The Big Mountain Ski Resort Pricing Model

The problem

Company

The Big Mountain Skiing Resort in montana

Context

- Pricing model has been based on the market average price.
- New chair lift added $1,540,000 operational cost
- The big mountain resort does not capitalize on its facilities as much as it could
- There is a need for an efficient pricing model that maximizes the return on investment

Problem statement

What pricing model should be adopted by the Big Mountain Resort to increase the profit by %10 for this season in light of the increased operational cost by installing an additional chair lift?

Recommendation and key findings

Finding 1 → Finding 2 → Finding 3

Undercharging Price

- current charge is **$81** for the adult weekend ticket. The model suggested **$95.20**

Untapped Potentials

- Big mountain is among the top resorts with high values of the important skiing facilities.
- Facilities undervalued

Important Facilities

The models revealed vertical drop, Snow Making, longest run, total chairs, fastQuads, and number of Runs as important features.

Modeling results and analysis

Models Comparison

The Linear Regression Model

- Used Standard scaling
- Used The median as an imputation strategy for the missing values.

Performance

- Simple Model, Selected 8 best features out of 32
- The mean absolute error is (13.18) on test set

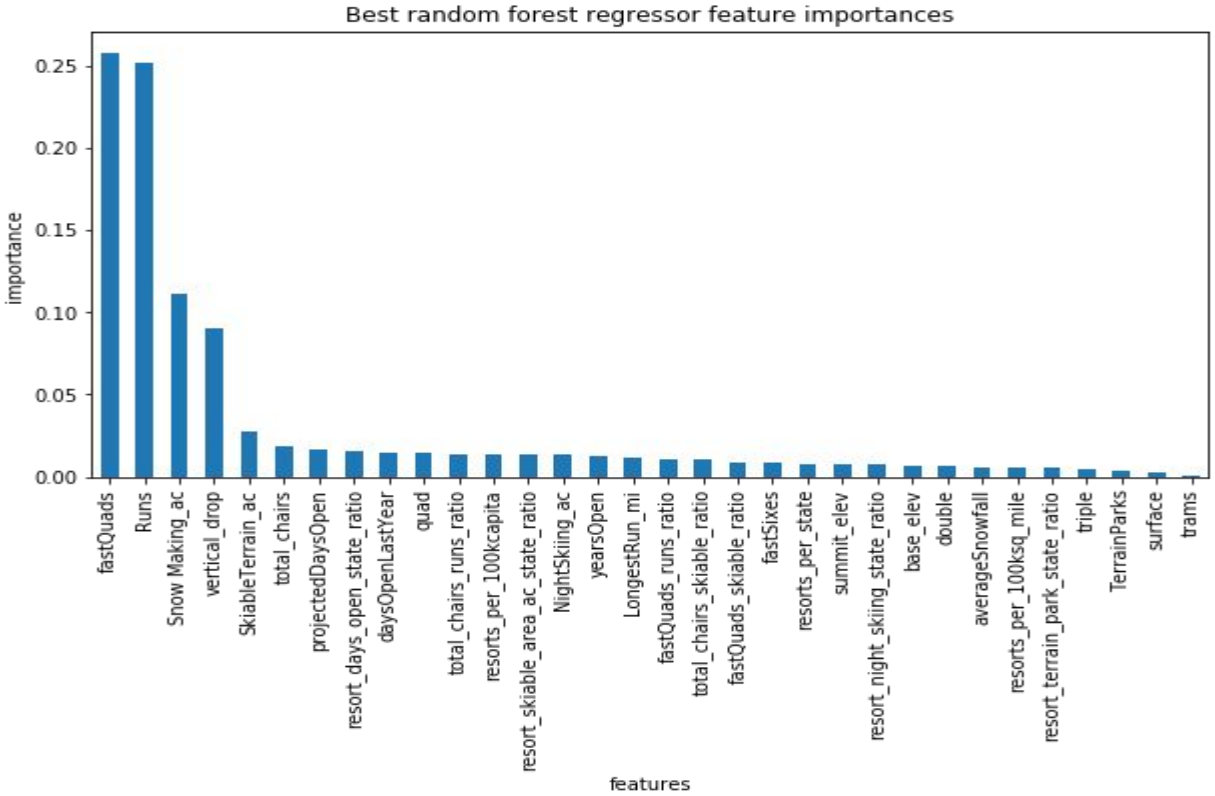
Random forest regression model

- No Standard scaling
- Used The median as an imputation strategy for the missing values.

Performance

- Used all features, highlighted features importance
- The mean absolute error is **(9.49)** on test set. Random Forest is **Better**
- **Price Predicted = $95.20 for Big mountain resort**

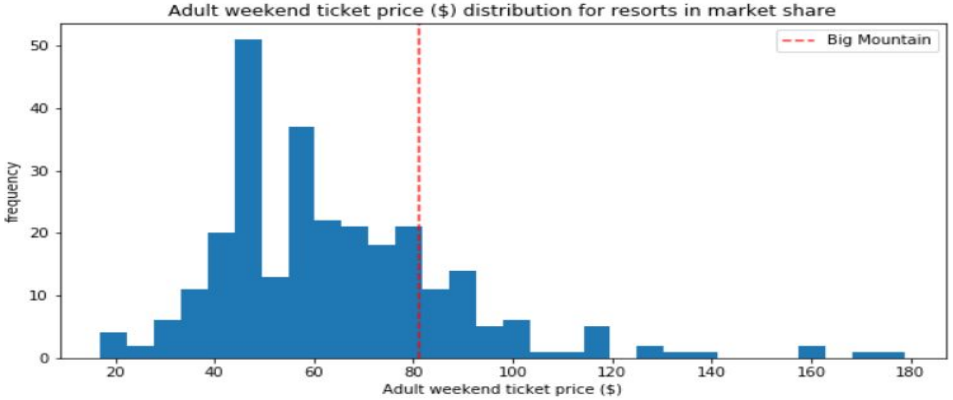
Models' Important Business Features

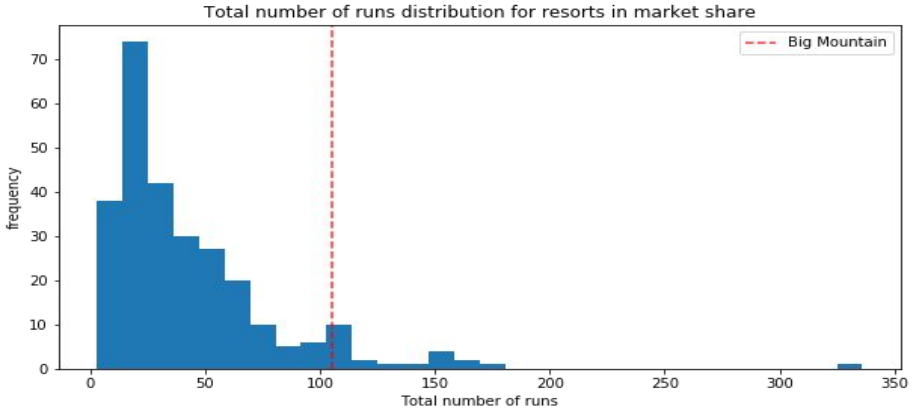


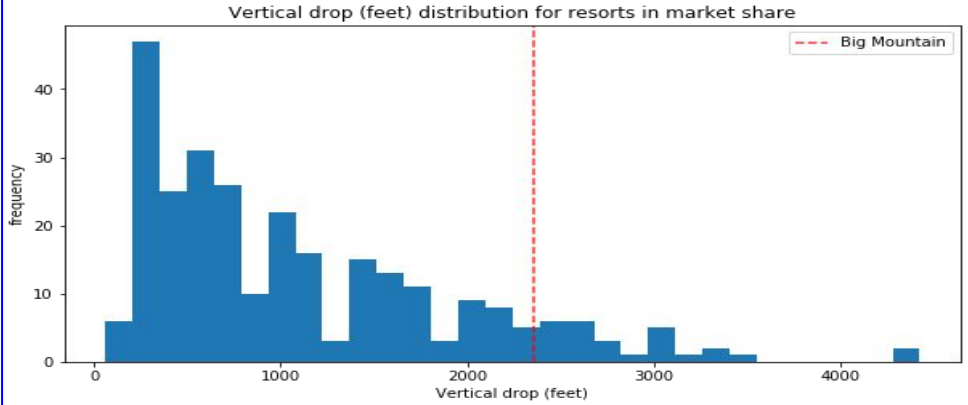
Linear Model	Coefficient
vertical_drop	10.767857
Snow Making_ac	6.290074
total_chairs	5.794156
fastQuads	5.745626
Runs	5.370555
LongestRun_mi	0.181814
trams	-4.142024
SkiableTerrain_ac	-5.249780

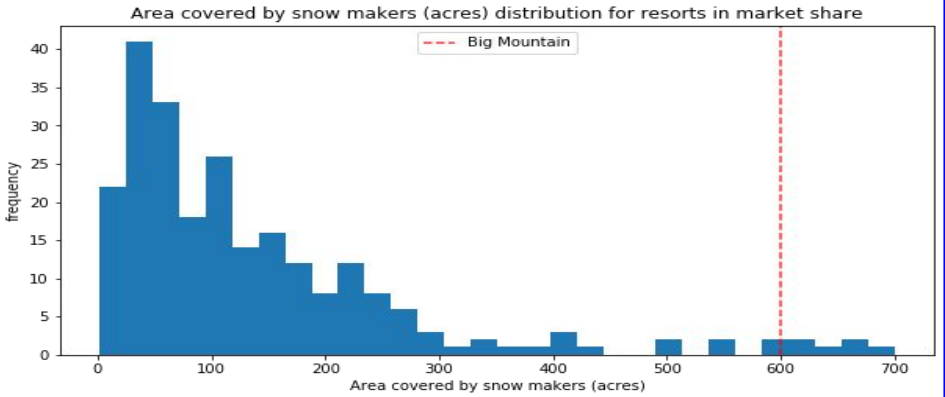
Both models agreed on most of the important features

The Big Mountain Resort Facilities Position in the Market







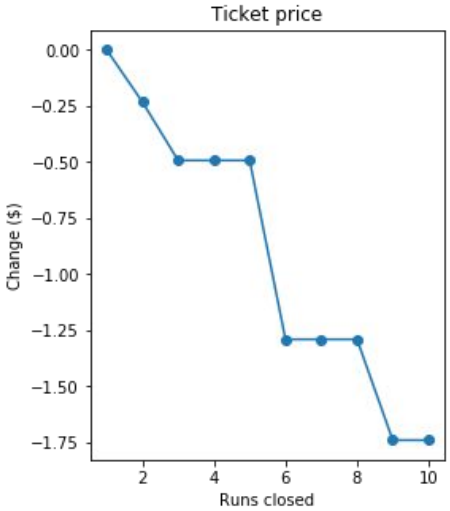


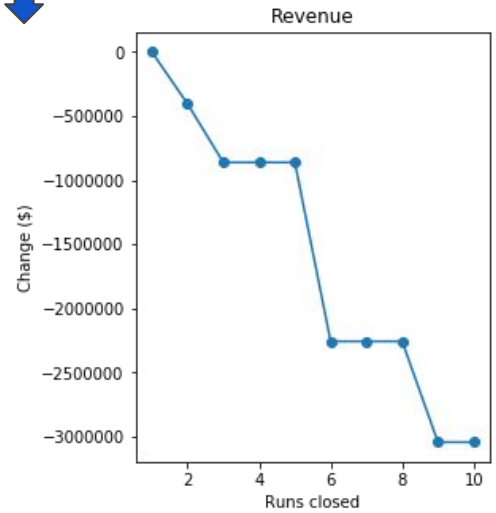
These features distribution show that big mountain resort is among the top.

Business Scenarios

1- Close up to 10 of the least used runs.

Closing up to 5 runs reduces only $0.5 of the ticket price





2- add a run, increase the vertical drop by 150 feet, and install an additional chair lift.

increases support for ticket price by $1.99 and increases revenue by $3,474,638 for the season.

3- Add 2 acres of snowmaking to scenario 2

Makes no difference in ticket and revenue!

4- increase the longest run by 0.2 miles and guaranteeing its snow coverage by adding 4 acres of snowmaking capability.

increases support for ticket price by $1.99 and increases revenue by $3,474,638 for the season.

Summary and conclusion

Conclusion 1

A clear undercharging of its ticket price.

- current charge is **$81** for the adult weekend ticket. The model suggested **$95.20**

Conclusion 2

Untapped Potentials

- Although Big Mountain was already fairly high on some of the league charts of facilities offered

Conclusion 3

Business Scenarios

- Consider closing some runs by calculating the potential loss in revenue against the amount of money saved by reducing operational costs

- Comparing the added facilities' installation and operational cost against the potential gain in revenue.

Conclusion 1

More data about the supply and demand and the operational cost could lead to better modeling and more informed business decisions.