



# Big Mountain Resort

Justification of Price Increase:

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### What opportunities exist for Big Mountain Resort to increase profit margins by increasing the cost of tickets?



- **Big Mountain Resort** is a ski resort located in Montana; with access to 105 trails and services more than 350,000 people each year.
- Currently, the resorts pricing strategy is to charge a premium above average price; but this method does not capitalize on the importance certain facilities have

# Overview of the Data:

- Sorted Resorts by states and features.
- However the most important feature is average ticket prices; therefore this relationship was explored through scatterplots; as seen in the figure

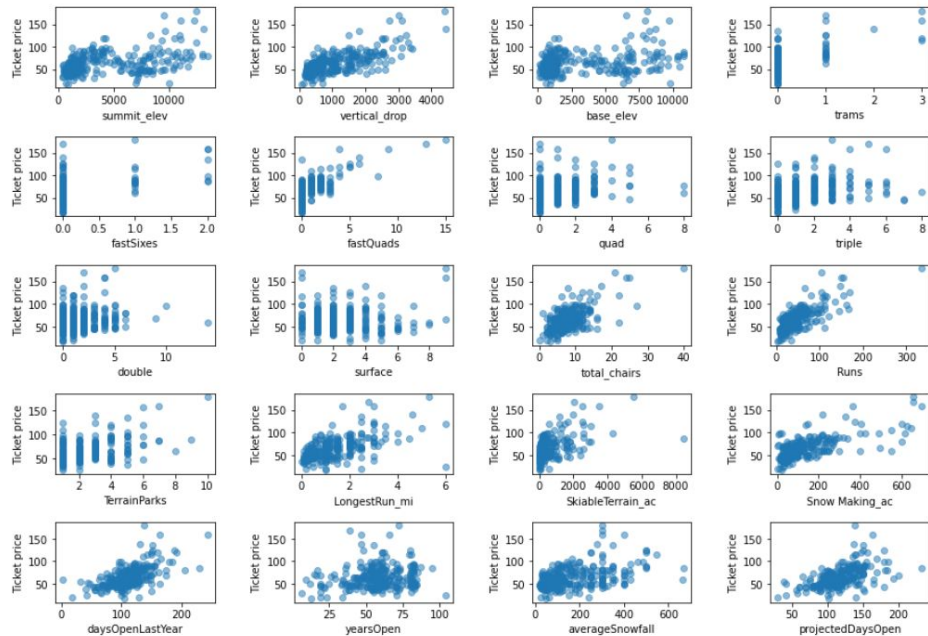


Figure 1 - Scatterplot of Average Price vs various features

# Observations:



- There is a high correlations such as vertical drop, fast quads, total chairs and runs.  
Based on these observations we can conclude
1. Ticket price could climb with the number of resorts serving a population because it indicates a popular area for skiing with plenty of demand..
  2. The lower ticket price when fewer resorts serve a population may similarly be because it's a less popular state for skiing.
  3. The high price for some resorts when resorts are rare (relative to the population size) may indicate areas where a small number of resorts can benefit from a monopoly effect.

# Linear Regression vs Random Forest Model

- To predict the best price for the average adult we inserted the data frame into a pipeline; and through cross-validation found a model that gives the most accurate result:  
**Random Forest Model.**
  - **modelled price is \$95.87**, with the **actual price being \$81.00**. Even with an expected mean absolute error of 10.39, there is room for an increase.

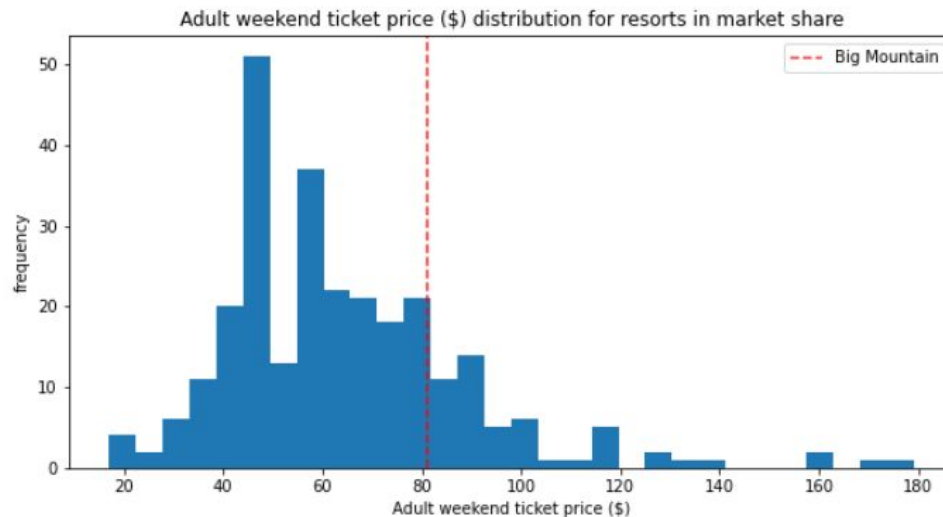


Figure 2 - Model of Ticket Price Compared to other resort in USA

### Scenario 1 -

Permanently closing down up to 10 of the least used runs.

After changing these models to reflect this scenario:

- Determined that if more than 6 runs were closed it led to a significant price drop (1.25); proven by the figure

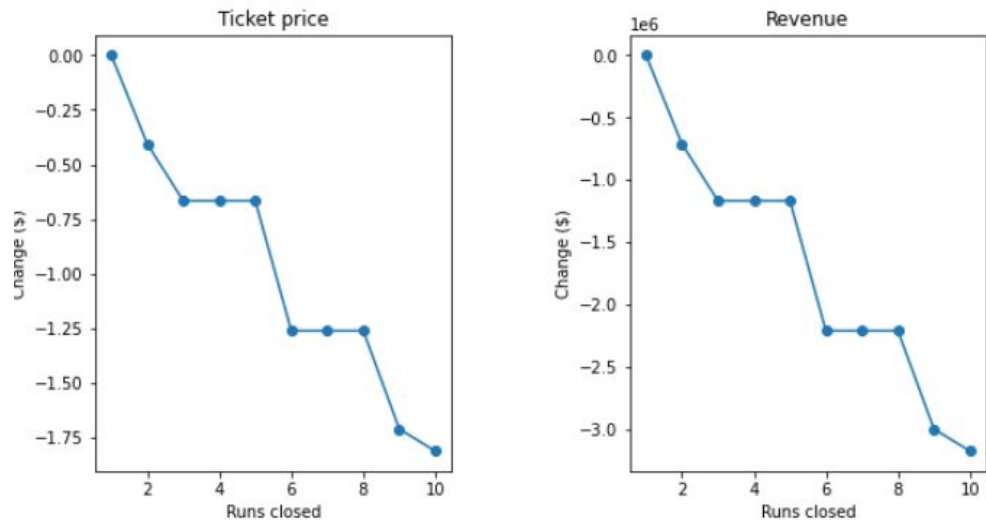


Figure 3 - Model of Scenario 1

# Comparing Multiple Scenarios:



- **Scenario 2 - Increasing the Vertical Drop**
  - Adding a run, increasing the vertical drop and adding a chair lift would support a **price increase of 2 dollars**; nearly **3.5 million dollars of additional revenue**
  - Adding 2 acres of additional snow shows that it would have a negligible difference.
- **Scenario 3 - Increasing the Longest Run by 0.2 miles**
  - Adding 0.2 miles would have **negligible difference**

## Important Considerations:

- Big Mountain Resort already has the highest adult weekend ticket price in Montana.

We need to compare features to not only other resorts; but to investigate resorts specifically in Montana.

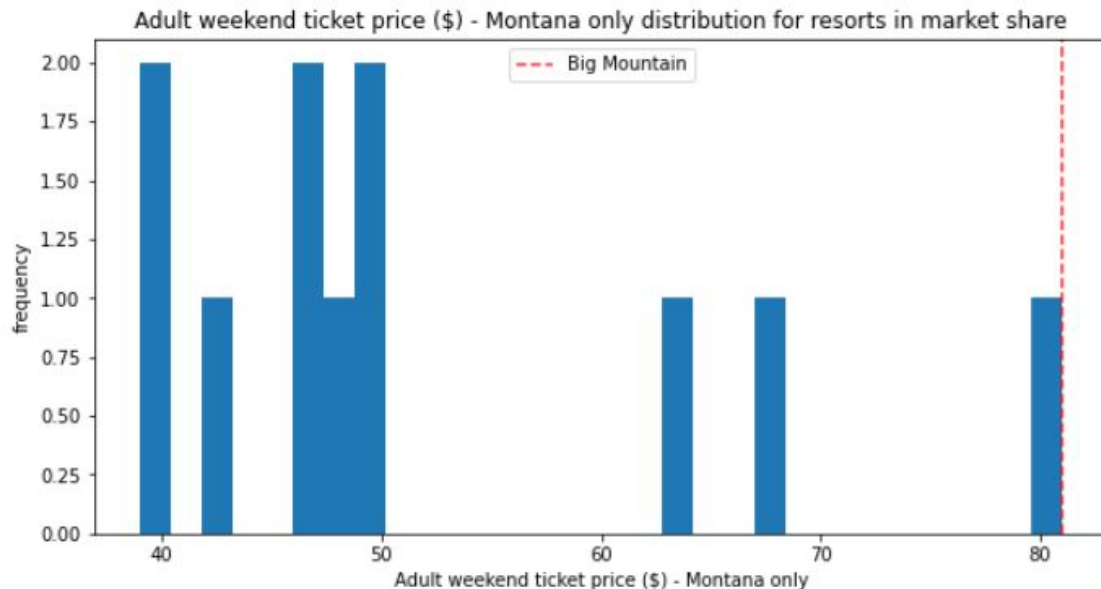


Figure 3 - Model of Ticket Price Compared to other resorts in Montana



## Summary:



- The random forest model created allowed us to model various scenarios that support an **increase in price by 2 dollars**.
  - Additional scenarios can be run that may justify increasing the price further
- Furthermore by using the data we have about number of guests visiting the resort; we can **justify making improvements** to the resort as we can model the revenue we expect to receive from these projects.

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