Unlocking Revenue Potential

Data-Driven Ticket Pricing Strategy for Big Mountain Resort

Big Mountain Resort Overview:

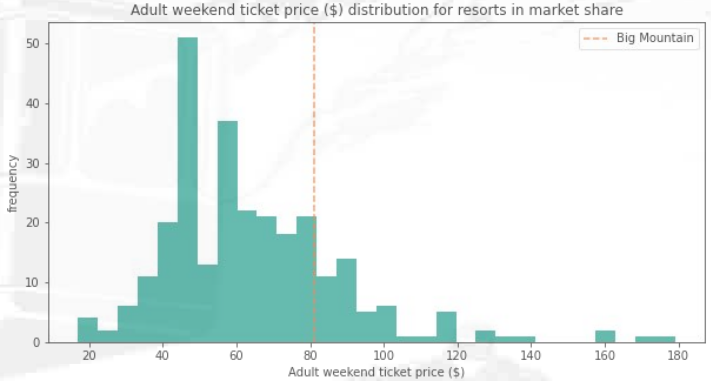
- **Location**: Montana, offering stunning views of Glacier National Park and Flathead National Forest
- **Facilities**: 105 trails, 11 lifts, 2 T-bars, 1 magic carpet
- **Visitor Stats**: 350,000 annual skiers/snowboarders
- **Longest Run**: Hellfire (3.3 miles)
- **Elevation**: Base-4,464ft, Summit-6,817ft, Vertical Drop- 2,353ft

- **Recent Addition**: New chair lift, increasing operating costs by $1,540,000
- **Pricing Strategy**: Premium above market average, seeking data-driven approach
- **Goal**: Optimize ticket pricing, explore cost-cutting options, and support higher prices

Recommendation and Key Findings

Increase Ticket Price to $95.83

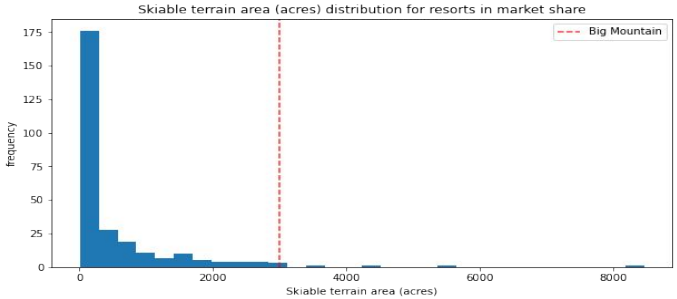
By implementing this pricing adjustment, the resort can better align its rates with the value it offers to customers, ultimately maximizing revenue potential

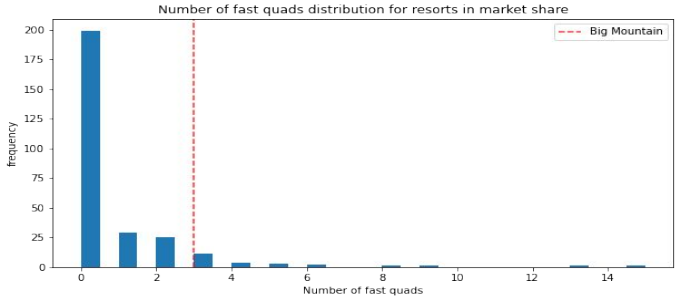


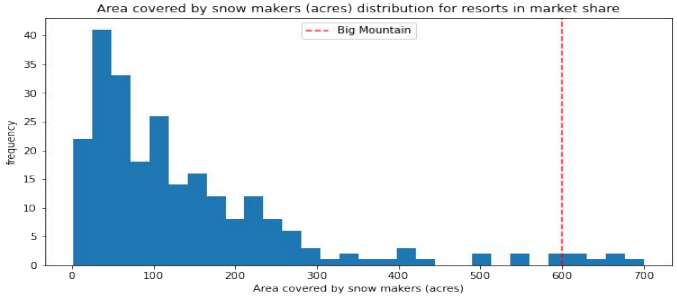
Close One Run

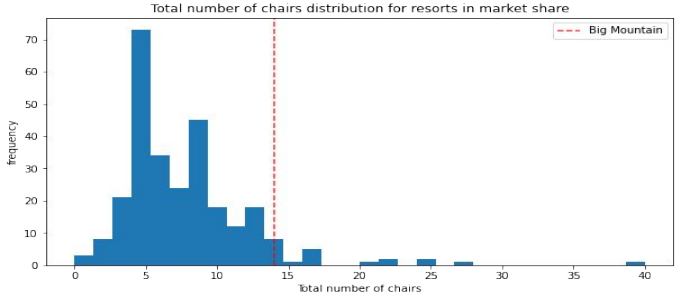
The operating costs can potentially reduced by closing one run without impacting the ticket price. However, closing 2 or 3 runs would have an impact on the ticket price. Interestingly, closing 4 or 5 runs would not lead to a further decrease in the ticket price

Big Mountain ranks among the top resorts when it comes to snowmaking coverage, chair quantity, fast quad availability, run count, and skiable terrain area







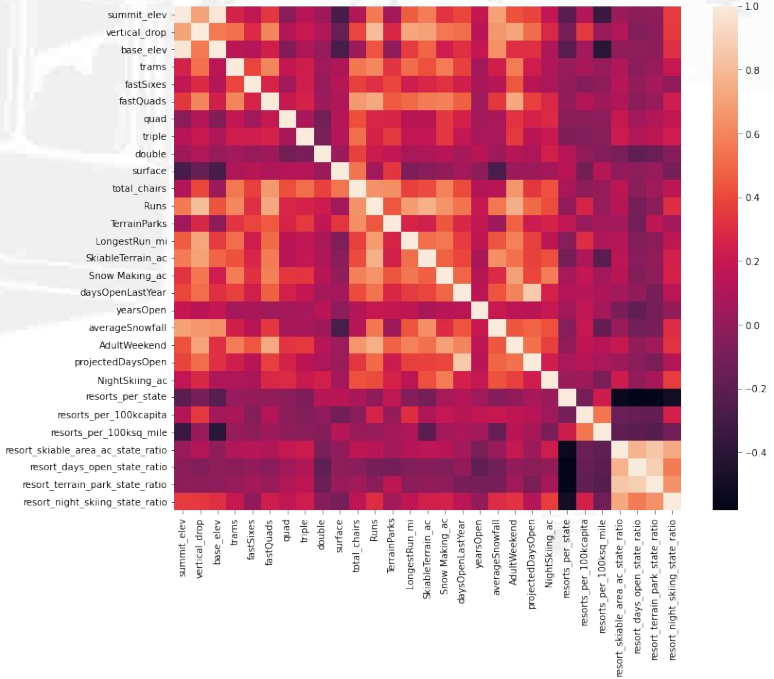


Modeling Results and Analysis

The “AdultWeekend” column is identified and used as the target variable. “AdultWeekday” is removed from the dataset because of excessive vissing values.

A correlation Heatmap suggests some interesting findings:

- Summit and base elevation are quite highly correlated.
- Night skiing area is correlated with the number of resorts per capita
- average snowfall correlated with summit elevation, vertical drop, and base elevation
- the price column has a strong positive correlation with vertical drop, fastQuads, runs and Snow making_ac



Modeling Results and Analysis

The 226 resorts are split 70% for training purposes and 30% for testing
The mean of the numerical features is used as a baseline to evaluate the performance of the trained model.

A **Linear Regression** model resulted with a cross validation score of **0.63** and identified the 8 most significant features:

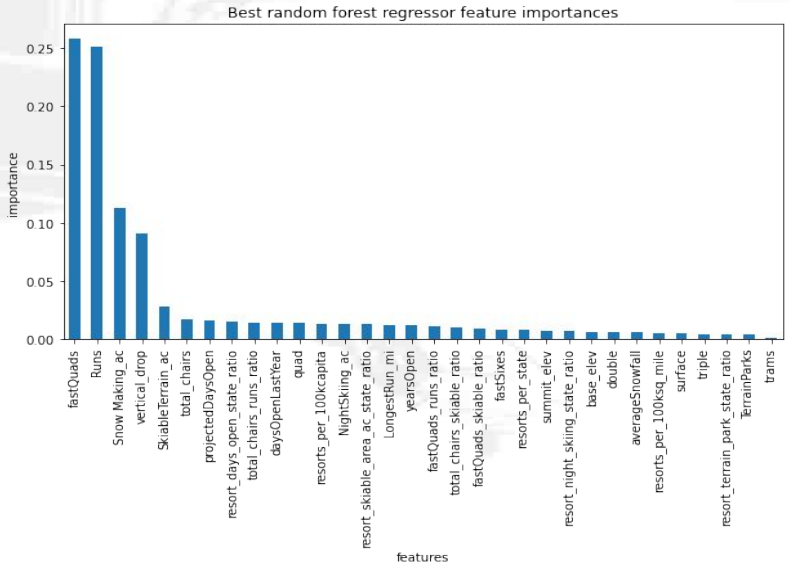
- vertical_drop 10.767857
- Snow Making_ac 6.290074
- total_chairs 5.794156
- fast Quads 5.745626
- Runs 5.370555
- LongestRun_mi 0.181814
- trams -4.142024
- SkiableTerrain_ac -5.249780

This coefficients are consistent with the results of the Heatmap. Vertical Drop having the most impact, followed by area covered by Snow Making Machines, total chairs and so on. Skiable terrain seems a bit odd, visitors tend to pay less as the skiable area of the resort increases

Modeling Results and Analysis

Another model is trained and tested using **Random Forest Regressor.**
Differently from **Linear Regressor** the four most important features for this model are:

- Fast Quads
- Runs
- Snow Making_ac
- vertical_drop



Linear regression cross validation performance was at **63%** and Mean Absolute Error of **11.79**

Random Forest scored **70%** and a Mean Absolute Error of **9.53**

Modeling Results and Analysis

- The model trained on Random Forest Regressor is refitted with all available data
- Ticket price predicted by the moel for Big Mountain Resort is $95.87
- Mean Absolute error: $10.39
- Closing one Run does not affect the ticket price, closing 3,4 or 5 runs will have the same effect
- Adding a run, installing new lift and increasing the vertical drop will support price raise
- Increasing longest run length or snow machine covered area doesn't seem to have any significant change

Summary and conclusion

The reliability of the model's predictions is based on the underlying assumption that other resorts primarily determine their prices based on the perceived value of specific facilities.

- The Big Mountain Resort tickets are **underpriced**
- Closing one or few runs, will help reduce costs and subsequently raise the revenue
- Considering the operational costs, investing in new chairlifts, new runs, and increasing the vertical drop has the potential to be profitable and should be taken into consideration