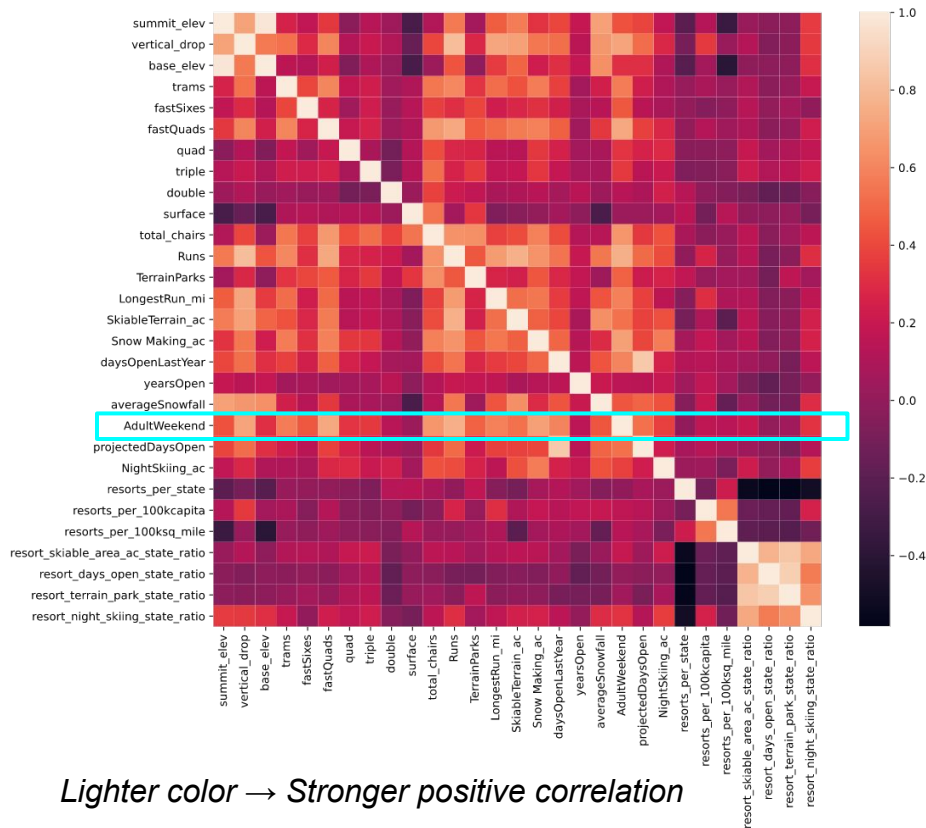
Big Mountain Resort ranks high in the performance of important facilities as compared to other resorts in the market. Our ticket price is the highest in Montana.

Feature Exploration

We analyzed the relationships between ticket price and each facility.

Based on general market data from all states, below are features that seem to affect ticket price the most:

- Vertical drops
- FastQuads
- Runs
- Total chairs
- Snow Making area
- Night skiing capacity



Model assessment

We built 2 models to predict the ticket price, using Linear Regression method and Random Forest method.

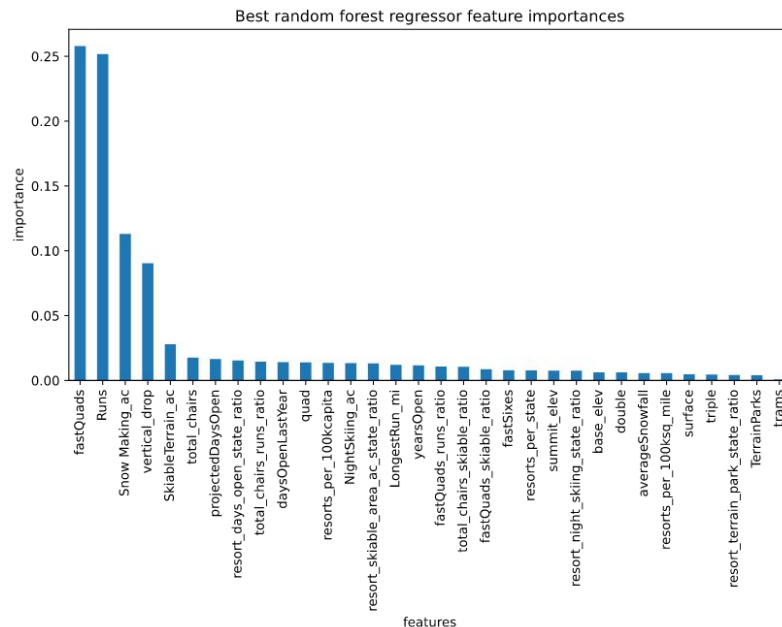
We assessed the performance of each model.

We decided to move forward with the Random Forest model.

List of significant facilities in this model:

- fastQuads
- Runs
- Snow Making_ac
- Vertical drop

→ They are the facilities that would make the biggest difference to business performance when changed.



Looking forward

We have only used facilities and market data to analyze and build the model. Next, we should investigate customer data and operating costs for other facilities. In particular,

- Historical visitor data (and volume of weekend vs. weekdays)
- Customer data (demographics, behavior, income, new vs. regular, etc.)
- Operational costs for other facilities

After improving the accuracy of the model, we will continue investigating different scenarios by changing factors and calculating the revenue and profit in each scenario. The scenarios could be:

- New ticket price doesn't affect the number of visitors.
- New ticket price affects the number of visitors by X%.
- Big Mountain keeps the old price for weekdays, and adopts an increased price for weekends.
- Big Mountain raises the price while making changes in the facilities