The Big Mountain pricing problem

Anush Sridharan

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Overview

Big Mountain Resort is a ski resort in Montana servicing about 350,000 skiers every year. With the recent installation of an additional chair lift that has increased operational costs by about $1.5 million annually, the business is interested in understanding the following

- Is their current ticket price appropriately priced based on their facilities and offerings compared to other ski resorts in their market segment ?

- What possible options exists for cutting costs without adversely affecting the ticket revenue?

Problem identification

1. Is there specific data available regarding the ski resorts features and facilities to support the premium pricing at Big Mountain Resort compared to other resorts in its market segment?

2. If so, does the data support an increase to the current ticket price?

3. If increased, does the new pricing allow for increased revenue to offset the additional operational costs?

Recommendation

Based on data about ski resort features and their ticket pricing in the same market segment as Big Mountain, an increase of up to $14 to the current ticket price is supported based on the existing features at Big Mountain.

Key findings

1. Modeling of ski resort data predicts that the ticket price at Big Mountain is valued at $95

2. Key features that add value to the ticket price are availability of quads, number of ski runs, snow making area and vertical drop

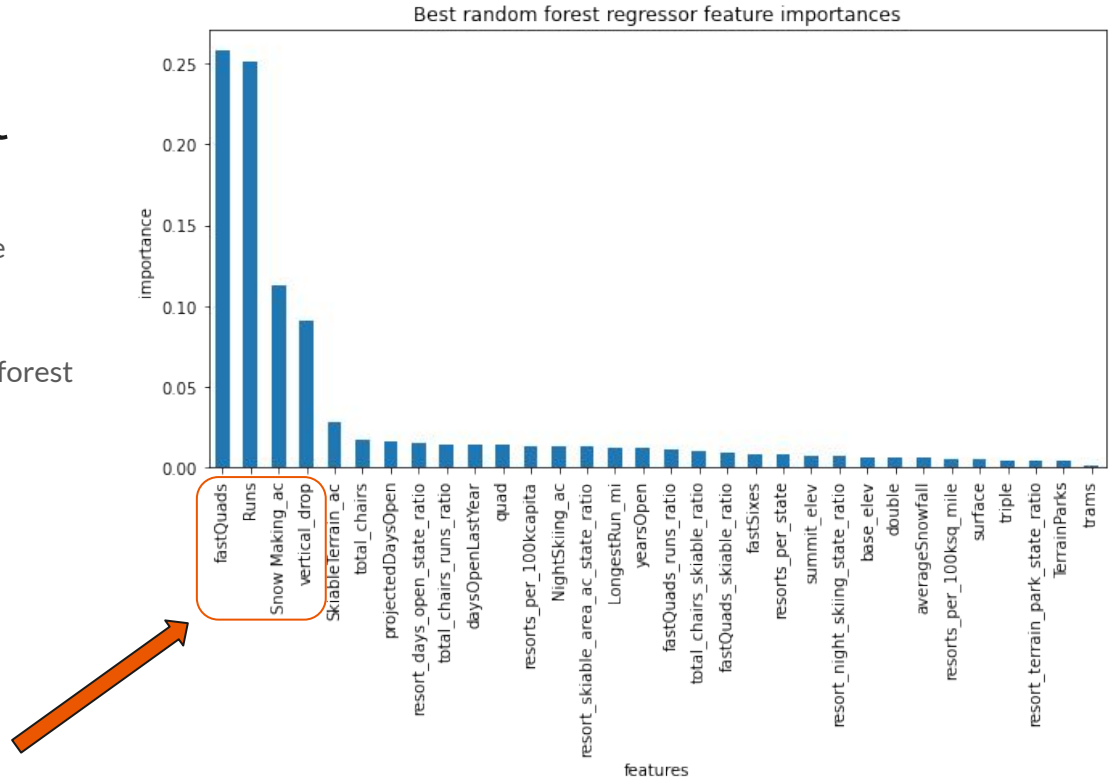
3. Closing up to five of the least used ski runs does not negatively affect the value of the ticket price

Modelling and analysis

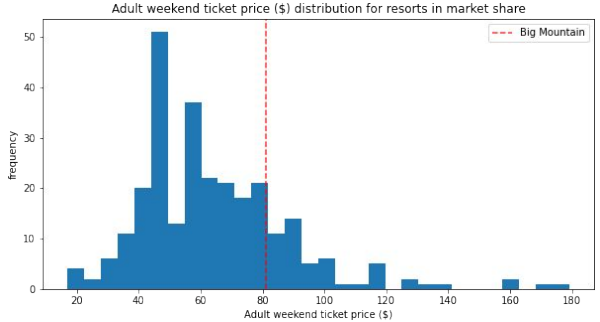
Random forest model

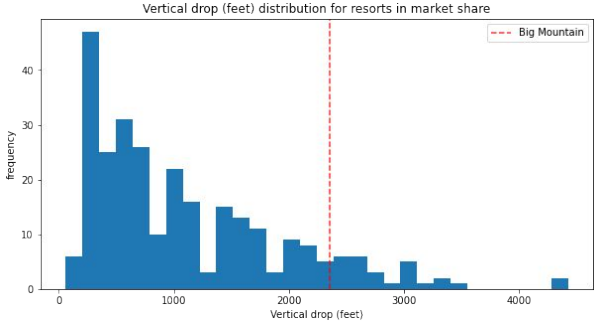
Random forest model based on imputing the median for missing values and not scaling of features resulted in the lowest mean absolute error.

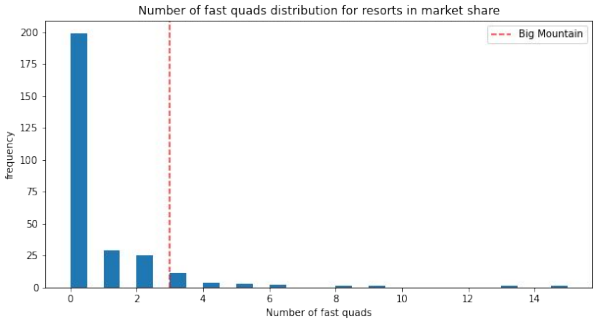
The four most important features based on the random forest model are highlighted.

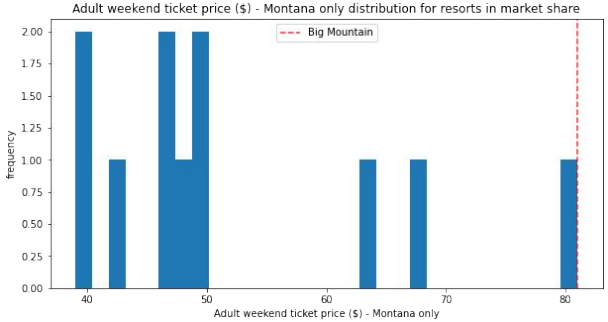


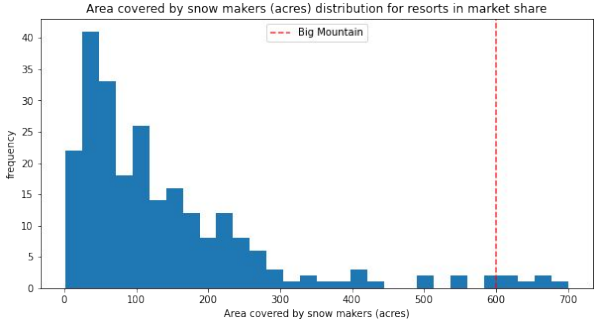
Big Mountain versus. Market segment in top features

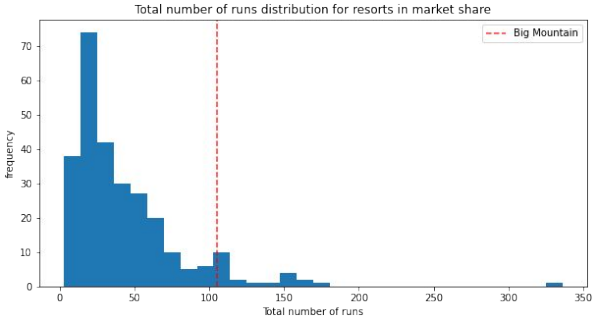












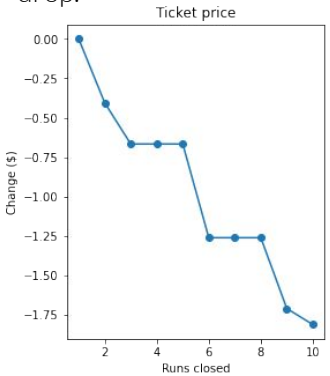
Modelling scenarios

Scenario 1

Close up to ten of the least used runs

Model prediction

Closing one run doesn't affect ticket value. Closing two to three runs successively minimally reduces value of ticket price. If Big Mountain closes down 3 runs, it seems they may as well close down 4 or 5 as there's no further loss in ticket price. Increasing the closures down to 6 or more leads to a large drop.



Scenario 2

Adding a run, increasing the vertical drop by 150 feet, and installing an additional chair lift.

Model prediction

This scenario increases the value of ticket price by $8.61. This could be expected to increase revenue by $15,065,471.

Scenario 3

Adding a run, increasing the vertical drop by 150 feet, installing an additional chair lift and increasing snow making area by 2 acres.

Model prediction

This scenario increases increase the value of the ticket price by $9.90. This would result in an increase in revenue by $17,322,717.

Summary

Modelling and analysis of ski resorts in the same market segment as Big Mountain suggests that the value of the ticket price at Big Mountain is higher than the current price. Big Mountain can consider closing down up to 5 of the least used runs to reduce operational costs, while simultaneously increasing the revenue by increasing the vertical drop by 150 feet by adding an additional run lower down and increasing the snow making cover by at least 2 acres.

A combination of these cost cuts and facilities enhancements could increase the revenue of Big Mountain and their overall position in the marketplace.