Guided Captsone Project Report

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**The Problem**

This project began as an effort to help Big Mountain Ski Resort rethink its ticket pricing strategy and approach to facility renovations based on data-driven decisions rather than subjective perspective. Presently, BM’s ticket prices are derived from the average ticket price for resorts in the same market share (approximately $65) with a $16 premium to account for BM’s above-average facility, totaling $81. While this approach has been relatively sustainable up to now, BM is facing a $1.5M increase in operating cost due to a new chairlift and questions as to how to move forward with equipment and facility investment. Moreover, BM executives are worried that even with the added premium, current prices don’t reflect the value of facilities that the resort offers to customers.

**The Solution**

Raising ticket prices, cutting costs, and devising new strategies requires more than a keen eye for business – to complement and renew BM’s current strategies and investment campaigns, I’ve created a data-driven model that predicts ski resort ticket prices based on the resort features available (vertical drop, total runs, number of chairs, etc.). This model accounts for 32 different features based on intra-resort features, ratios of features across resorts, and state-based ratios. The goal of the model was to determine how much, if at all, Big Mountain can reasonably raise prices according to its resort features based on deep analysis of other resorts’ prices and their features. The model suggests that BM has room to raise ticket prices by $14 per ticket – with next season’s expected turnout and an average stay of five days, this increase would generate about $26M in additional revenue.

As exciting as this sounds, the model makes a few assumptions due to lack of available data, and it doesn’t account for the subjective approaches other resorts might employ in their pricing strategies. However, the model does provide detailed predictions of ticket value based on current and projected facility features, so it provides objective leverage to increase prices as well as a measure to consider future facility renovations. I will include my recommended course of action at the end of this report.

**The Process**

*Data Wrangling and Exploratory Data Analysis.* I began with a large dataset of 330 ski resorts across the US in Big Mountain’s market share. The data included several features for each resort but was missing quite a bit of data due to collection issues. I removed the following data: several rows that didn’t contain any pricing data and were thus unhelpful for this analysis; one row for an ambiguous feature; one column for providing no info; and I made one outlier correction through web-scraping. By the end of this, my dataset contained 277 rows and 25 columns.

Preprocessing and Training.

Modeling.