

An aerial, top-down view of a dense forest of evergreen trees covered in a thick layer of snow. The trees are closely packed, and the snow is a bright white, contrasting with the darker, snow-laden branches. The perspective is from directly above, looking down on the canopy.

# Ticket Price Strategies for Big Mountain Resort

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# Outline

Problem Identification

Recommendation & Key Findings

Modeling Results & Analysis

Summary & Conclusion



# Problem Identification

Provide the guidance for Big Mountain to select **a ticket price** and **investment plans** for increasing the revenue.

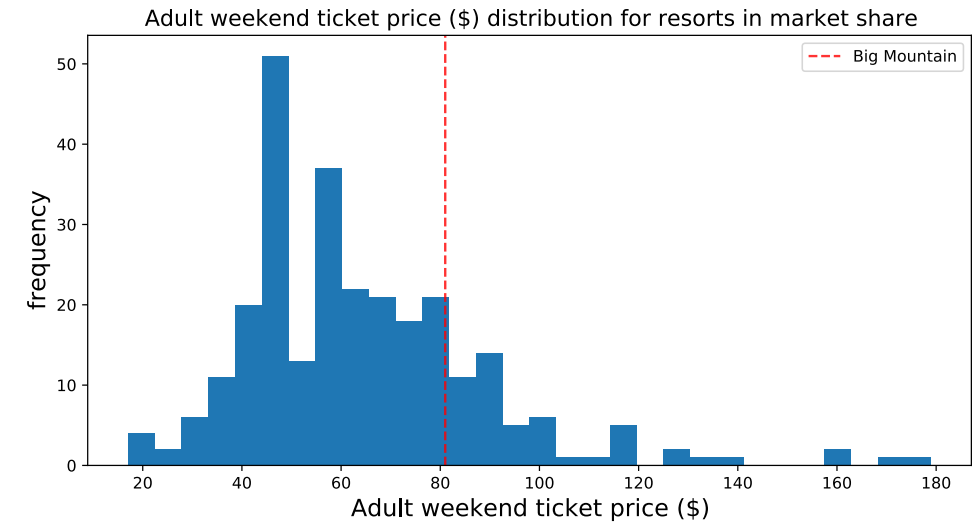
- Big Mountain Ski Resort's new chair lift increases the operating costs by **\$1.54 million this season**.
- To predict Big Mountain's ticket price based on the **facilities offered** and the **associated ticket prices** of its competitors.
- To predict how price should change under various scenarios, such as new investments or reducing a few facilities' services.



# Recommendation & Key Findings

## Ticket Price

- The currently price is **\$81** (Adult Weekend).
- Its modeled one is **\$94.22**, with the expected mean absolute error of \$10.39. There is room for an increase.



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## Scenarios and the predicted outcomes

- |   |  |
|---|--|
| 1 | <u>Closing one run</u> makes no difference in the ticket price but <b>helps to reduce the operating costs</b> .  |
| 2 | <u>Adding a run</u> for <u>increasing the vertical drop by 150 feet</u> and <u>installing an additional chair lift</u> .<br>It <b>increases the ticket price by \$1.99</b> . Expect to \$3.47 million increase over the season <sup>a</sup> , which could cover the cost of running the new chair lift (\$1.54 million). |
| 3 | Repeat the 2nd case but <b>adding 2 acres of snow making cover</b> .<br>This makes <b>no difference</b> in ticket price compared to 2 <sup>nd</sup> one.   |
| 4 | <b>Increasing the longest run by 0.2 miles</b> (to boast 3.5 miles length) and <b>guaranteeing its snow coverage by adding 4 acres of snow making capability</b> . It makes <b>no change</b> in the ticket price.  |

<sup>a</sup>. The expected number of visitors over the season is 350,000 and, on average, visitors ski for five days.

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| 5 | Combining <u>scenarios #1 and #2</u> <b>supports for ticket price by \$1.99</b> and <b>reduces the operating costs</b> .  |
| 6 | <u>Decrease snow making area down up to 35 acres</u> makes <b>no change</b> in the ticket price but <b>helps to reduce the operating costs</b> .  |

# Modeling Results & Analysis

## Dataset

- The model mainly considers **the facilities offered (32 features)** and **the associated ticket prices** of the 276 ski resorts in the U.S.
- Other factors, e.g., the number of visits, business operating costs, etc., are not available and and not involved for prediction.

## EAD - Feature correlations (top 10)

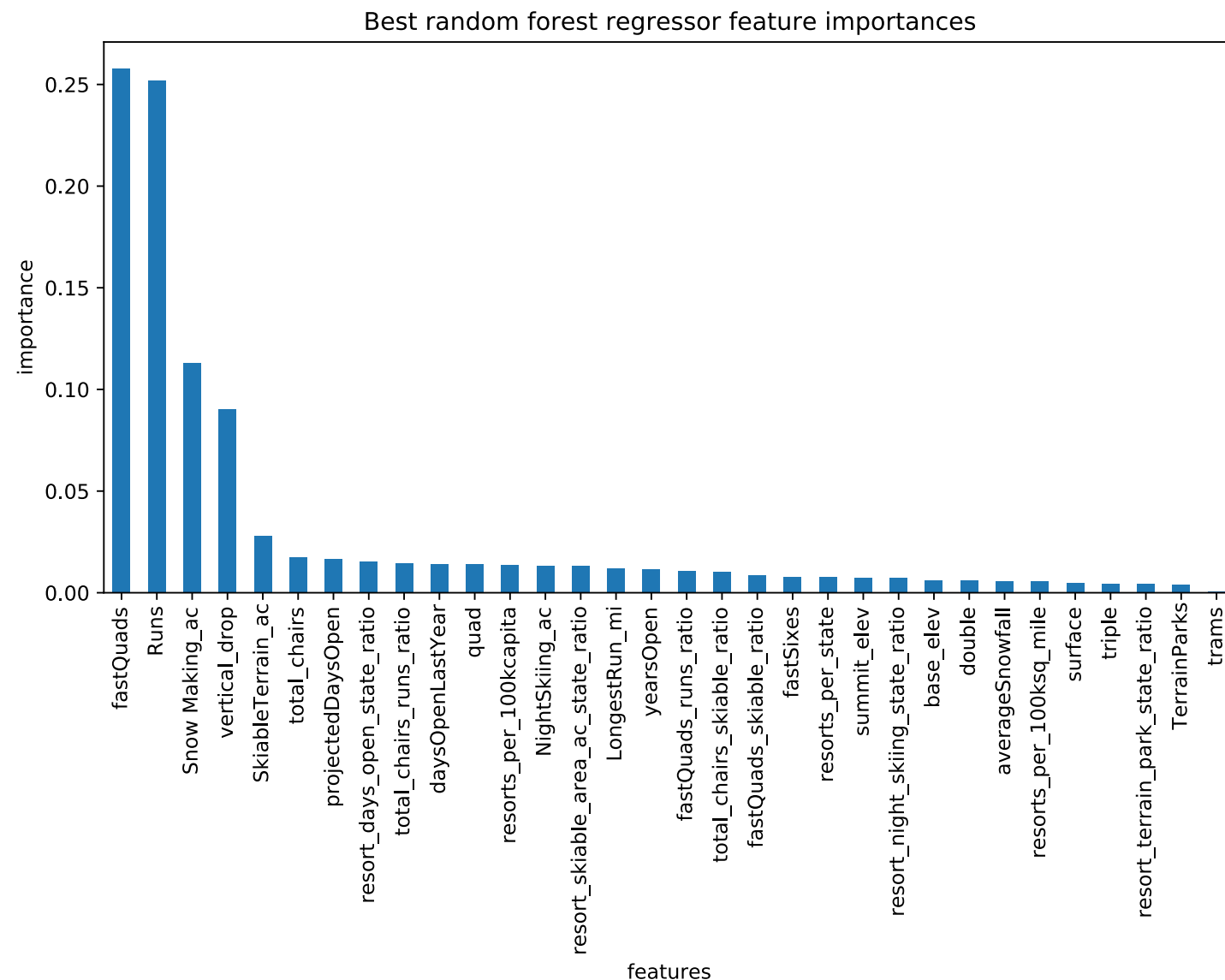
AdultWeekend	
AdultWeekend	1.000000
Runs	0.756926
fastQuads	0.731445
vertical_drop	0.713287
Snow Making_ac	0.695764
total_chairs	0.654397
daysOpenLastYear	0.596674
LongestRun_mi	0.579602
trams	0.569015
projectedDaysOpen	0.529650
SkiableTerrain_ac	0.527750

# Modeling Results & Analysis

Model - Random forest regressor

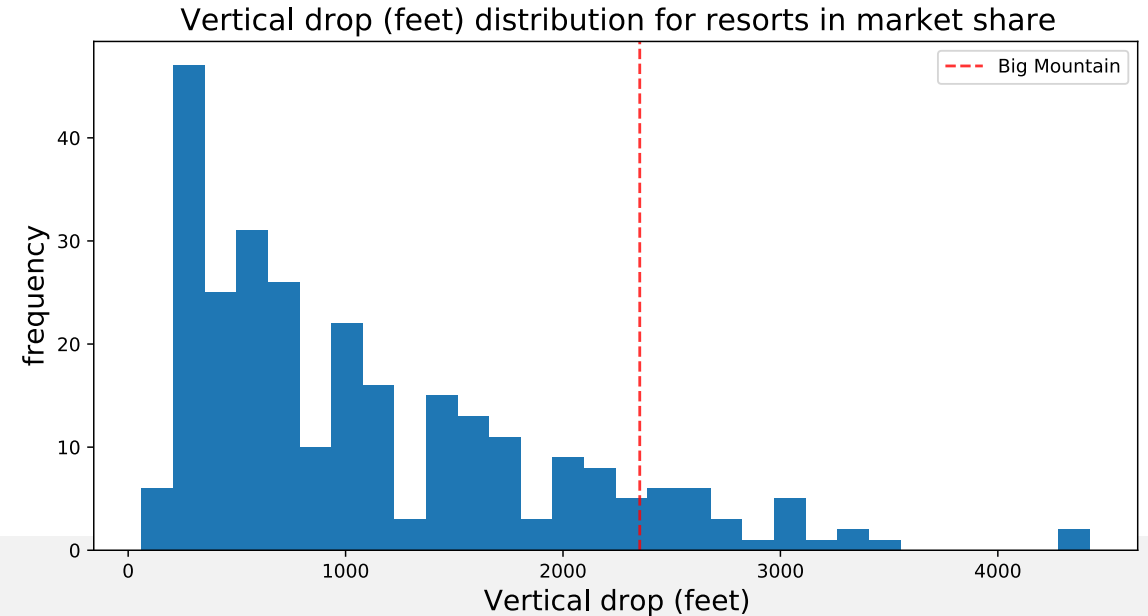
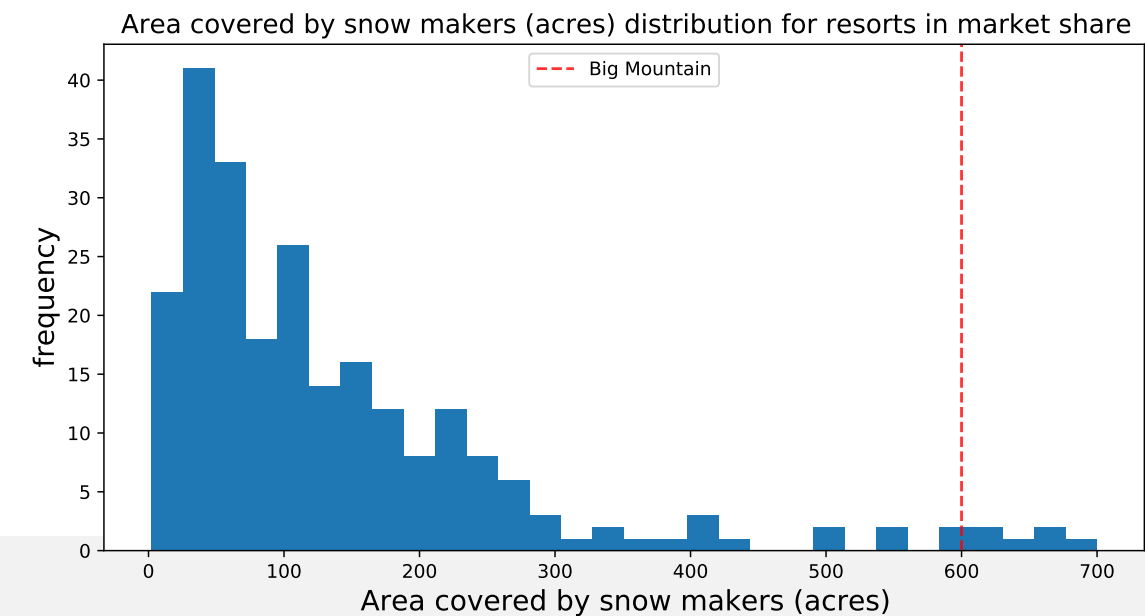
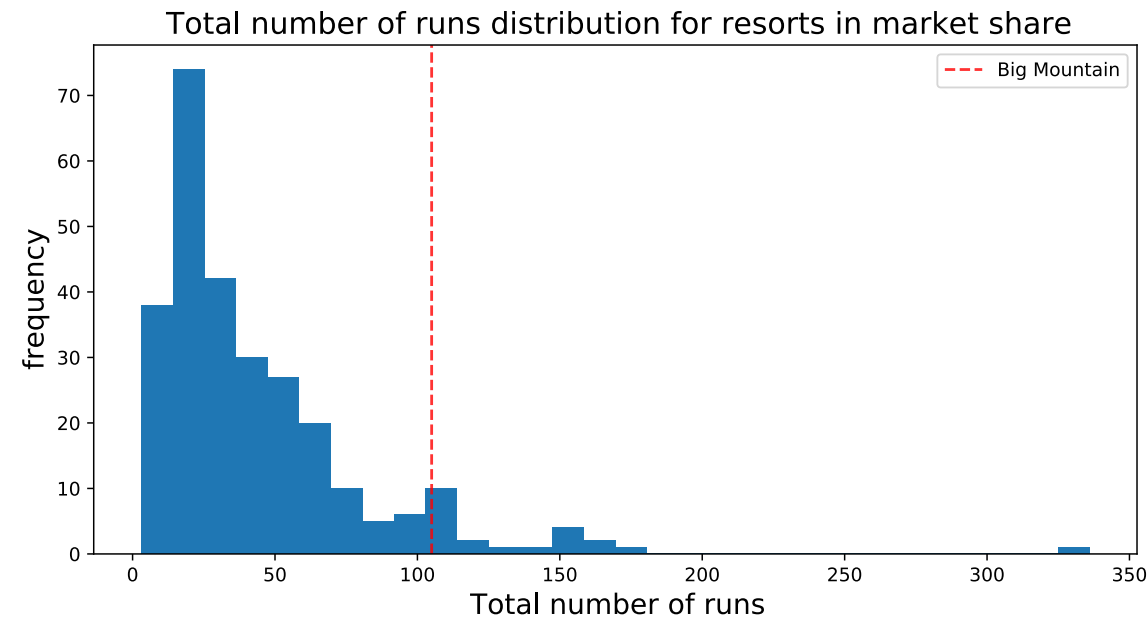
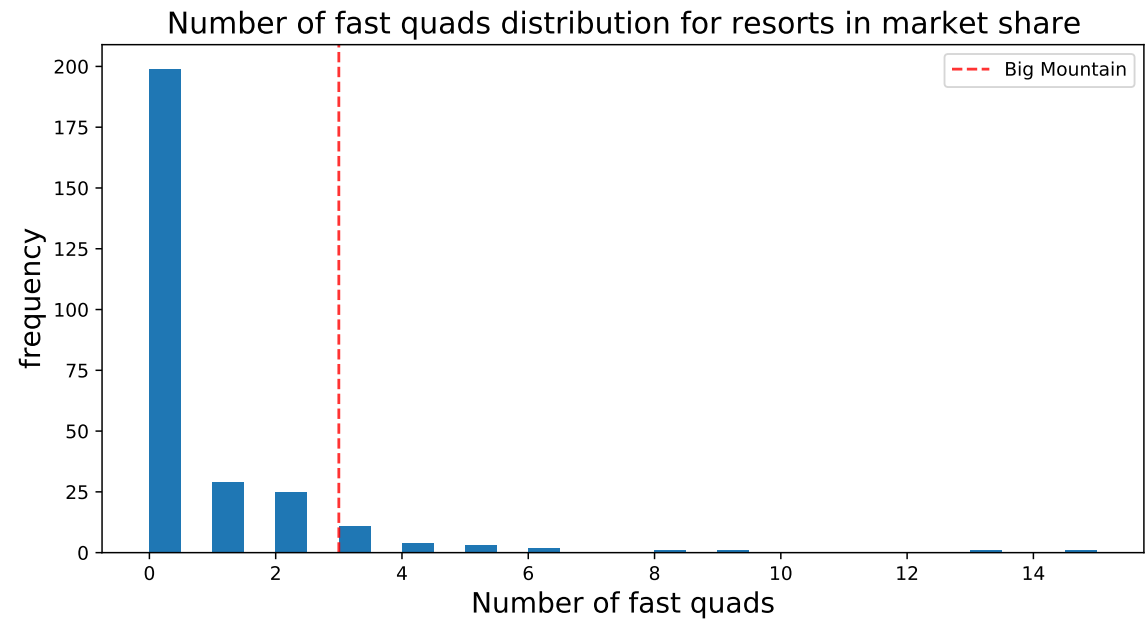
- Top four dominated features associated with ticket price:
  - the number of fast-quads
  - runs
  - snow-making acres cover
  - vertical drop

They are also the top four features correlated with AdultWeekend (EDA results).





# Modeling Results & Analysis



# Summary and Conclusion

- Big Mountain sits higher up in the league tables across the **top four predictive features** (facilities) related to the adult (weekend) ticket price.
- The suggested price is **\$94.22** with expected mean absolute error \$10.39. Comparing to the **currently charge \$81**, we recommend Big Mountain to increase their ticket price.
- Recommend scenarios:
  - #1 Closing one run helps to reduce the operating costs.
  - #2 Adding a run to increase the vertical drop by 150 feet and installing an additional chair lift. It **increases the ticket price by \$1.99**. Expect \$3.47 million increase over the season.
  - Combining scenarios #1 and #2
  - Decrease snow making area down up to 35 acres makes no change in the ticket price but helps to reduce the operating costs.