Big Mountain Resort - Pricing Analysis

by Hien Quang (quangthuchien@gmail.com)

Big Mountain Resor's current ticket price is underpriced given its features compared to other 330 similar resorts across the US.

Dataset: Beside collected ski resorts features, some features are calculated such as "total_chairs_runs_ratio", "total_chairs_skiable_ratio", 'fastQuads_runs_ratio", and "fastQuads_skiable_ratio". State data is also appended to investigate the relationship between state and price which is ultimately not too helpful. Therefore, all resorts in the dataset are treated equally regardless of what state they are in.

Methodologies: Random forest Model is chosen over Linear Regression Model based on initial processing. The four (4) dominant features are: "fastQuads", "Runs", "SnowMaking_ac", "vertical_drop"

Key Recommendations:

1. **Increase ticket price without any other adjustments**: Model suggests the market can support the price of **$95.87** with mean absolute error of $10.39. With this in mind, ticket price should increase to minimum **$85.48** and maximum **$106.26** instead of the current $81 without any adverse effect on revenue.
2. **Increase vertical drop by 150 feet and install an additional chair lift**: this scenario increases support of ticket price by $1.99. Expecting 350,000 visitors annually, this could be expected to amount to $3,474,638. Note that adding 3 acres of snow making in this scenario does not increase support of ticket price as the increased amount is too small. Even though installing a new chair lift would increase operating cost this season by $1,540,000, it should still bring in positive change to Big Mountain Resort's revenue

Suggestion of future study:

1. **Closing least used runs**: The model says closing one run makes no difference. Closing 2 and 3 successively reduces support for ticket price and so revenue. If Big Mountain closes down 3 runs, it seems they may as well close down 4 or 5 as there's no further loss in ticket price. Increasing the closures down to 6 or more leads to a large drop. Depending on the operating cost of these runs, it may or may not make sense to close them.

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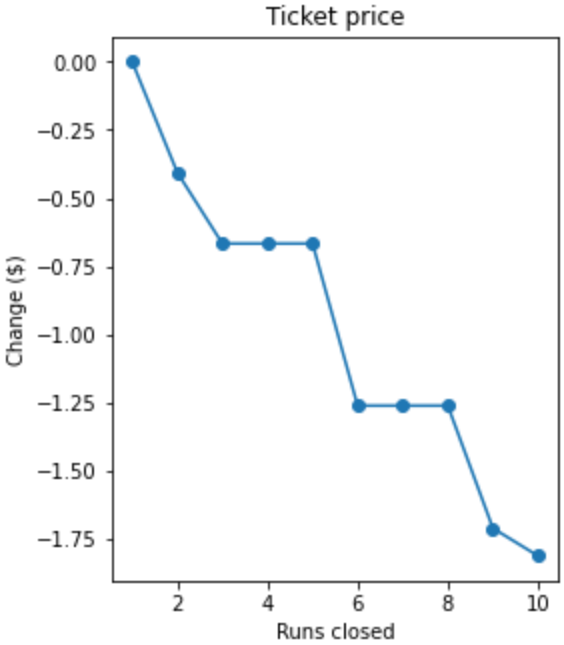
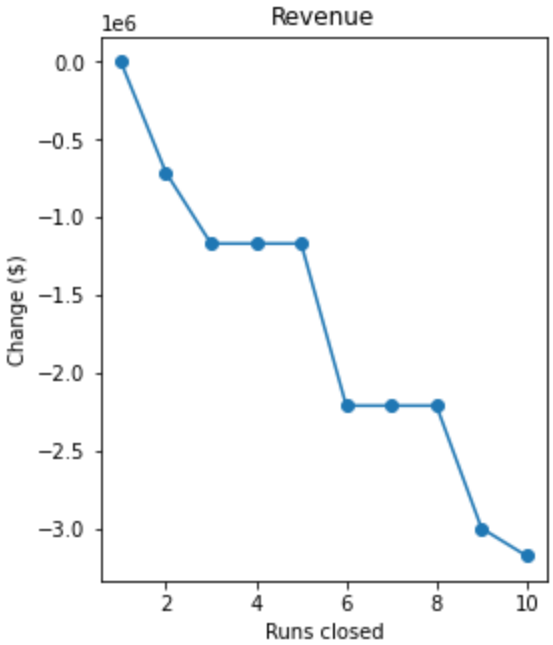
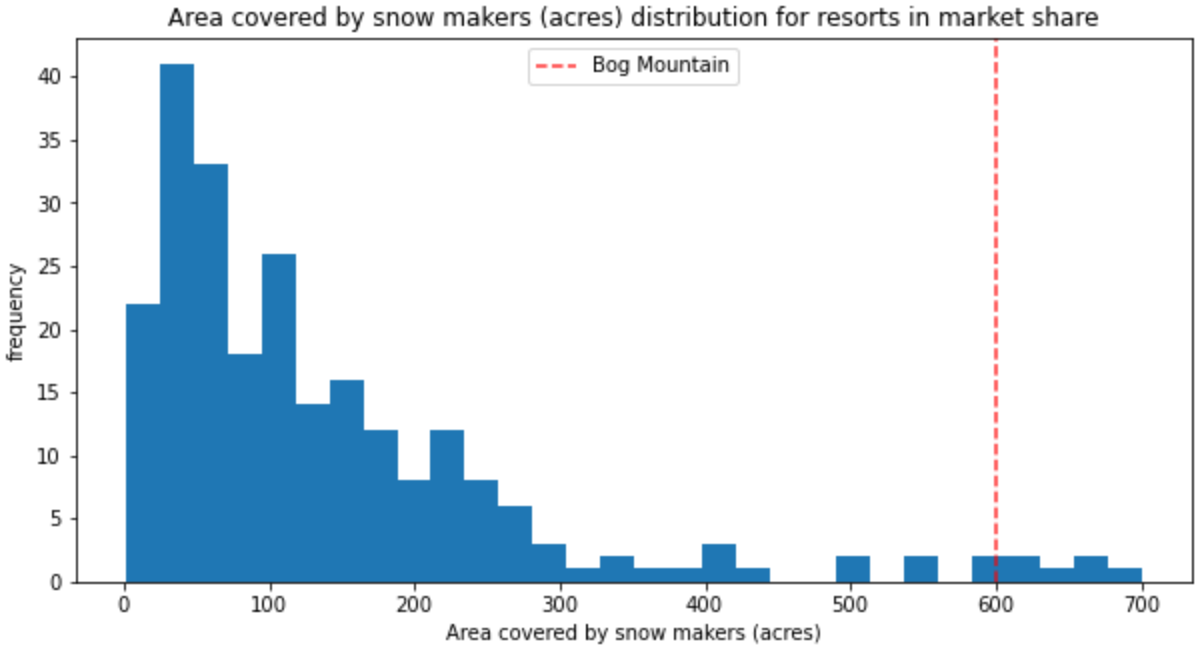




2. **Consider decreasing skiable terrain, snow machine coverage:** Big Mountain Resort lies on the far right tail on these features which might suggest rooms to decrease without impacting ticket price. Depending on operating cost, this option might bring in positive changes in profit.



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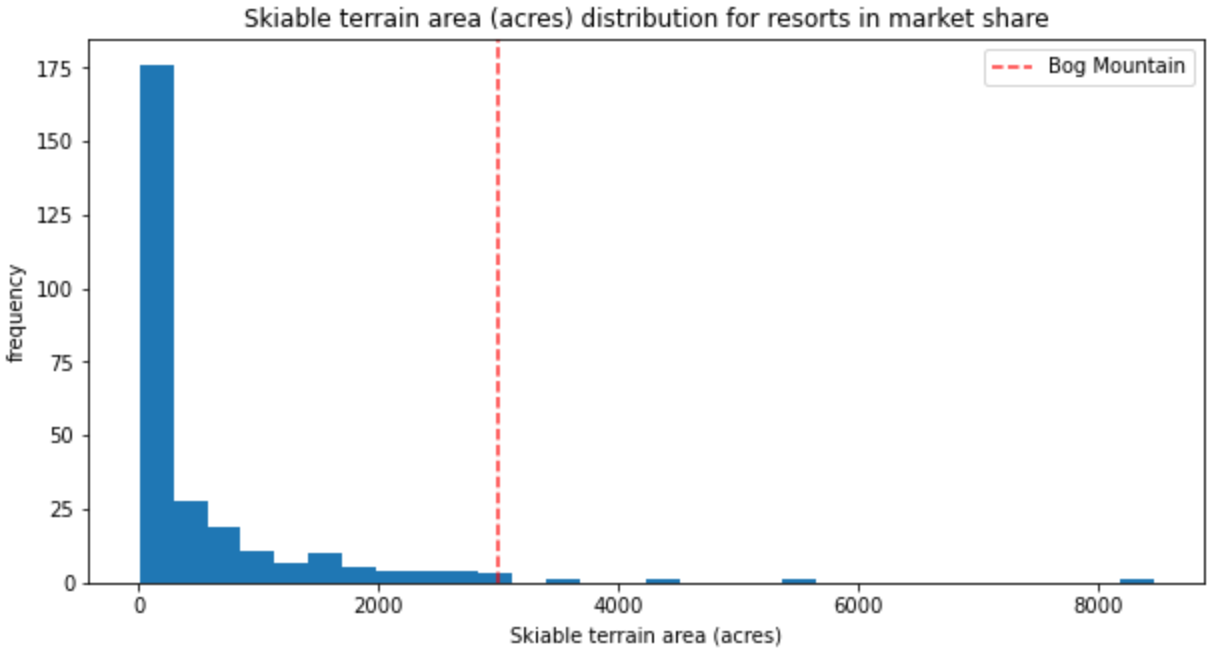

3. **Modeling weekday price separately**: this model is created based on Adult Weekend price because there are less adult weekday prices available in this particular dataset. However, there are understandably differences between price for weekend and weekday which would be worth investigating further.