

Optimizing Pricing Strategy at Big Mountain Resort

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Facts & Figures

- 105 trails
- 350,000 visitors per year
- 11 lifts
- 2 T-bars
- 1 magic carpet
- 14 chairs
- Hellfire – longest run at 3.3 miles (5.31 km)
- Base elevation – 4,464 ft (1.36 km)
- Summit – 6,817 ft (2.08 km)
- Vertical drop – 2,353 ft (0.72 km)



Problem identification

- Pricing is a crucial factor that can significantly affect a business's revenue and financial performance.
- Big Mountain Resort is focused on maximizing returns and understanding the value that its facilities hold for visitors.
- To this end, we are embarking on a project to develop data-driven pricing strategies based on a predictive model that considers the resort's facilities and properties.



Key Findings

- We used Principal component analysis (PCA) to identify linear combinations of the original features that were uncorrelated with each other and ranked them by the amount of variance they explain.
- We identified some correlations among the features, including a reasonable correlation between ticket price and Fast Quads, Runs, Snow Making, and Vertical Drop.
- Based on the random forest model's predictions, we found that Big Mountain Resort may be able to sustain a higher ticket price of \$95.87 based on the facilities and amenities it offers.



Recommendations

- Increase the ticket price to the optimal pricing level predicted by our model (\$95.87) to increase revenue and improve financial performance.
- Analyze the potential impacts of different pricing scenarios on demand, revenue, and the resort's financial performance.
- Continue to gather data on facilities and customer preferences to better understand the value proposition being offered and how to optimize pricing.
- Create a tool or application that business analysts can use to easily input different parameter values and see the resulting ticket price predictions.
- Monitor the performance of the model and update it as needed to ensure its accuracy and relevance.



Modeling Results And Analysis

- We used two models to predict adult weekend ticket prices at ski resorts: a linear model and a random forest regressor.
- The team used cross-validation to determine the best features for the linear model and random forest model.
- Our team chose the random forest model for further use because it had a slightly better performance, robust against overfitting, and ease of use.



Modeling Results And Analysis

- Currently, Big Mountain Resort charges \$81.00 for a ski lift ticket. Our model suggests that the resort may be able to sustain a higher ticket price of \$95.87 based on the facilities and amenities it offers.
- The mean absolute error (MAE) for the random forest model on the test set was \$10.39, indicating that the model's predictions were off by an average of \$10.39. This suggests that there is potential for an increase in the ticket price.
- However, it is important to note that other factors, such as market demand and competition, should also be taken into consideration when setting ticket prices.



Modeling Results And Analysis

- Scenario 2 and 3 (adding a run, increasing the vertical drop by 150 feet (45.72 m), installing an additional chair lift, or expanding the skiable terrain) make the most sense. These improvements have the potential to attract more visitors and increase revenue.
- To test the potential impact of these scenarios, the business could consider conducting market research to gauge consumer demand and willingness to pay for these improvements.
- Additionally, if the resort were to invest in a new chair lift, it would be necessary to consider the additional operating costs of this improvement.



Summary and conclusion

- In summary, this project aimed to build a predictive model for adult weekend ticket prices at ski resorts, and use it to inform pricing and investment strategies at Big Mountain Resort.
- Based on the model's predictions, the team concluded that Big Mountain Resort may be able to sustain a higher ticket price of \$95.87 based on the facilities and amenities it offers, which could potentially result in an increase in revenue.
- The team also found that scenario 2 and 3 had the most potential to attract more visitors and increase revenue.
- Overall, the implementation of data-driven pricing strategies has the potential to help Big Mountain Resort optimize the value of its facilities and make more informed pricing decisions