Problem Statement Worksheet (Hypothesis Formation)

By Hongling Yang

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Context

- Big Mountain Resort, a ski resort located in Montana, offers spectacular views of Glacier National Park and Flathead National Forest, with access to 105 trails. Big Mountain Resort has recently installed an additional chair lift to help increase the distribution of visitors across the mountain. This additional chair increases their operating costs by $1,540,000 this season. To offset the costs, Big Mountain Resort wants to find a better and more data-driven ticket pricing strategy.
- The resort's pricing strategy has been to charge a premium above the average price of resorts in its market segment. The taking-average pricing strategy hampers Big Mountain from maximiumly capitalizing on its facilities.
- In addition, Big Mountain Resort is also considering a number of other changes that they hope will either cut costs without undermining the ticket price or will support an even higher ticket price.
- There are 330+ ski resorts across 50 states.

2 Criteria for success

- Identify a more data-driven pricing strategy, in place of the traditional market average based pricing strategy, to select a better value for the ticket price
- Find out if changes such as adding more runs, expanding the existing skiable area, and/or adding more chairlifts will either cut costs or will support an even higher ticket price.

3 Scope of Solution Space

- We first conduct a preliminary analysis on both the state layer and Big Mountain Resort specific layer. On the state level, we will apply principal component analysis (PCA) to discover patterns, if any, in the distribution of ticket prices across 50 states; Onto the resort specific layer we will perfom binary analysis to examine the correlation between Big Mountain Resort ticket price and various resort specific features.
- Next we will comapre three pricing strategies: namely, the current taking-market-average approach, a linealy-regression modeling approach, and a RandomForest regression moldeing, and select the best one to appropriately price our tickets
- We then will explore business scenarios such as adding more runs,expanding the existing skiable area, adding more chairlifts, to find out if we would benefit from these potential changes. We will do this by examining our resort standing in the league tables of various ski resort features and

4 Constraints within solution space

- Some stakeholders prefer the traditional market average based pricing strategy, which has been in practice for a while, is easier to implement and quicker to select a ticket price, and has less uncertainty
- The study will have to be done within a short time frame, and the data driven pricing strategy will have to be implemented and ticket prices have to be selected before next ski season starts.
- The study costs money, which to some stakeholders, could be better spent in some other channels. Especially, the resort has just recently installed an additional chair lift and the operating costs has increased by $1,540,000 this season.

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Stakeholders to provide key insight

- Director of Operations, Jimmy Blackburn
- Database Manager, Alesha Eisen

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Key Data Source

- a single CSV file from the daabase manager