Guided Capstone Project Report

# Introduction

Big Mountain Resort is a ski resort in Montana. They recently installed additional chair lift to increase the distribution of visitors across the mountain but increases their operation costs by $1,540,000 this season. To increase the revenue and reduce the cost, the resort is considering either charging a premium above the average price or cutting costs.

# Method

To set ticket price properly, a data-driven price strategy is used in this project. Data of facilities and ticket prices of ski resorts in U.S. is collected to build the model estimate the price. And different models have been proposed to model the ticket prices of ski resorts, including average price, linear model and random forest model. Among these test models, random forest model has best performance in cross-validation. Based on the random forest model, different scenarios to increase the price and reduce the cost are proposed.

# Current Position

Figure 1 presents the weekend ticket price distribution and Big Mountain’s current position in the market nationwide. Figure 2 presents the same thing but only in Montana. It is clear to see that Big Mountain’s weekend ticket is at the top in Montana and higher than most resorts’ nationwide.

Chart, histogram

Description automatically generated

Figure

Chart, bar chart

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Figure

# Scenarios

Four different scenarios have been proposed to increase the revenue and reduce the cost.

## 4.1 Scenario 1

Scenario 1 consider closing up to 10 of the least used runs. Closing only 1 least used run does not influence the ticket price based on the model.

Chart, line chart

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Figure

## 4.2 Scenario 2

Scenario 2 propose to add a run, increase the vertical drop by 150 feet and install an additional chair lift. This scenario increases support for ticket price by $8.61

## 4.3 Scenario 3

Scenario 3 is adding 2 acres of snow making onto the scenario 2. But it only increases support for ticket price by $9.90, which is not significant difference with scenario 2.

## 4.4 Scenario 4

Scenario 4 calls for increasing the longest run by .2 miles and guaranteeing its snow coverage by adding 4 acres of snow making capability. There is no influence of modelled ticket price.

# Recommendation

Price strategy is scenarios 1 and 2 are recommended. Closing 1 run does not influence the ticket price but can reduce the cost. And adding a run, increasing the vertical drop by 150 feet and installing an additional chair lift can support the ticket price significantly compared with other strategies. But more detailed information about the operation cost in scenario 2 is required before it is finally adopted.