

Big Mountain Resort Report

Problem Statement

The business problem is that we need to increase seasonal revenue at Big Mountain Resort (BMR) enough to offset the recent increase in operational costs due to the addition of a brand-new chair lift that cost \$1.54M to implement. The overall focus was put on finding ways to cut down on costs without undermining ticket value or justify setting higher prices for tickets.

Data

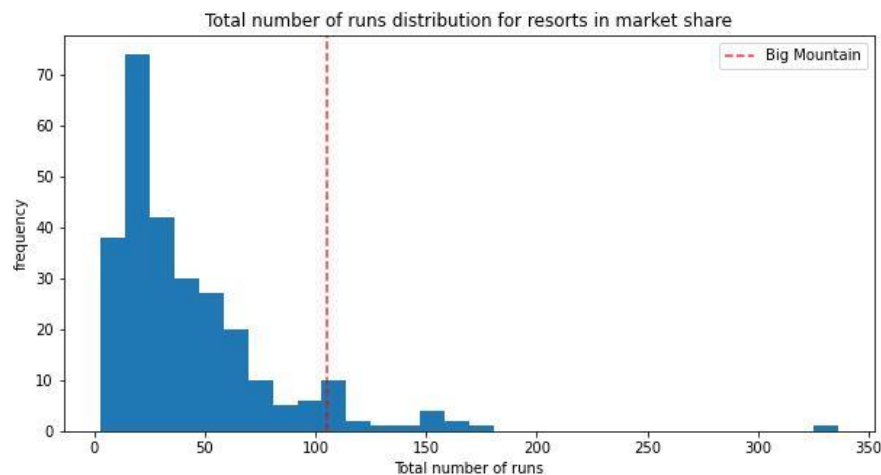
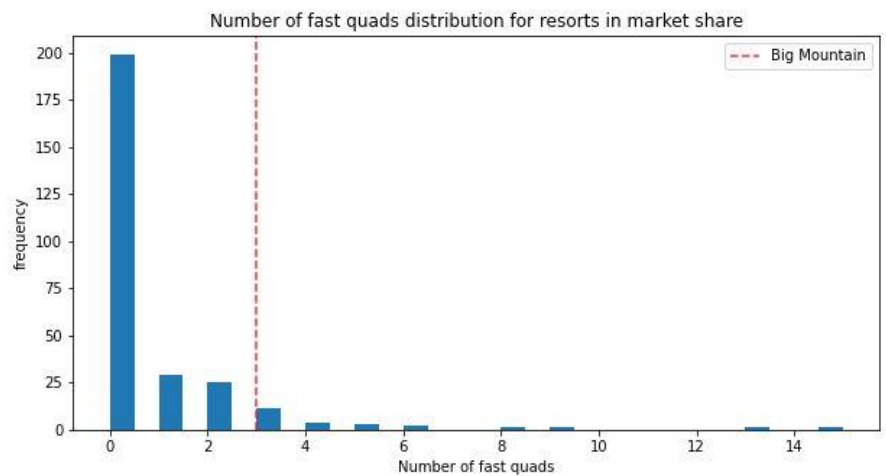
The data used throughout the project was a CSV file acquired from Alesha Eisen, the database manager. The file contained 330 resorts within the same market in the United States, including data for BMR. The features of the data are listed below:

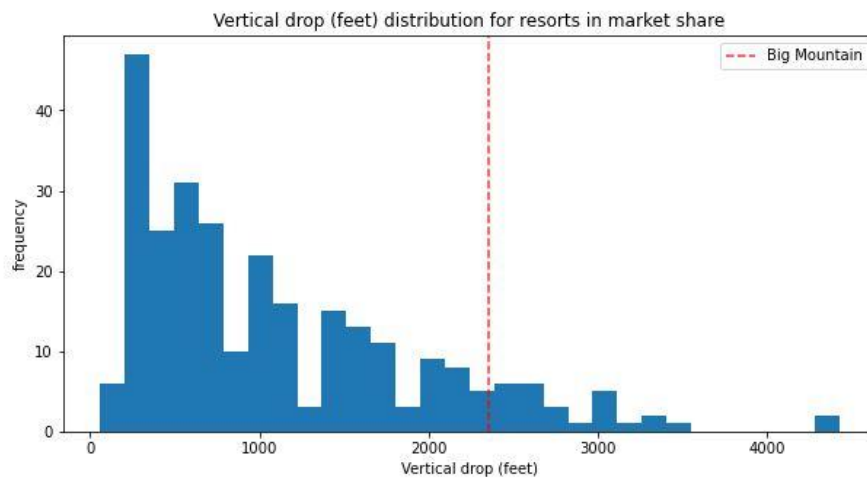
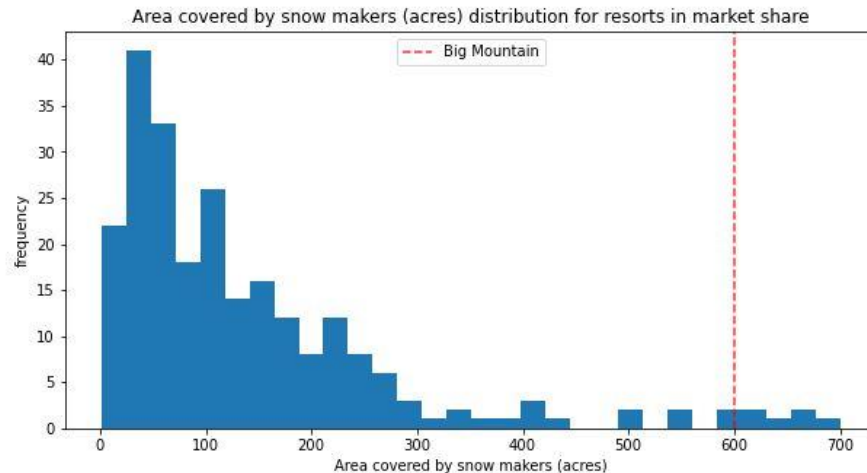
Column	Description
Name	The name of the ski resort.
Region	The region within the United States where the resort is located.
state	The state name where the resort is located.
summit_elev	Elevation in feet of the summit mountain at the resort.
vertical_drop	Vertical change in elevation from the summit to the base in feet.
base_elev	Elevation in feet at the base of the resort.
trams	The number of trams.
fastEight	The number of fast eight person chairs.
fastSixes	The number of fast six person chairs.
fastQuads	The number of fast four person chairs.
quad	Count of regular speed four person chairlifts.
triple	Count of regular speed three person chairlifts.
double	Count of regular speed two person chairlifts.
surface	Count of regular speed single person chairlifts.
total_chairs	Sum of all the chairlifts at the resort.
Runs	Count of the number of runs on the resort.
TerrainParks	Count of the number of terrain parks at the resort.
LongestRun_mi	Length of the longest run in the resort in miles.
SkiableTerrain_ac	Total skiable area in square acres.
Snow Making_ac	Total area covered by snow making machines in acres.
daysOpenLastYear	Total number of days open last year.
yearsOpen	Total number of years the resort has been open.
averageSnowfall	Average annual snowfall at the resort in inches.
AdultWeekday	Cost of an adult weekday chairlift ticket.
AdultWeekend	Cost of an adult weekend chairlift ticket.
projectedDaysOpen	Projected days open in the upcoming season.
NightSkiing_ac	Total skiable area covered in lights for night skiing.

Analysis Findings

After testing several different models on predicting ticket price, we determined that the best performing one was our random forest model. During our analysis, we found that among the most important features that can help us predict ticket price are the number of fast four person chairs, count of runs on the resort, snow making area coverage, and vertical drop. It was determined that no additional data is needed to move forward.

We deduced that BMR lies amongst the top resorts in many amenities offered, and because of this can afford to raise the ticket price slightly. Below are the histograms pertaining to the features mentioned above that represent the counts of all the resorts included in our data and where they fall relative to BMR:





Recommendations

Our analysis tells us that Big Mountain Resort should slightly raise their price due to being in a high percentile of amenities offered in the market. Of the scenarios provided by the business, I would recommend implementing the second, which involved adding a run and a chairlift, as well as increasing the vertical drop by 150 feet. Our model suggests that making these changes supports a ticket price increase of \$1.99. It is worth noting that if the business decides to move forward with this plan of action, we should look into how much the operational costs will increase with having to add to our facilities.