Guided Capstone Project Report – Big Mountain Resort

**Big Mountain Resort, a ski-resort located in Montana recently made an exorbitant investment of $1.54M this season. This large investment added additional chairlifts that increased the number of potential visitors to the resort. We want to determine how we can increase ticket prices 20% by the end of Q4 2024 by using data for similar market ski resorts.**

**In this project we used a machine-learning model to compare the actual prices of adult weekend life prices to predict a suitable price for Big Mountain Resort. Specifically, we utilized a random forest regressor model to identify the most important features feature that influence ticket pricing. The model revealed that “Runs” and “fastQuads” were the two most influences features of ticket pricing. The model ultimately predicted that the pricing could be increased by approximately $10 or $91.36 in comparison to its current ticket price. Figure 1 below displays all features that were the biggest determinants of ticket pricing.**

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Figure : Best random forest regressor feature importance. Displays largest determinants of ticket pricing.

**In order to assess the feasibility of a $10 ticket price increase at Big Mountain Ski Resort, an analysis was conducted on the key factors influencing ski resort ticket pricing. The focus was on how Big Mountain Ski Resort measured up against other resorts in these aspects. Histograms representing the essential determinants of ticket pricing, such as the total number of runs, total number of fast quads, total snowmaking acres, and total vertical drop, were generated and displayed in Figure 2. The vertical redline on each histogram indicates the position of Big Mountain Ski Resort within each distribution. Based on the analysis of these key features, it was observed that Big Mountain Ski Resort offers amenities that are either superior or comparable to those of competing ski resorts.**

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Figure : Histograms with distributions of different key features and comparing general market versus Big Mountain Resort

**A graph of a ticket price

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Figure : Histogram of adult ticket prices over the weeekend for all ski resorts.