Big Mountain Ski Resort Ticket Price Model

Problem Identification

- Big Mountain Ski Resort has installed a new chair lift with annual operating cost of $1.5M, and would like to possibly raise ticket price to offset this cost and even profit.
- With 350,000 expected yearly visitors a $4.40 ticket price increase is required to offset the operating cost of the new lift.
- Additionally, resort management has for possible scenarios of resort modifications to investigate for increasing profits while maintaining or raising ticket prices.

Key Findings and Recommendation

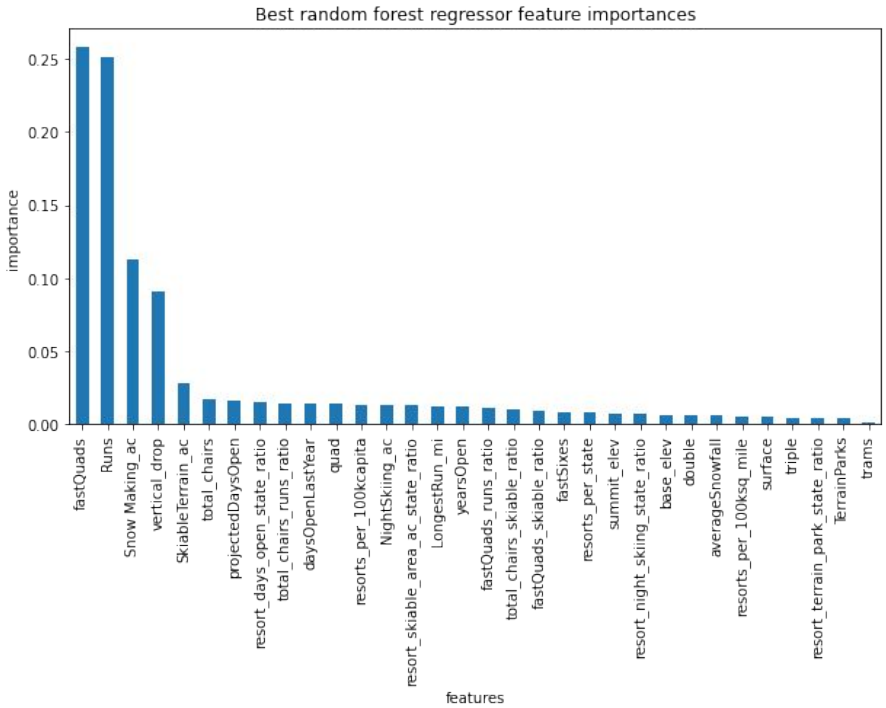
- Model finding price of with $95.87 would be appropriate with a mean absolute error of $10.39. With current price of $81, a $4 price increase will be below the lowest possible modeled price.
- Of the four proposed resort changes scenario two would most benefit Big Mountain Resort. One additional run, one additional lift, and an increase in vertical drop by 150 ft would allow the model to recommend a $1.99 increase in ticket price, a $700,00 increase in revenue.

Modeling Results and Analysis

- Target value of weekend ticket price was selected because of less missing data compared to weekday price.
- Model used was random forest with 69 trees, no scaling, and median simple inputter.
- PCA showed the first 4 components account for 95% of variance.

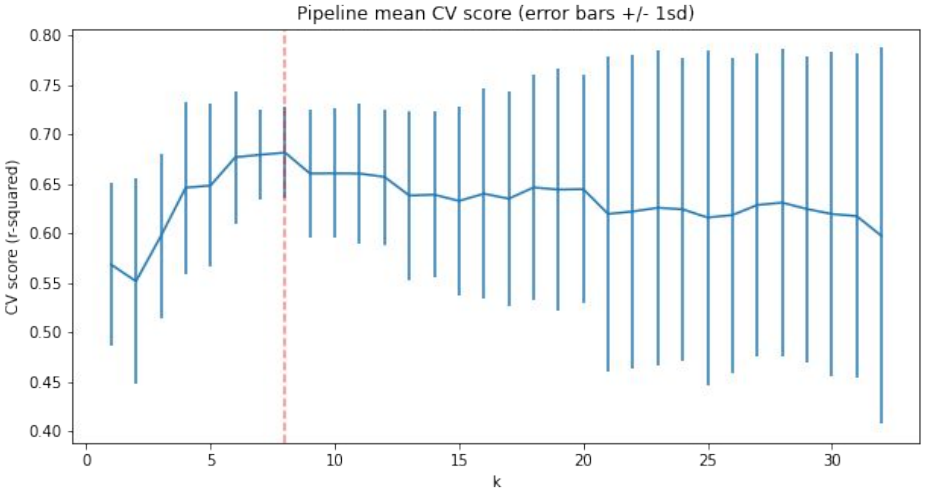
Modeling Results and Analysis

- Through exploratory data analysis variance in adult weekend ticket price was seen to vary primarily through four factors: vertical drop, snow making acreage, number of runs, and number of Quads.



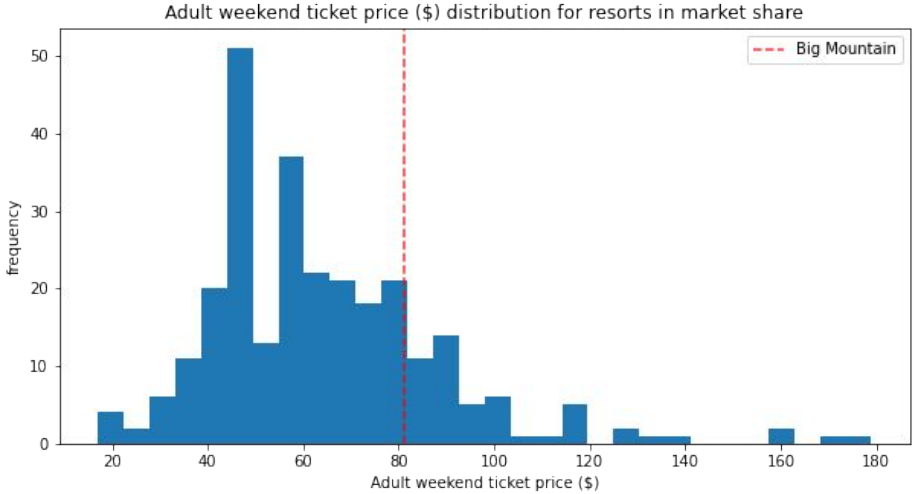
Modeling Results and Analysis

- Model parameters: random forest with 69 trees, no scaling, and median simple inputter were found with grid search.
- K-value of 8 was found to be best with 5 set cross-validation; mean cross-validation score of 0.71.



Modeling Results and Analysis

- Big Mountain Resort is a premium resort within its market.
- It offers higher selection of runs, transport, and skiable area than most competitors.
- Management proposals 3 and 4 would not allow for a greater ticket premium.
- Closing runs in proposal 1 for lower operating costs would require a $1.75 ticket price decrease.



Summary and Conclusion

- A $4.40 price increase to offset costs of the new ski lift are on the very lower end of the model's predicted price for Big Mountain resort. An even greater price increase could be considered.
- Proposal 2 for resort changes would most benefit Big Mountain Resort. One additional run, one additional lift, and an increase in vertical drop by 150 ft would allow the model to recommend a $1.99 increase in ticket price, a $700,00 increase in revenue. It should be considered if this increased revenue is worth the increased operating costs for additional skiing area and lifts.