Data Science Career Track

Guided Capstone Project Report

Recommendations for Big Mountain Resort

Executive Summary

The aim of this report was to find out the optimal solution to recoup the increase of operating costs from the new chair that Big Mountain installed this season, and keep the profit margin stay at ~ 9.2% . After analyzing the dataset containing information from 330 resorts in the US that can be considered part of the same market, we built models to predict ticket price and days to open each season based on the data, and the prediction results indicates:

1) Our current weekend ticket price is cheaper than the recommended price from the model.

2) Days open last year is less than the recommended days from the model.

So the conclusion of this report is: As the operating cost increased, in order to keep the profit margin around 9.2%, we could 1) increase our weekend ticket price to the price suggested by the mode, 2) extend open days to the number suggested by the model, to efficiently increase the total revenue.

Method:

1. Clean and preprocess the original dataset that contains information from 330 ski resorts in the US.

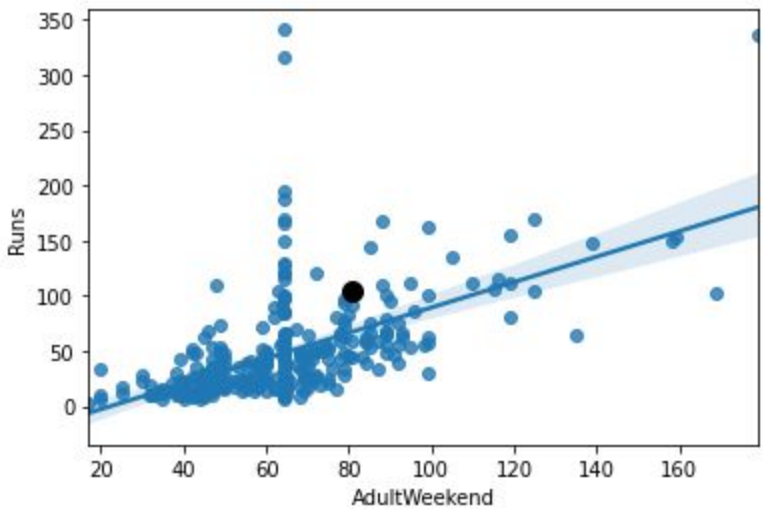
2. Build 3 different prediction models(model 1~ model 3) based on the preprocessed dataset, by choosing different features. Model 1 contains all the features; In model 2 we dropped 2 features that are not actionable; in model 3 we dropped 4 features that are not actionable.

3. Compare the performance of each model(Metrics used to check performance: MSE, Explained variance score) We would notice the metrics of 3 models are very close, in the end we chose model 3, that has the least unactionable features.

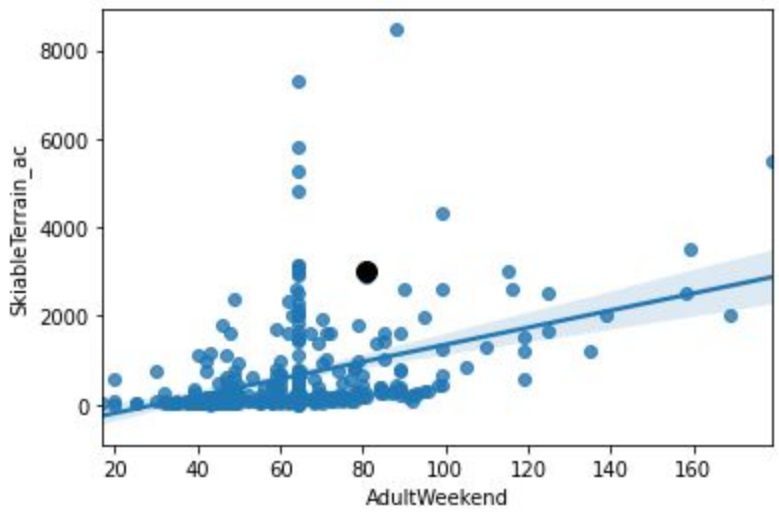
4. Use features of Big Mountain and model 3 to predict the weekend ticket price and get the result $89; use model 3 to predict the open days for this season and get the result 130 days. (Current weekend ticket price: 81, days opened in last season: 123 days)

Data Analyze supports the conclusion:

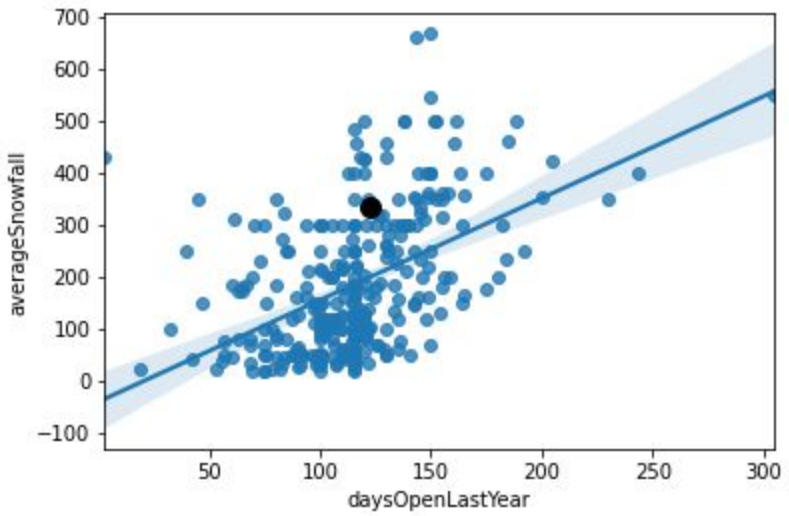
1. By comparing the number of runs with the other competitor resorts we can see resorts that have about the same number of runs as BIg Mountain has, normally price their weekenday ticket higher than $81.



2. By comparing skiable areas in the resort with other competitor resorts we can see some of the resorts that have about the same skiable as Big Mountain has(or even slightly less than Big Mountain), price their weekend ticket price higher than $81.



3. By comparing average snowfall in the resort with other competitor resorts we can see some of the resorts that have about the same average snowfall as Big Mountain has(or even slightly less than Big Mountain), have longer open days than Big Mountain.



Conclusion:

Based on the model's prediction and after comparing some of the features of Big Mountain Resort with other resorts that have similar features(similar numbers of run, similar skiable areas, similar average snowfall) we would like to recommend the management team to increase the weekend ticket price to $89 and extend the open days to 130 days.