Big Mountain Resort

Data Analysis Ticket Pricing Strategy

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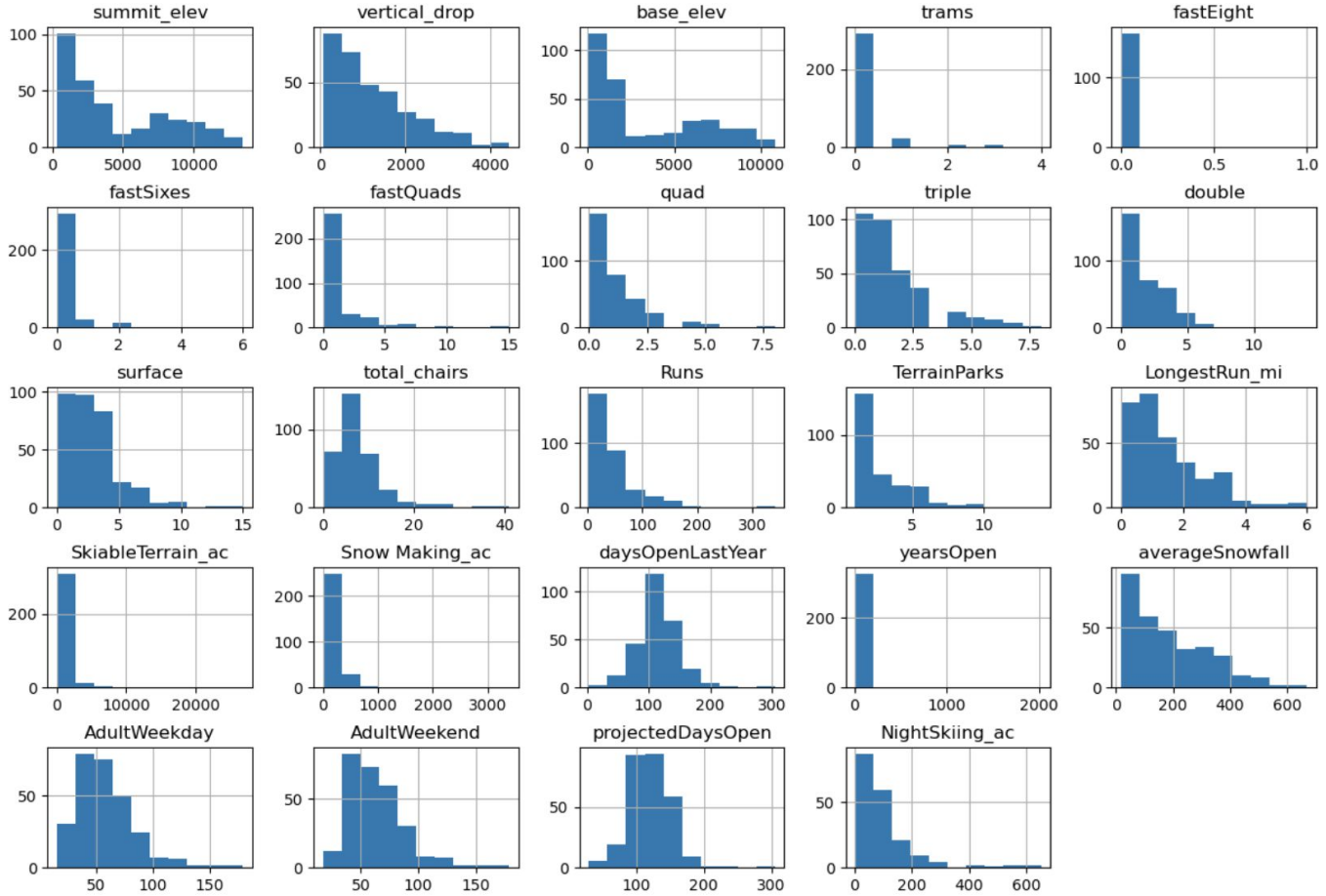
Problem Identification

Big Mountain Resort is a popular ski resort in Whitefish, Montana. Generally, BMR hosts 350,000 guests during the season with an average of 72 open days. BMR has access to 105 trails within the Glacier National Park and Flathead National Forest. BMR offers a wide variety of runs for all novice and seasoned skiers alike. BMR aims to maximize profits and balance operating costs within the current season.

Big Mountain Resort has recently installed a new chair lift to better distribute guests across the mountain. This will raise operating costs by $1.54 million this season. BMR has requested some guidance on how to select a better value for their ticket price. They are also considering a number of changes that they hope will either cut costs without undermining the ticket price or will support an even higher ticket price.

Recommendation and Key Findings

Our dataset included statistics from 330 resorts. Among the most beneficial information were vertical drops, chair lifts, adult weekday/weekend ticket prices, and total runs available. However, there were several areas of concern that initiated a clean up which then left us with 227 rows of data. One of the main issues that arose was the comparison of weekend and weekday ticket prices. About 16% of resorts were missing one or both prices which lead to my focusing on whether distributions looked plausible or wrong.

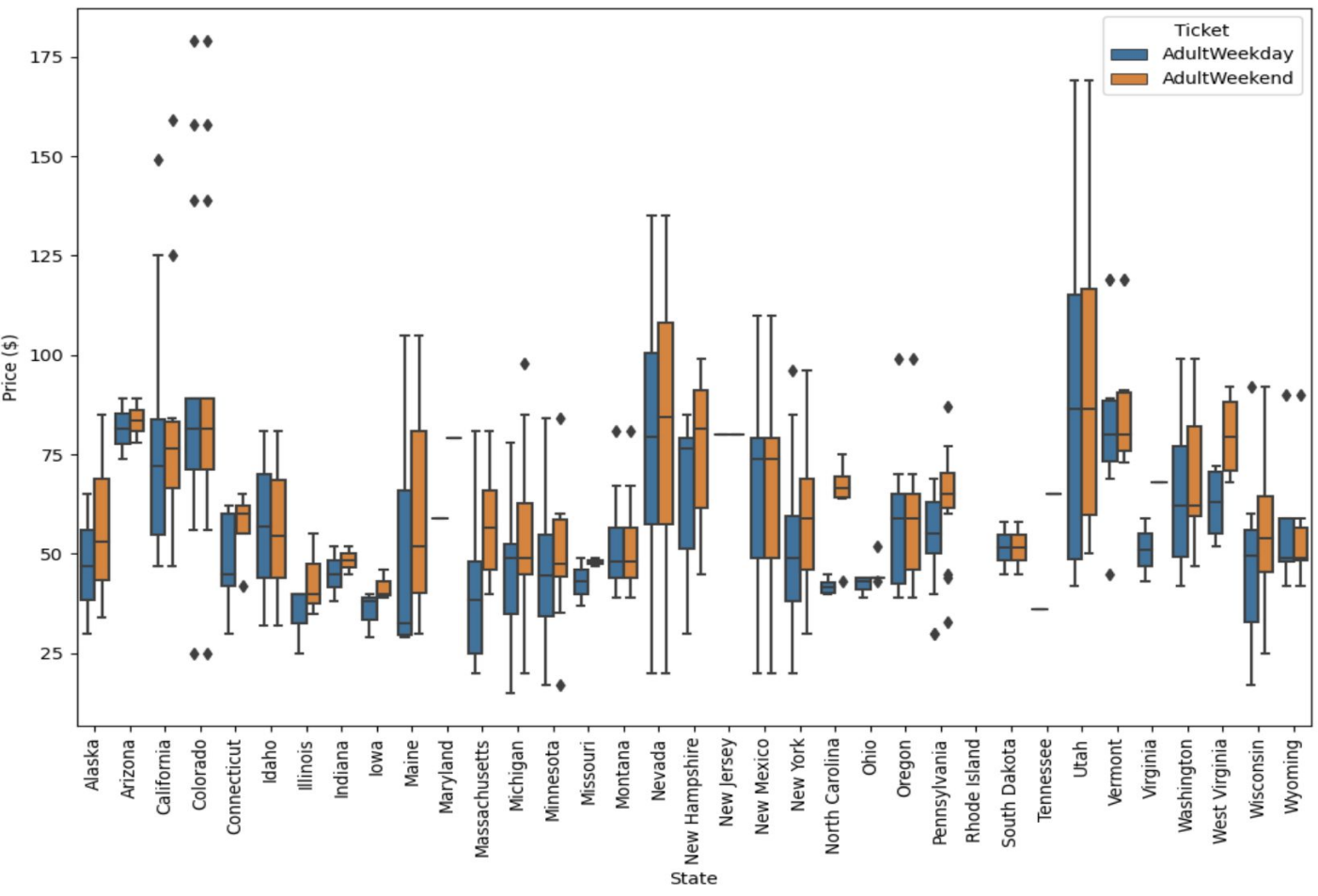


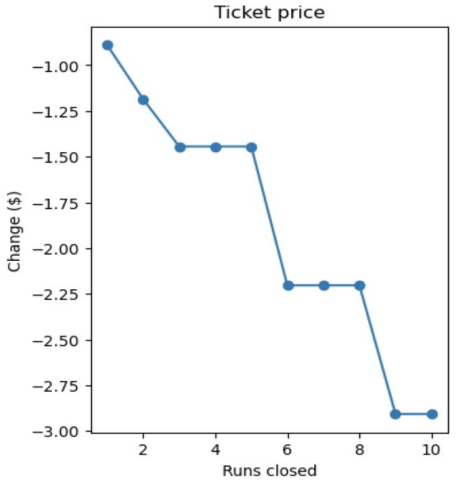
Key Findings Represented by charts.

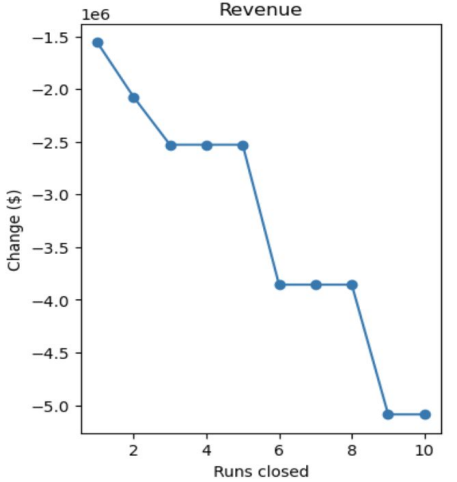
Modeling Results and Analysis

To create the most clear picture of the data I created a heat map, seen below, to visualize all of the features comparisons. This showed a strong correlation with the price of adult weekend ticket sales and the features fastQuads, Runs, SnowMaking_AC, and resort_night_skiing_state_ratio. With this information I can create a model to determine a new data driven ticket price analyzer.

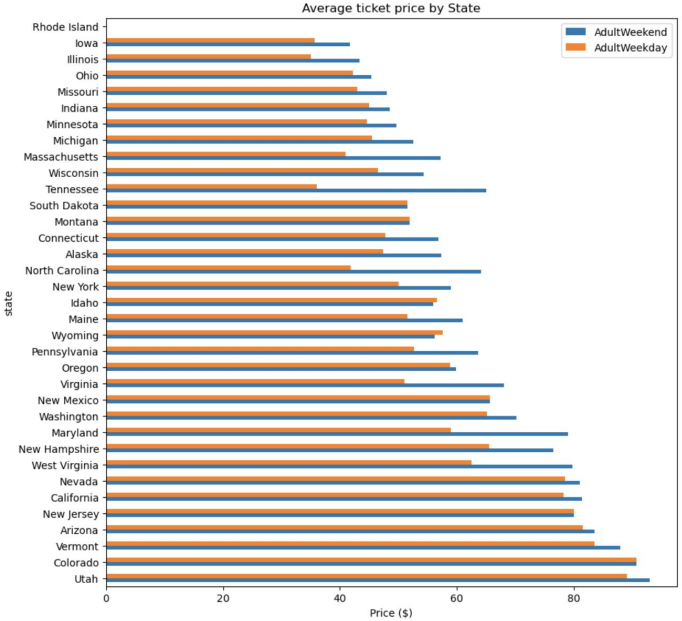
As of now, ticket prices for Big Mountain are $81. Through my analysis I found that $94 would be appropriate at the current market rate. While there was a mean standard error of about $10, through rigorous testing I found there was still about a $3 increase possible.

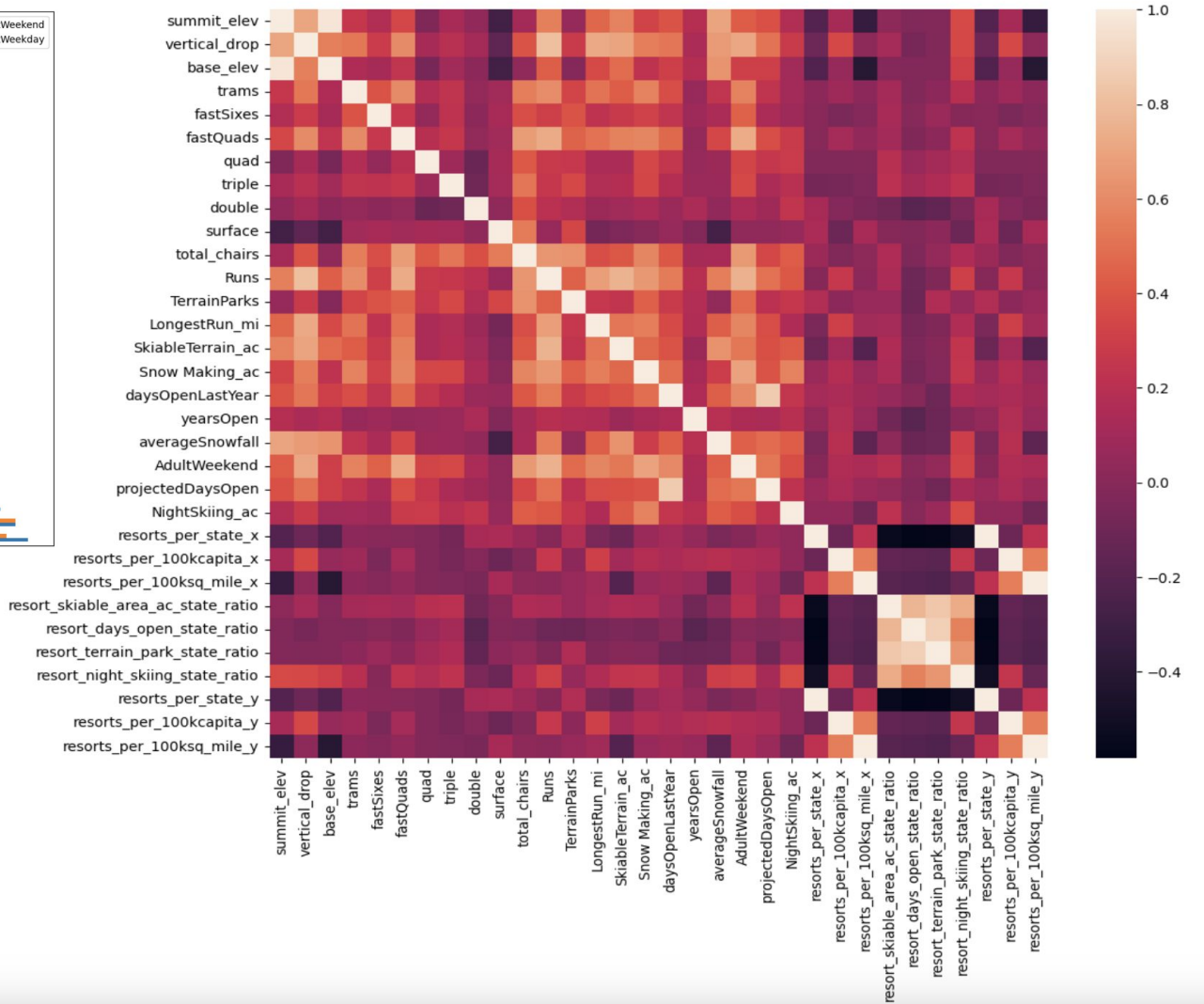




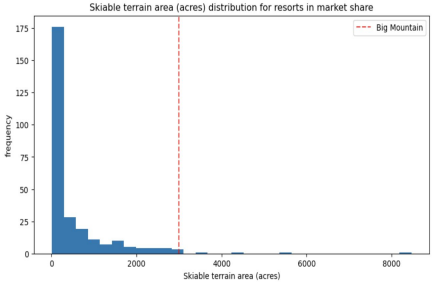


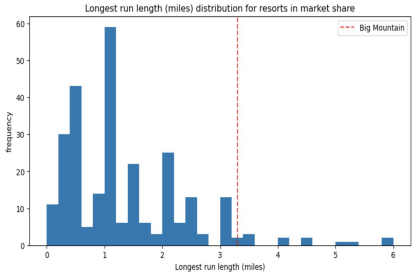
Modeling and Analysis Represented by charts.

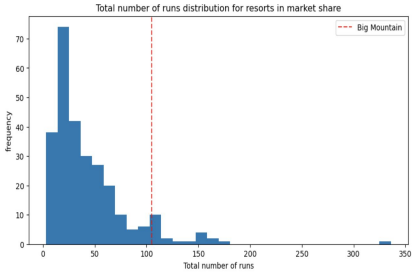


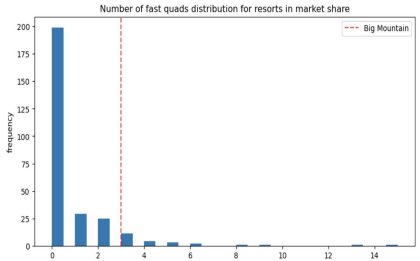


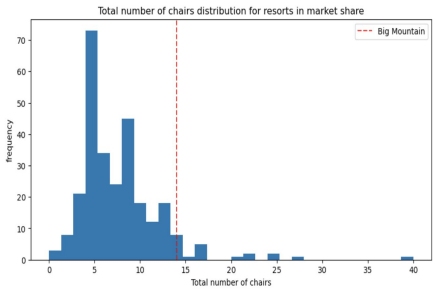
Modeling and Analysis Represented by charts.

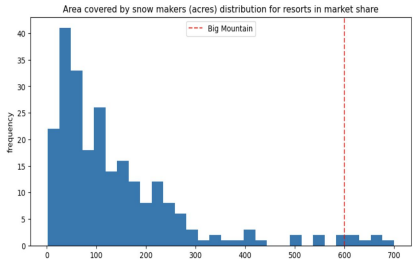


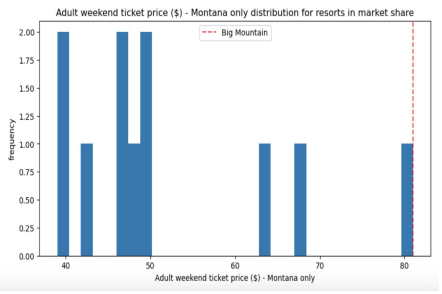


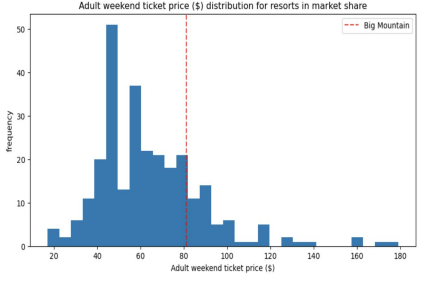


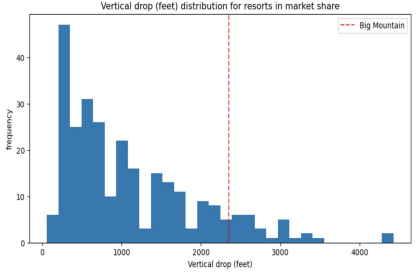












Modeling and Analysis Represented by charts.

Summary

- BMR's first scenario is closing the least used runs. The model says closing one run makes no difference. Closing 2 and 3 successively reduces support for ticket price and so revenue. If Big Mountain closes down 3 runs, it seems they may as well close down 4 or 5 as there's no further loss in ticket price. Increasing the closures down to 6 or more leads to a large drop.

- BMR's second scenario is adding a run, increasing the vertical drop by 150 feet, and installing an additional chair lift. My findings showed a possible ticket price increase of $2.22. Over the season, this could amount to $3,888,889.

- BMR's third scenario is adding 2 acres of snow making. While this appears to be amoung the top features in the top resorts, adding such a small increase will make no difference.

- BMR's fourth scenario calls for increasing the longest run by .2 miles and guaranteeing its snow coverage by adding 4 acres of snow making capability. Although the longest run feature was used in the linear model, the random forest model (the one we chose because of its better performance) only has longest run way down in the feature importance list.

Conclusion

In conclusion, the combination of these changes would significantly increase revenue and decrease costs for Big Mountain. The model I've built is easy to use and offer valuable business intelligence by giving BMR the confidence to sense how facilities support a given ticket price.

REFERENCES

All notebooks containing my process and model can be found here.

Raw Data can be found here.

Cleaned Data can be found here.