Big Mountain Resort Pricing Strategy

Report/Analysis by Faheem Zia

Problem Identification

- Big Mountain Resort is a ski resort located in Montana.
- Seasonal operating costs have increased by $1,540,000, primarily due to an additional chair lift being installed.
- Management is looking for ways to offset these increased expenditures.
  - One suggested approach is to increase the ticket price.
  - Another is to look for areas where costs can be saved.
- As a result of this project, we can provide Big Mountain Resort with a ticket pricing strategy.
  - In addition, we can identify areas where costs can be saved.

Recommendation and Key Findings

- Of Big Mountain Resort's provided scenarios, we recommend implementing scenarios 1 and 2.
  - Scenario 1 involves closing down the least used runs in the resort.
  - Scenario 2 involves adding a new run, increasing the vertical drop, and installing an additional chair lift.
- Closing one of the least used runs is strongly suggested as this no effect on ticket pricing or revenue. Up to 5 runs can potentially be closed with minimal effect on ticket pricing and revenue.
- Scenario 2 allows for increasing adult weekend ticket price by ~$2.
  - This further results in an increased seasonal revenue of $3,474, 638.

Data Collection, Cleaning and Exploratory Analysis

- Primary data set contained information on 330 resorts across America, including Big Mountain Resort.
  - Information for each resort included location, ticket pricing and resort statistics.
- Data set was cleaned and validated before analysis/modeling. A second data set was merged to provide additional state data.
- Exploratory analysis found several resort features were highly correlated with ticket pricing.
  - These features included the number of fast quads, the number of runs, the number of chairs, and the amount of snow making.

Modeling

- Using the resort data, two machine learning models were made.
  - One was a linear model, the other was a random forest model.
- Both models were tested for accuracy, and it was concluded that the random forest model best predicted ticket pricing.
- The final model suggested a price of $95.87, with a expect mean absolute error of $10.39.
- Given Big Mountain's current ticket price of $81, the data supports an increase to $85.48, given the resort features.

Scenario Modeling and Testing

- For scenario 1, our model supports closing at least one of the least used runs as this has no effect on ticket pricing at all. We suggest closing up to 5 of the runs, because closing 3, 4 or 5 runs has no difference on revenue.
- For scenario 2, our model supported increasing the ticket price by $2. This would result in an increased seasonal revenue of $3,474,638.
- For scenario 3, our model predicted no difference in revenue from scenario 2.
- For scenario 4, our model predict no increase in revenue at all.

Conclusion

- Given Big Mountain Resort's features, the current ticket price can safely be increased up to $85.48 (+$4.48). This was predicted by a model trained using resort data from over 270 resorts across America.
- Closing one of the least used runs will result in no difference in ticket pricing/revenue. Closing up to five of the runs should be considered as well.
- Adding a new run, increasing the vertical drop, and installing an additional chair lift is suggest in addition to increasing the ticket price by $2. This results in a increased revenue by $3,474,638.
- A combination of these actions will offset the increased seasonal expenditure of $1,540,000, and potential make a profit.