Big Mountain Resort

Turning Data into Dollars

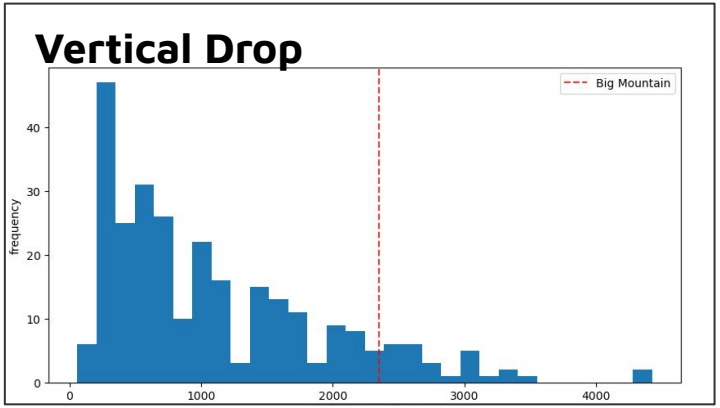
Why are we looking at this data?

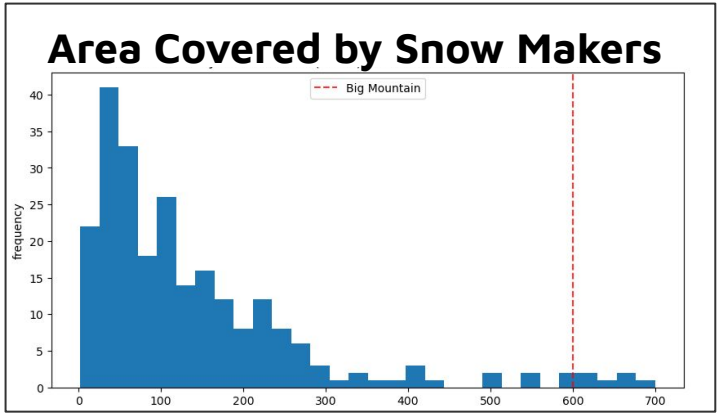
- To identify opportunities with a high success rate to increase revenue by $1.54 Million (or more) by evaluating the level of impact of resort features on pricing.

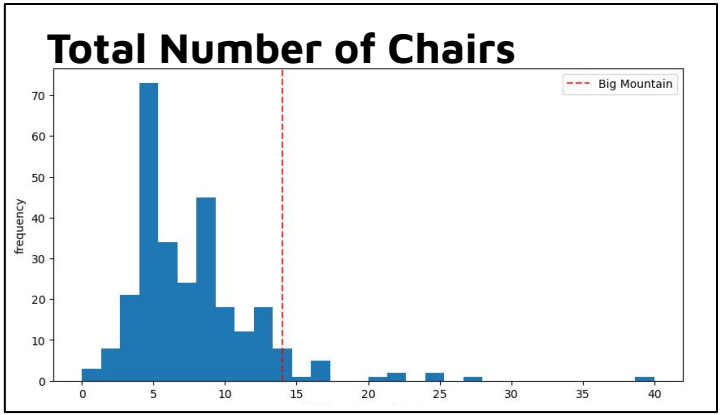
  Features:

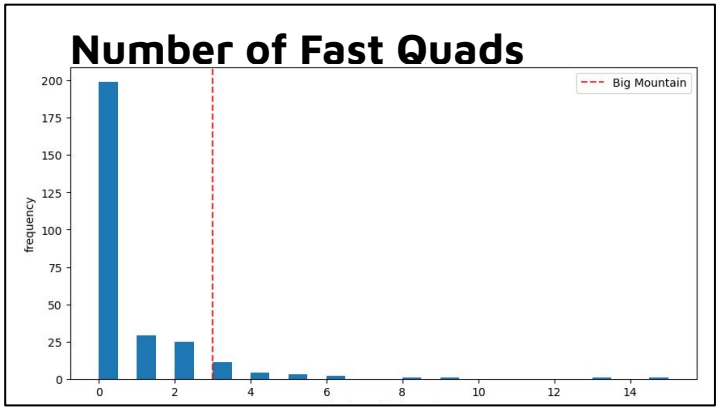
  - Height of vertical drop and length of longest run
  - Quantity of chairs, runs, and terrain parks
  - Size of skiable terrain, snow making and night skiing area
  - Number of trams, fast eights, fast sixes, fast quads, quads, triples, and doubles.

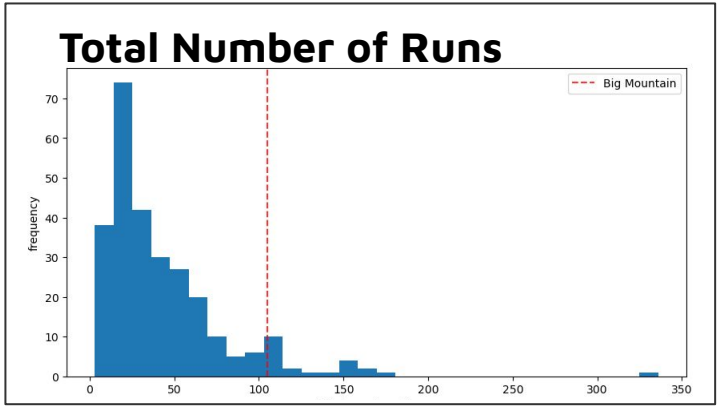
Where does Big Mountain Resort currently stand?

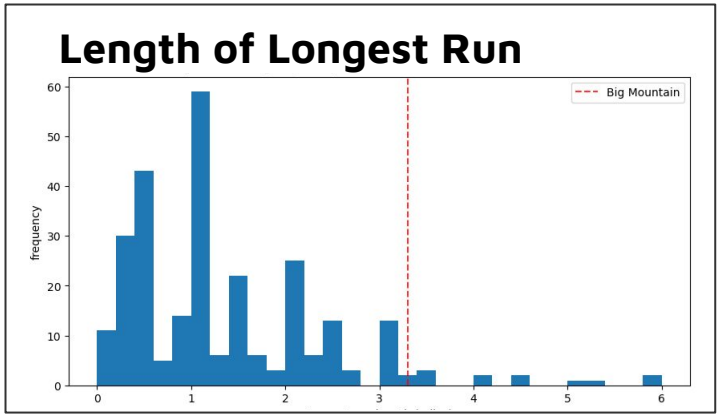

Vertical Drop
Big Mountain
frequency
0
10
20
30
40
0
1000
2000
3000
4000

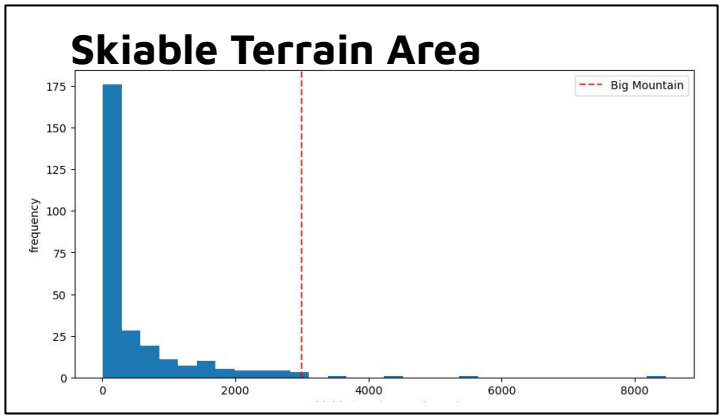

Area Covered by Snow Makers
Big Mountain
frequency
0
5
10
15
20
25
30
35
40
0
100
200
300
400
500
600
700

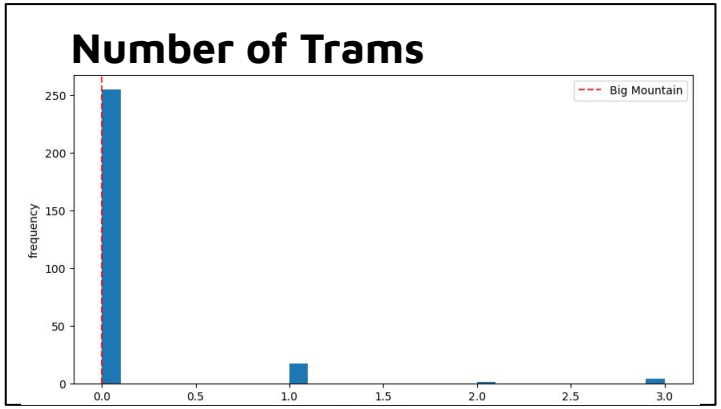

Total Number of Chairs
Big Mountain
frequency
0
10
20
30
40
50
60
70
0
5
10
15
20
25
30
35
40


Number of Fast Quads
Big Mountain
frequency
0
25
50
75
100
125
150
175
200
0
2
4
6
8
10
12
14


Total Number of Runs
Big Mountain
frequency
0
10
20
30
40
50
60
70
0
50
100
150
200
250
300
350


Length of Longest Run
Big Mountain
frequency
0
10
20
30
40
50
60
0
1
2
3
4
5
6


Skiable Terrain Area
Big Mountain
frequency
0
25
50
75
100
125
150
175
0
2000
4000
6000
8000


Number of Trams
Big Mountain
frequency
0
50
100
150
200
250
0.0
0.5
1.0
1.5
2.0
2.5
3.0

Big Mountain Delivers High Value

- Keeping all other factors constant, data modelling revealed that the recommended ticket price is 18% higher than current rates!

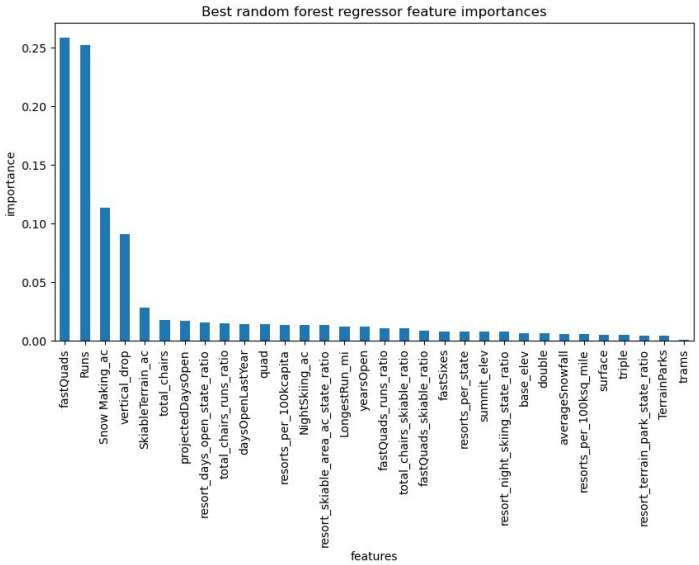
- This would increase ticket prices from $81.00 to $95.87 and , considering that every year about 350,000 people ski or snowboard at Big Mountain, this translates into a revenue increase of $5.2 Million.

  Recall: The operating costs of the new chair lift is $1.55 Million.

How did we arrive at this recommendation?

Data Models Aren't 'One-Size-Fits-All'

A linear regression model (model #1) and a random forest regression model (model #2) were evaluated & compared using metrics such as R-squared, Mean Absolute Error, and Mean Squared Error along with applying Cross-Validation.



As expected, during preprocessing & algorithm testing, the best parameters in both models were nearly equivalent (see chart to the left + List Below)

- Vertical Drop Height
- Trams
- Fast Quads
- Total Chairs
- Runs
- Longest Run Length
- Skiable Terrain Area
- Snow Making Area

Model#2 Dominates the Comparison

To show the versatility of the Random Forest regression model, we ran the following scenarios:

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

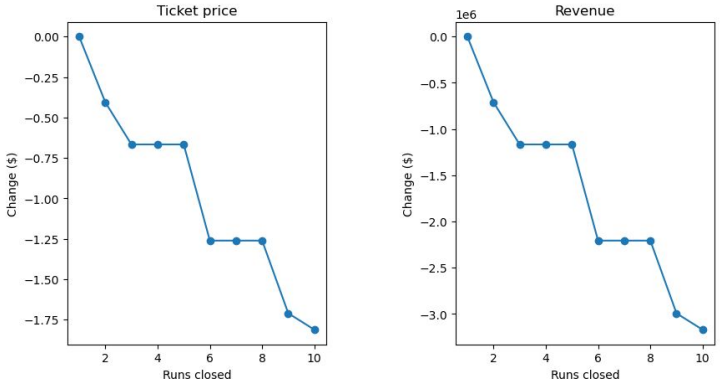
2. Increase the vertical drop by adding a run to a point 150 feet lower down but requiring the installation of an additional chair lift to bring skiers back up, without additional snow making coverage

3. Same 2, but add 2 acres of snow making.

4. Increase the longest run by 0.2 mile and add snow making coverage of 4 acres.

Scenario Results

- Scenario (1): Closed runs' impact on revenue



- Scenario (2): Ticket price increases by $8.61, resulting in **$15 million revenue**.
- Scenario (3): Ticket price increases by $9.90, generating **$17 million revenue.**
- Scenario (4): No change observed.

What Now?

The data model can identify patterns in pricing trends, quantify the potential impact of proposed changes, identify the specific facilities that contribute most significantly to the resort's revenue and so much more.

The culmination of our research underscores the vital role that the data model plays in shaping insights and empowering strategic decisions. With this understanding, the way forward is to put your hypotheses to the test.

Let's harness the power of these insights and pave the way for even more impactful outcomes.