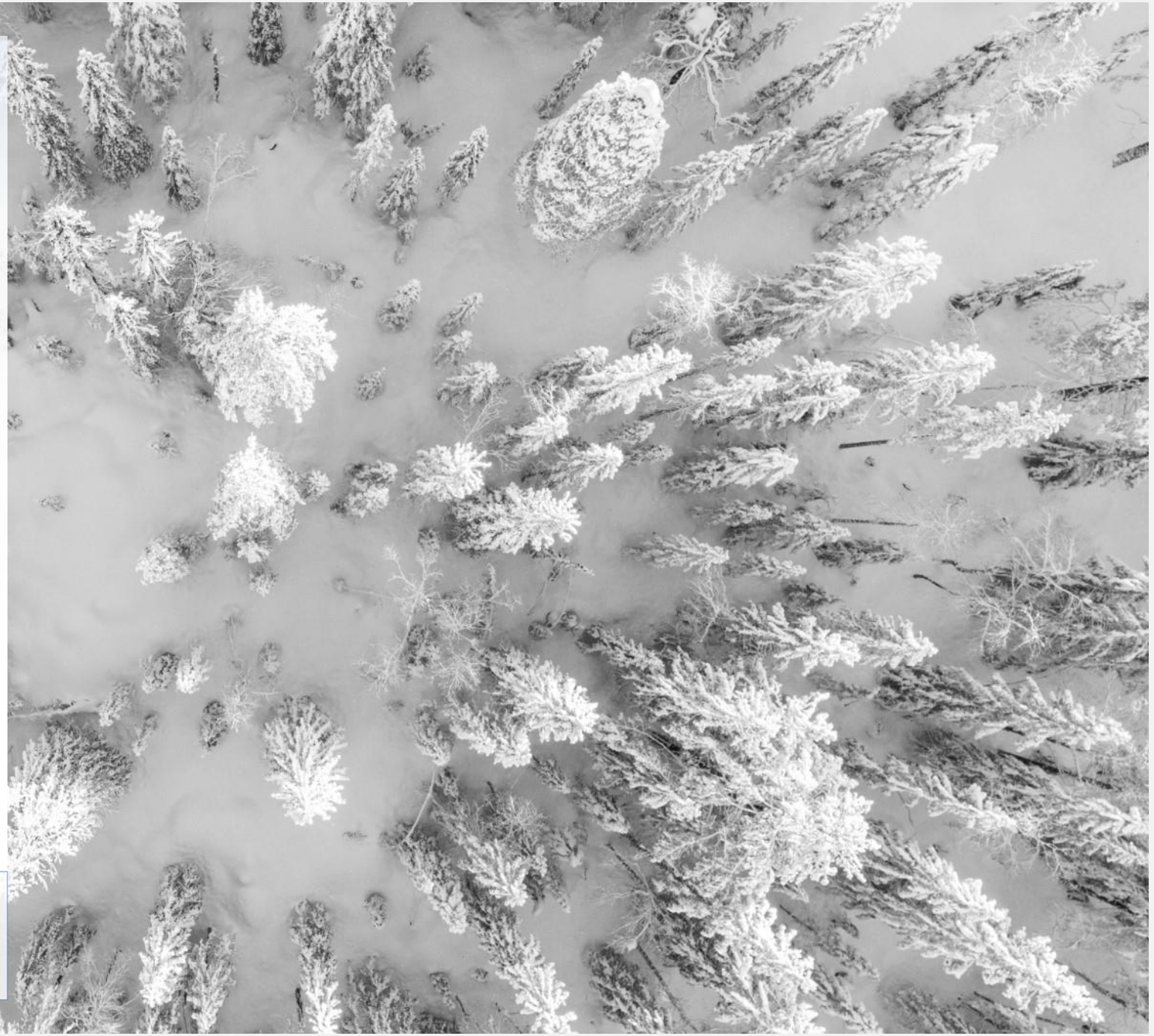
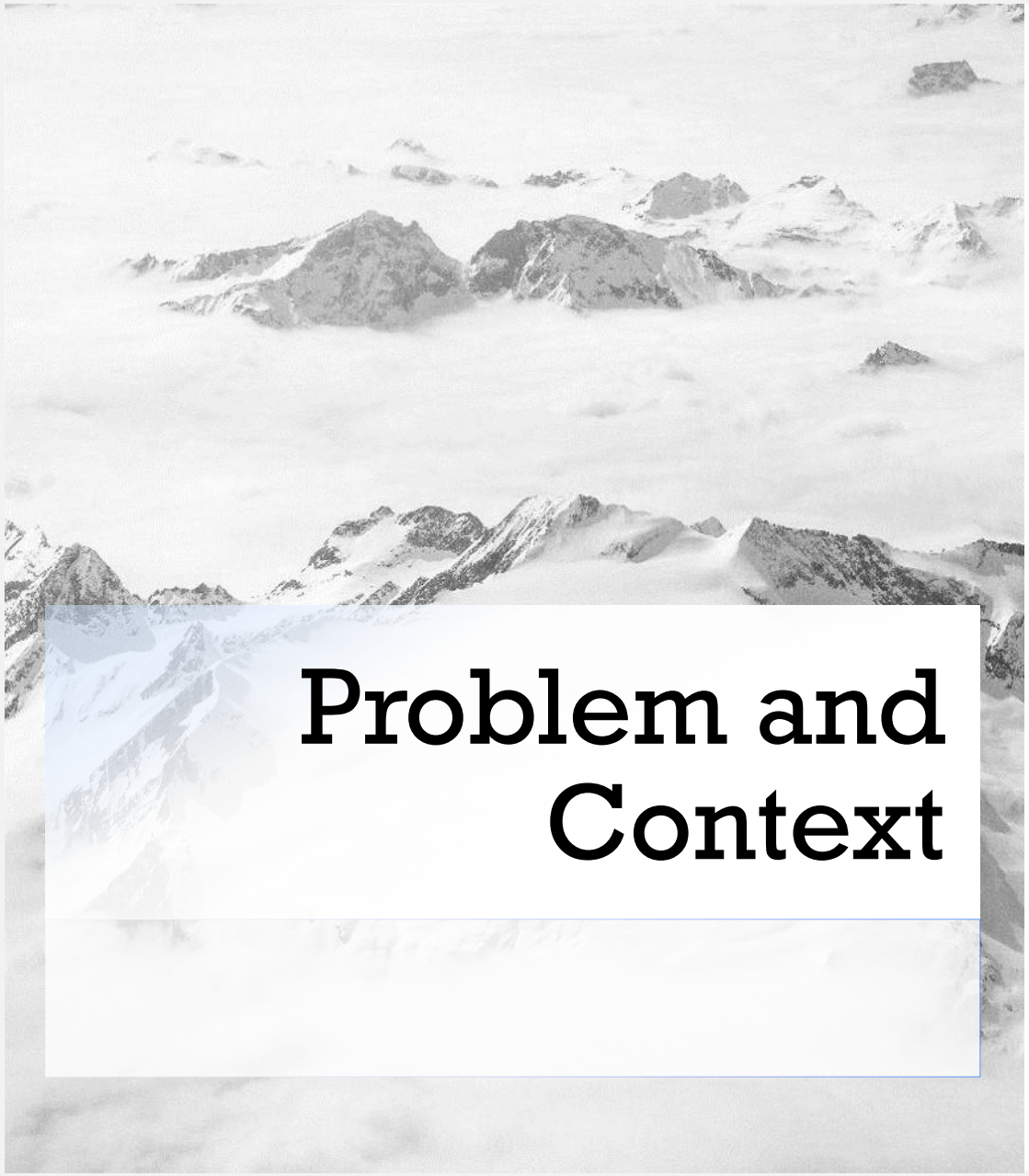
Capstone #1:

Big Mountain Resort Pricing Strategy Analysis

By Xiangnan Shi





Problem and Context

Current Pricing Strategy

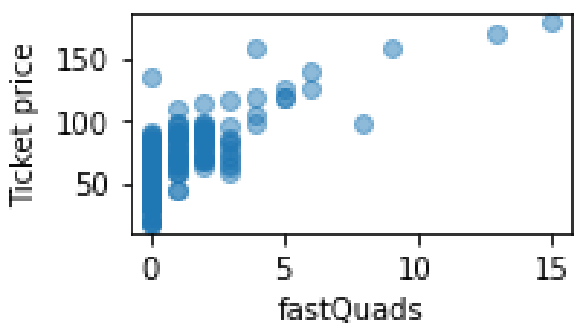
- The lift ticket price is set based on the market average price plus a premium.
  - It doesn't consider Big Mountain's unique facility resources.
  - It fails to justify resort upgrades as they are not considered in current pricing strategy.
  - There're concerns that Big Mountain is not capitalizing on its facilities as much as it could

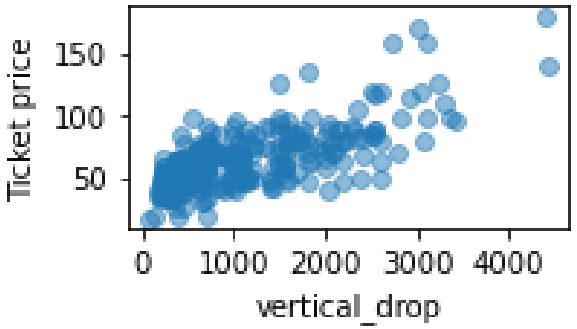
How To Better Set the Price?

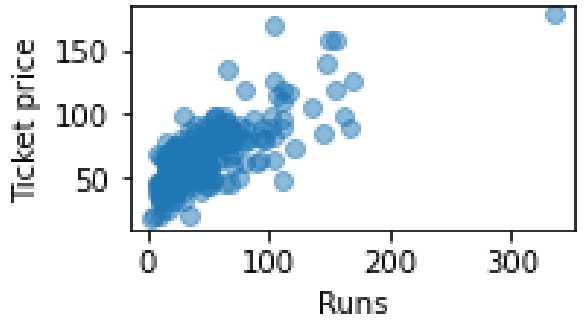
- A good pricing strategy should not only look at the market competition but also a resort's own facility assets.
- A good pricing strategy should be able to predict a resort's price given any facility improvement.

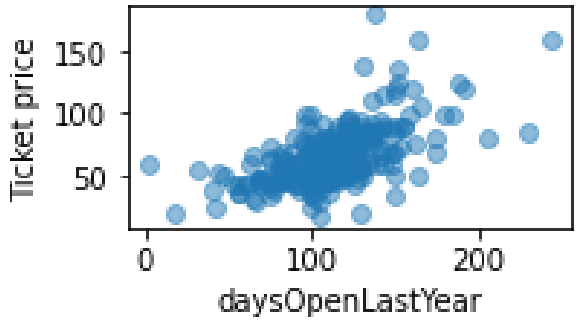
Ticket Price vs Resort Features

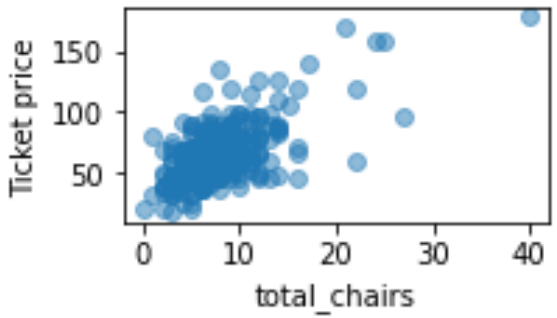
- There is obvious correlation between the price and resort features. Those features include but are no limited to number of fast quads, vertical drop, number of chairs, number of runs, number of days open in a year and area covered by snow making.
- This indicates a model can be developed to predict the ticket price based on resort features.

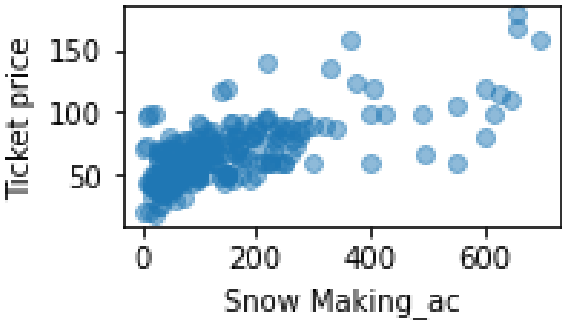






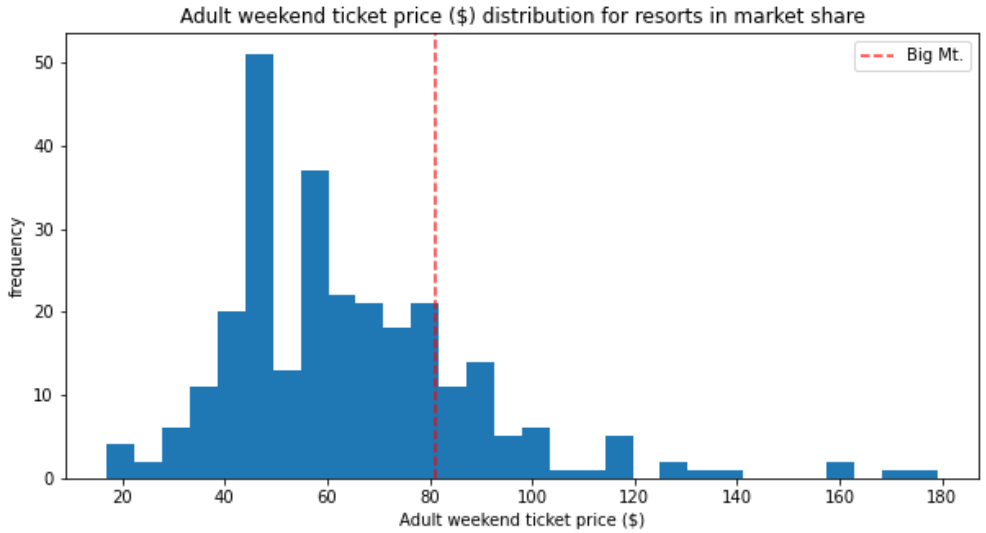




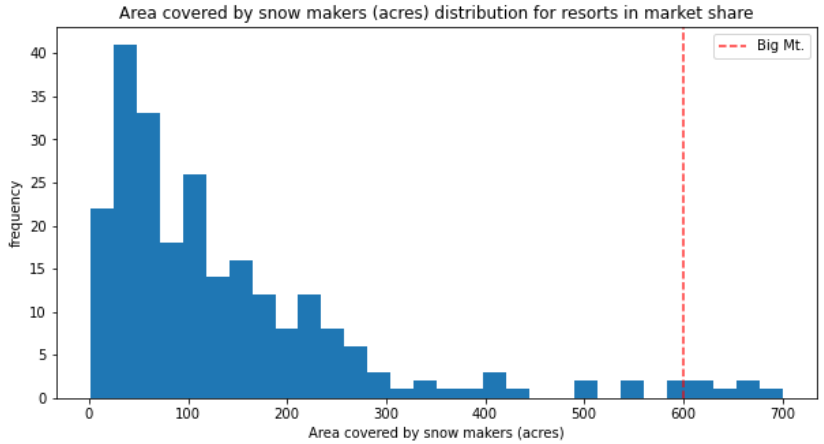


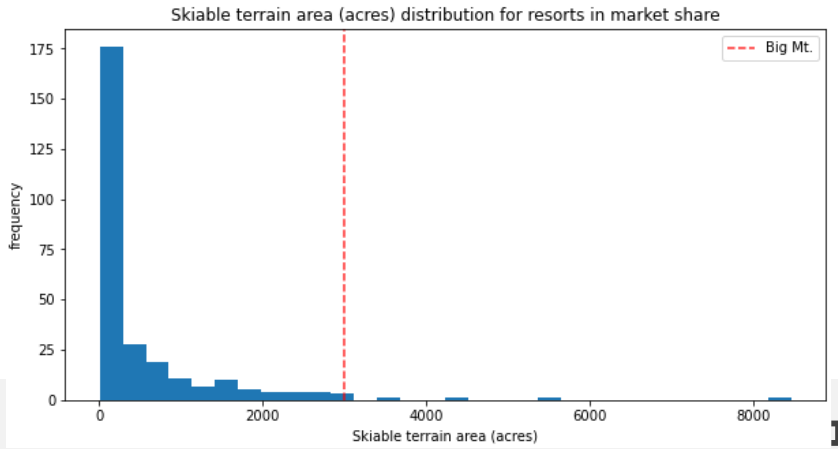
Big Mountain vs Competitors

- Price Comparison
  - Big Mountain's price is above market average, but not among the top



- Feature Comparison
  - Big Mountain is among the top resorts for certain features such as snow making area and skiable terrain area.





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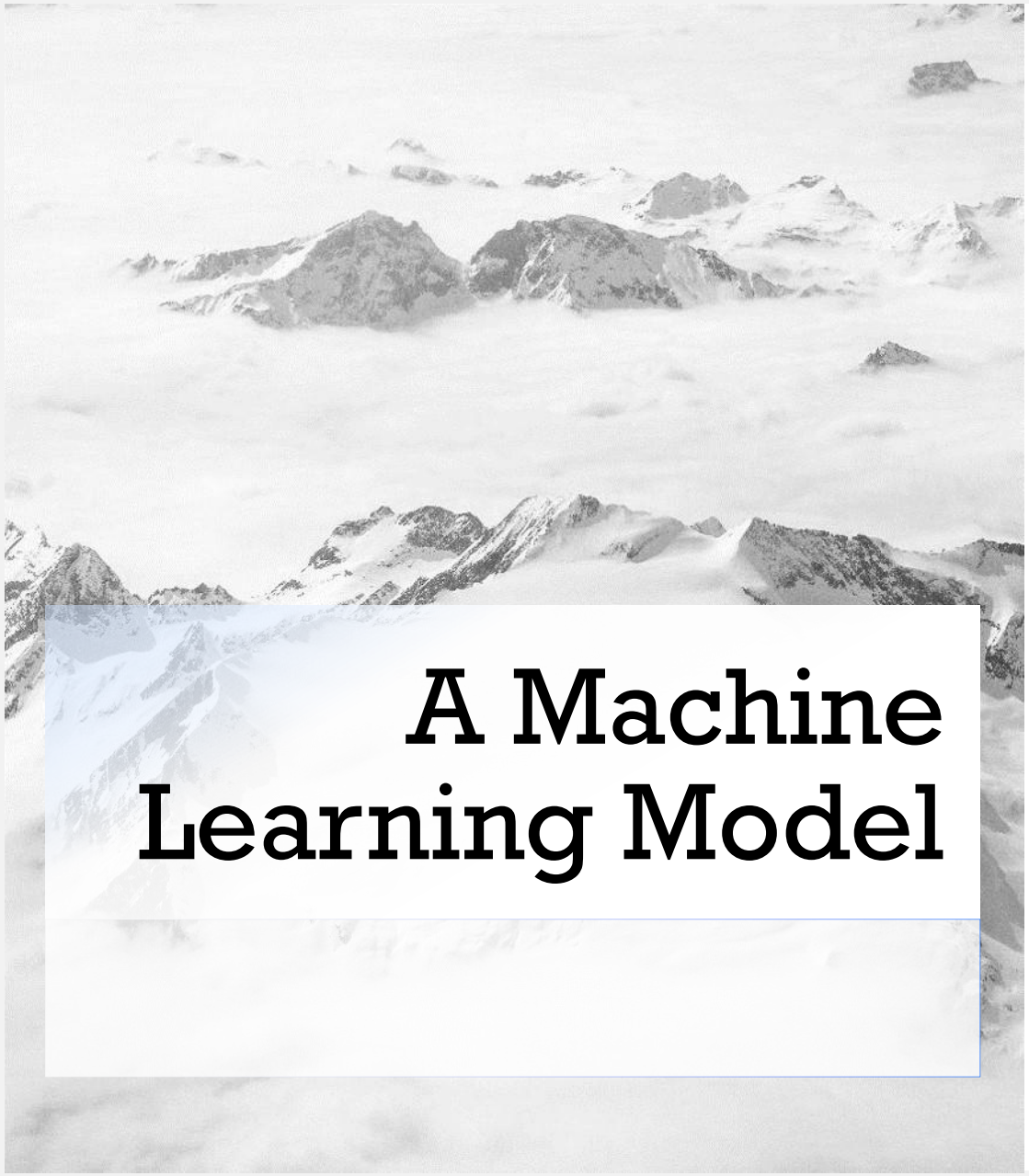

A Machine Learning Model

Data Set

- Consists of 330 resorts and 24 features
- Has many irrelevant and missing values that are dropped or filled

Model Development

- Scale the data
- Compare Random Forest and Linear Regression
- Select Random Forest as estimator
- Fit the estimator and obtain an optimal number of trees

Model Result

- Mean Absolute Error – 10.39
- Mean Standard Deviation – 1.47
- Predicted Price - **$ 95.87**
- Current Price - $ 81
- This indicates great potential to increase current price

Scenario Analysis

Predict the impact of certain facility changes on the price

Scenario	Scope	Impact on Price	Impact on Seasonal Revenue	Comments
#1	Close up to 10 runs	0 ~ -$1.81	0 ~ - $3.17M	Closing one run doesn't have much impact. But closing 10 runs have significant impact.
#2	Add a run, increase the vertical drop by 150 feet, and install an additional chair lift	+ $1.99	+ $3.47M	Vertical drop seems to be very effective at raising price.
#3	On top of #2, add 2 acres of snow making	+ $1.99	+ $3.47M	Adding 2 acres of snow making doesn't seem to make big difference.
#4	Increase the longest run by .2 miles and add 4 acres of snow making capability	0	0	Similar to #3, there isn't noticeable difference
#5	Add a char lift	+ $0.29	+ $0.5M	Though it can increase revenue by $0.5M, operating cost increases by $1.5M as well. It doesn't make economic sense.

Conclusion

- Blue Mountain's current pricing strategy can be optimized to reflect its facility assets.
- The current price seems to be lower than what it could be given the facility assets.
- It is recommended to increase current price to $96 to truly reflect the resort value.
- Adding a chair lift doesn't seem to be cost effective since the added operating cost can't be covered by additional revenue it brings.
- For future facility improvement, it's recommended to use the developed model to predict what the price can potentially go up to. A financial analysis should then be performed to compare the potential revenue increase to project cost in order to make an informed decision.

Thank You

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