

Guided Capstone Project Report

Optimizing Revenue and Ticket Pricing at Big Mountain Resort

Problem Identification

- Big Mountain Resort aims to increase revenue and profitability.
- Current challenges include underutilized facilities and the absence of a dynamic pricing strategy

Challenges

- Facility underutilization limits revenue and profitability.
- The need for dynamic pricing based on demand and competitor pricing.

Recommendation and Key Findings

Recommendation

- Adjust ticket prices to optimize revenue.
- Implement a dynamic pricing strategy.
- New recommended ticket price: \$94.25.

Key Findings

- Significant factors influencing ticket prices: number of fast quads, total runs, snow-making area, and vertical drop.
- Random Forest Regressor model selected for its accuracy and consistency.

Modeling Results: Data Overview

- Dataset contained 27 columns and 330 rows, with 277 rows used after cleaning.
- Key features included various numerical and categorical attributes of ski resorts.

Exploratory Data Analysis

- Significant correlations identified:
 - Ticket prices and number of fast quads
 - Total runs
 - Snow-making area
 - Vertical drop
- No correlation between state and ticket price.

Model Development

- Linear Regression Model
 - Used for data cleaning, scaling, and feature selection.
- Random Forest Regressor
 - Achieved an average R-squared score of 0.71.
 - Consistent mean absolute error (MAE) of 9.54 across 5-fold cross-validation and test data.

Model Selection

- Random Forest Regressor chosen for superior performance.
- Current ticket price: \$81.00.
- Recommended ticket price: \$94.25.

Summary and Conclusion

- Gradually adjust ticket prices to \$94.25.
- Invest in facility improvements, such as new chair lifts and expanded snow-making capabilities.
- Implement a dynamic pricing strategy based on real-time demand, competitor pricing, and customer segmentation.
- Include operational costs in future analyses and gather customer feedback post-implementation to assess satisfaction and willingness to pay.