Business objective: How to increase the total revenue of Big Mountain Resort?

Problem Identification

- The primary objective of the project is to identify how to increase the total revenue of Big Mountain Resort.
- I explored the data for missing values and duplicates in the dataset. The data contained some missing as well as incorrect information. We were able to impute the missing values and also transform the data as accurately as possible.
- After finding out that the data did not have any duplicates, I noticed that several columns had very skewed and suspicious entries.
- I would like to refer to BMR's marketing research team to better understand how they treat categorization in regard to state and region.
- Further evaluation revealed that 82% of the resorts had information for both 'Adult Weekday Ticket Prices' and 'Adult Weekend Ticket Prices,' 3% had recorded only prices for one of the categories, and 14% had no records of ticket price.
- Attributes with no data entry were dropped. In addition, any rows that were due to data entry error were dropped.

Problem Identification (Contd.)

- From the correlation heatmap, we find that Summit and base elevation are quite highly correlated.
- An interesting observation in this region of the heatmap is that there is some positive correlation between the ratio of night skiing area with the number of resorts per capita. In other words, it seems that when resorts are more densely located with population, more night skiing is provided.
- Visitors would seem to value more guaranteed snow, which would cost in terms of snow making equipment, which would drive prices and costs up.
- Resort_night_sking_state_ratio seems the most correlated with ticket price. If this is true, then perhaps seizing a greater share of night skiing capacity is positive for the price a resort can charge.
- As well as Runs, total chairs is quite well correlated with ticket price. This is plausible; the more runs you have, the more chairs you'd need to ferry people to them! Interestingly, they may count for more than the total skiable terrain area.

Recommendation and key findings

- Ticket price may drop a little before then climbing upwards as the number of resorts per capita increases. Ticket price could climb with the number of resorts serving a population because it indicates a popular area for skiing with plenty of demand.
- More chairs a resort has to move people around, relative to the number of runs, ticket price rapidly plummets and stays low.
- The vertical drop seems to be a selling point that raises ticket prices as well.
- People seem to put more value in guaranteed snow cover rather than more variable terrain area.
- Big Mountain Resort currently charges $81.0. Our model suggests that Big Mountain can charge $94.22. An additional chair lift ticket will increase tickit price by $1.99.
- Over the season,expected revenue should be $3474638.
- Increasing the longest run by 0.2 miles and guaranteeing its snow coverage by adding 4 acres of snow making capability doesn't make a difference. Hence, it is not recommended.

Modelling

Features that came up as important in the modeling included:

- vertical_drop
- Snow Making_ac
- total_chairs
- fastQuads
- Runs
- LongestRun_mi
- Trams
- SkiableTerrain_ac

Big Mountain Resort operates within a market where people pay more for certain facilities, and less for others. Being able to sense how facilities support a given ticket price is valuable business intelligence. This is where the utility of our model comes in.

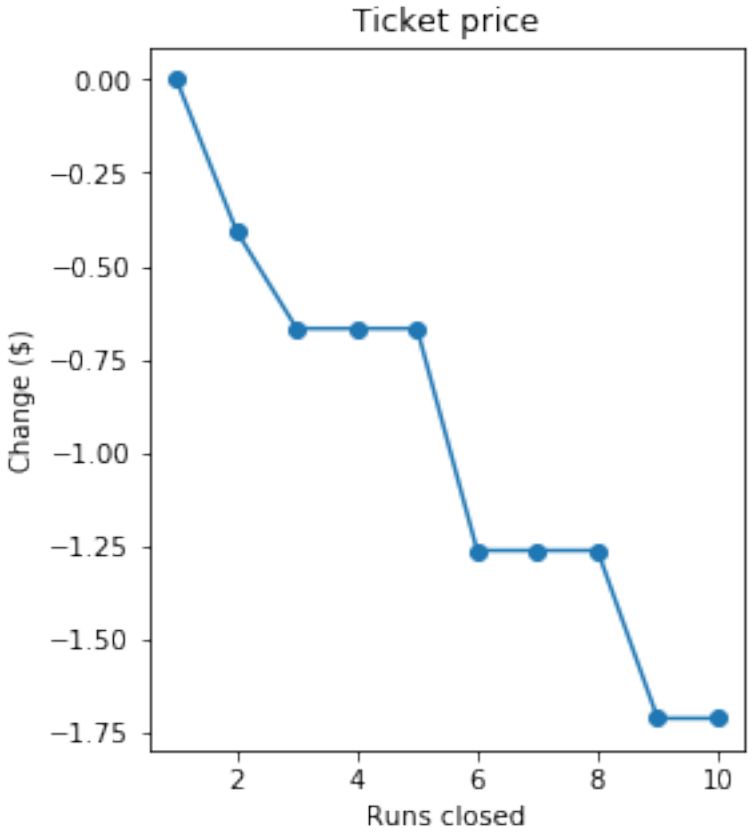
Modelling (Contd.)

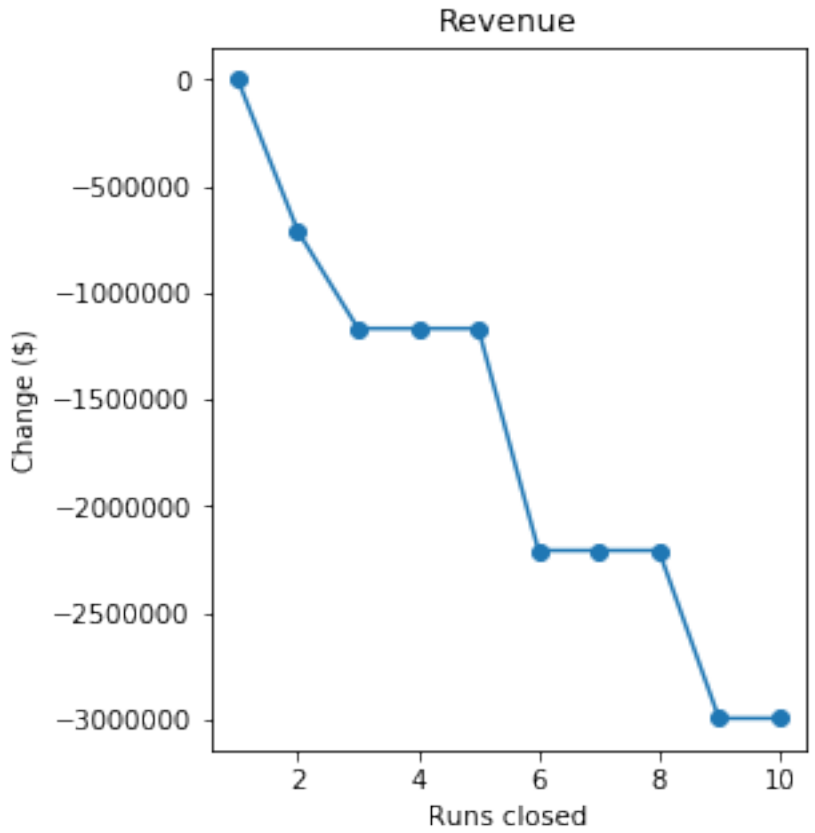
Some options have been shortlisted:

- Permanently closing down up to 10 of the least used runs. This doesn't impact any other resort statistics.
- 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
- Same as number 2, but adding 2 acres of snow making cover
- Increase the longest run by 0.2 mile to boast 3.5 miles length, requiring an additional snow making coverage of 4 acres
- The expected number of visitors over the season is 350,000 and, on average, visitors ski for five days. Assume the provided data includes the additional lift that Big Mountain recently installed.

Modelling (Contd.)

The model says closing one run makes no difference. Closing 2 and 3 runs 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.





Modelling (Contd.)

- increasing the vertical drop by 150 ft. and installing an additional chair lift is expected to increase revenue by $3474638.
- adding 2 acres of snow making makes no difference!
- increasing the longest run by .2 miles and guaranteeing its snow coverage by adding 4 acres of snow making capability has no difference whatsoever.

Summary and Conclusion

- Henceforth, the modeled price is based on the historical data and it suggests that there is room for price increase, which in turn, would lead to revenue increase for Big Mountain resort.
- As the model has already been developed, business analysts should be able to explore the model further by adding/removing parameters and check the results accordingly.