

# Guided Capstone Project Report

## Recommendations for Big Mountain Resort

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### 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 at  $\sim 9.2\%$ . 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. The prediction results indicate:

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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 model

2) extend open days to the number suggested by the model, to efficiently increase the total revenue.

### **Method:**

1. Cleaned and preprocessed the original dataset that contains information from 330 different ski resorts across the US.

2. Built 3 different prediction models (model 1~ model 3) based on the preprocessed dataset, by choosing different features. Model 1 includes 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.

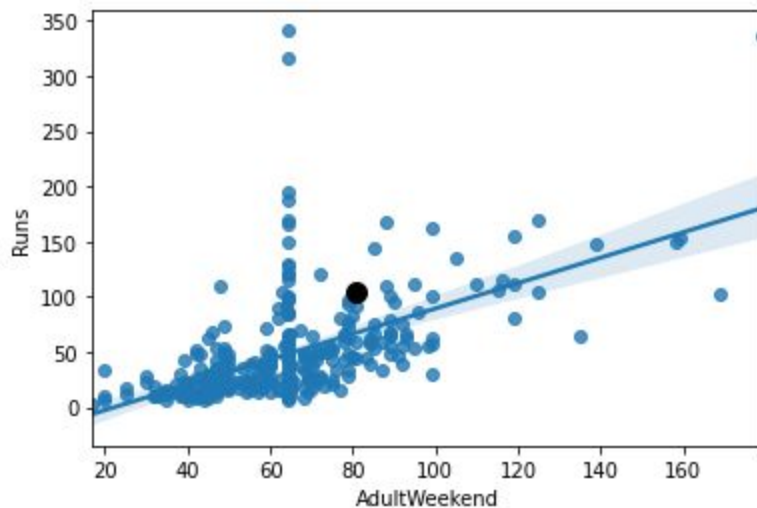
3. Compared the performance of each model (Metrics used to check performance are MSE and explained variance score), We noticed the metrics of the 3 models are very close, in the end we chose model 3, which has the least unactionable features.

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

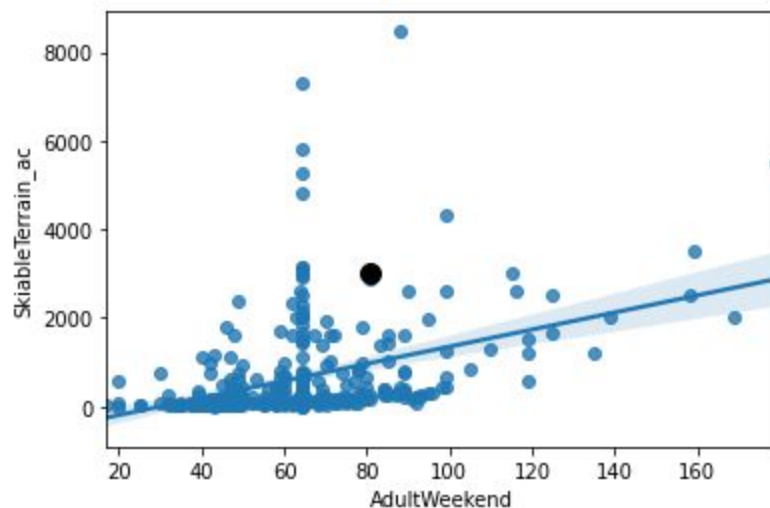
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### Data Analyze supports the conclusion:

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 Blg Mountain has, normally price their weekend ticket higher than \$81.

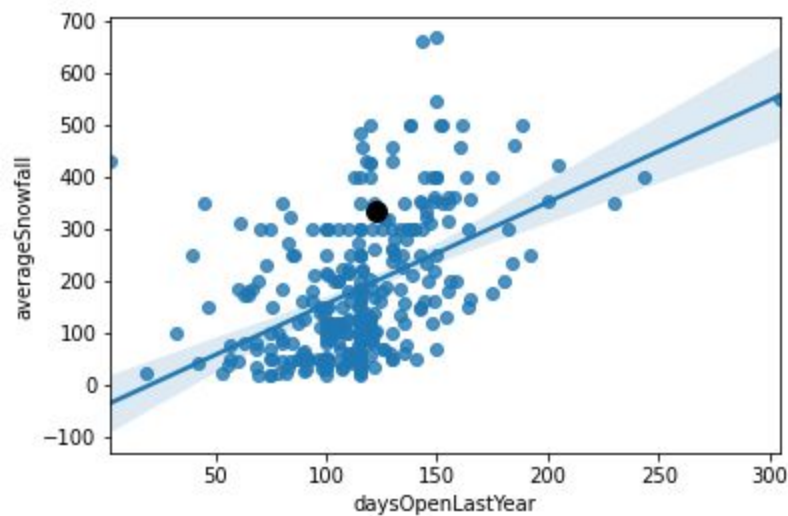


2. By comparing skiable areas in the resort with other competitor resorts we can see some of the resorts that have about the same skiable area as Big Mountain has (or even slightly less than Big Mountain) price their weekend ticket price higher than \$81.



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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.