Data Science Method Exemplar

Big Mountain Resort

Problem Identification

- Big Mountain Resort increased visitor distribution across the mountain with an additional chair lift, at a cost of $1.5M

- In order to maintain the 9.2% profit margin additional revenues and/or operational shifts ought to be implemented before the end of the season.

Recommendation & Key Findings

- **Increasing Adult Weekend ticket price to $88 from the current $81**

  - Based on the amount of terrain available & days open last year, in relation to the competition, BMR can move to a higher ticket cost.

- **Increasing the number of days that the mountain is open.**

  - Based on the competition, BMR can be open more days, looking at their position in relation to skiable terrain and ticket price.
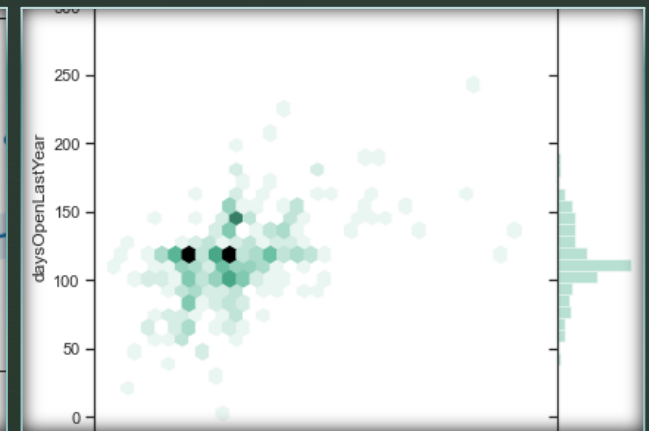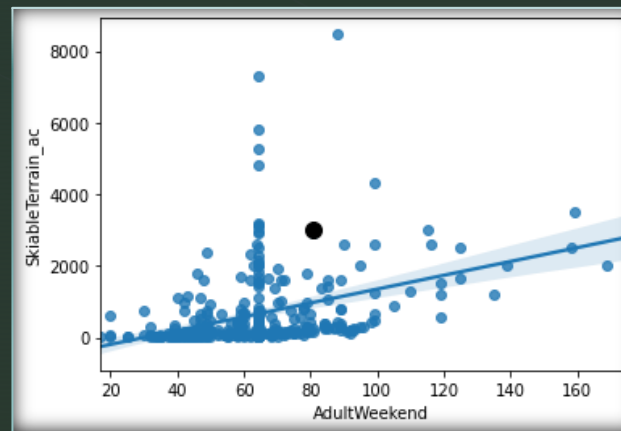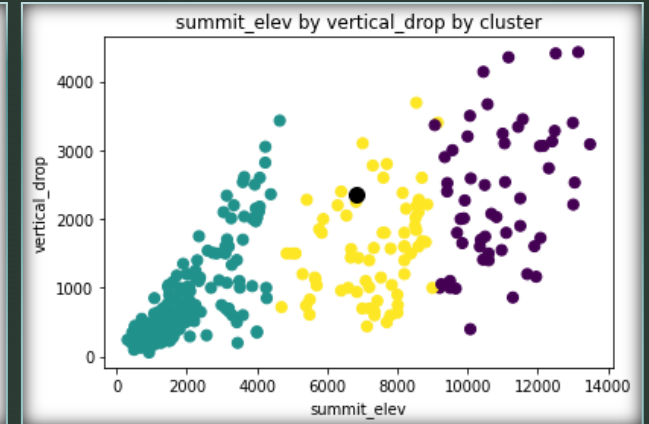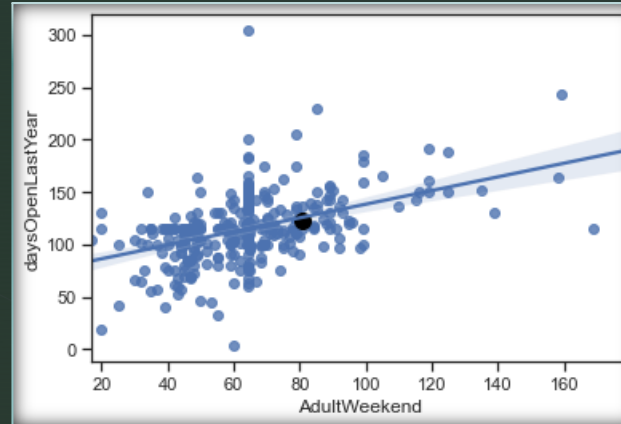
Modeling Results & Analysis

- We profiled the data looking for outliers and relationships in order to identify the appropriate features/variables to focus on.

- Specifically, we looked at a covariance matrix to determine which features had strong links to one another, that is how depended they are on one another.

- We clustered the size of BMR in relation to the competition to see where they stand in terms of skiable area to then predict which changes would most impactful: ticket cost & days open

summit_elev by vertical_drop by cluster
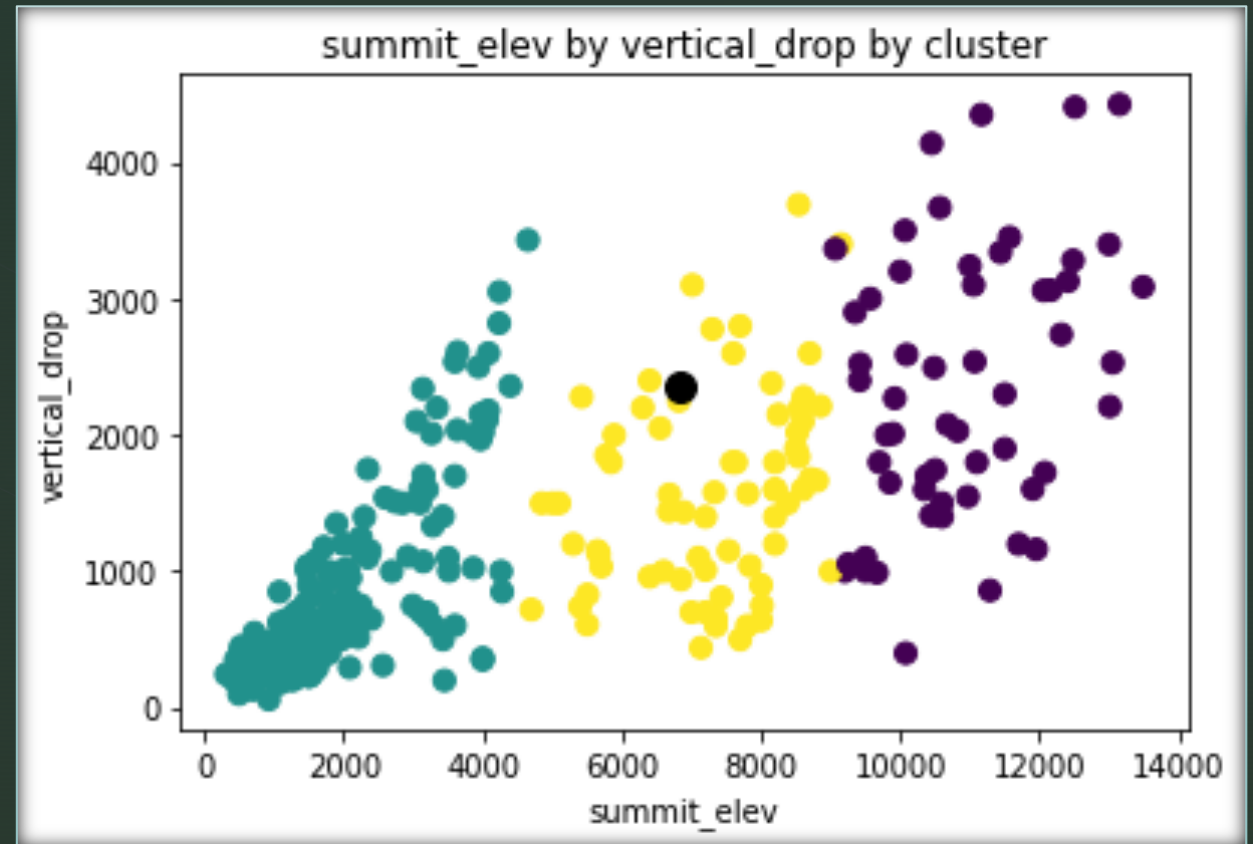
Modeling Results & Analysis

- We standardized our dataset to allow for any machine learning modeling to occur, by handling categorical values, in this case the state feature.

- We then standardized the magnitude of the numeric values in the dataset in order to create a training and testing dataset.

Modeling Results & Analysis

- Because our response variables are continuous, ticket price/sales & days the mountain were open, we opted for linear regression predictive model for using on our training & testing datasets.

- Based on the model performance scores of Explained Variance (0.924) & Mean Absolute Error (5.53), we're looking for the magnitude of impact on our response variable.

  - We adjusted the training dataset, based on those aspects of the business you can't control: the state, summit & base elevations.
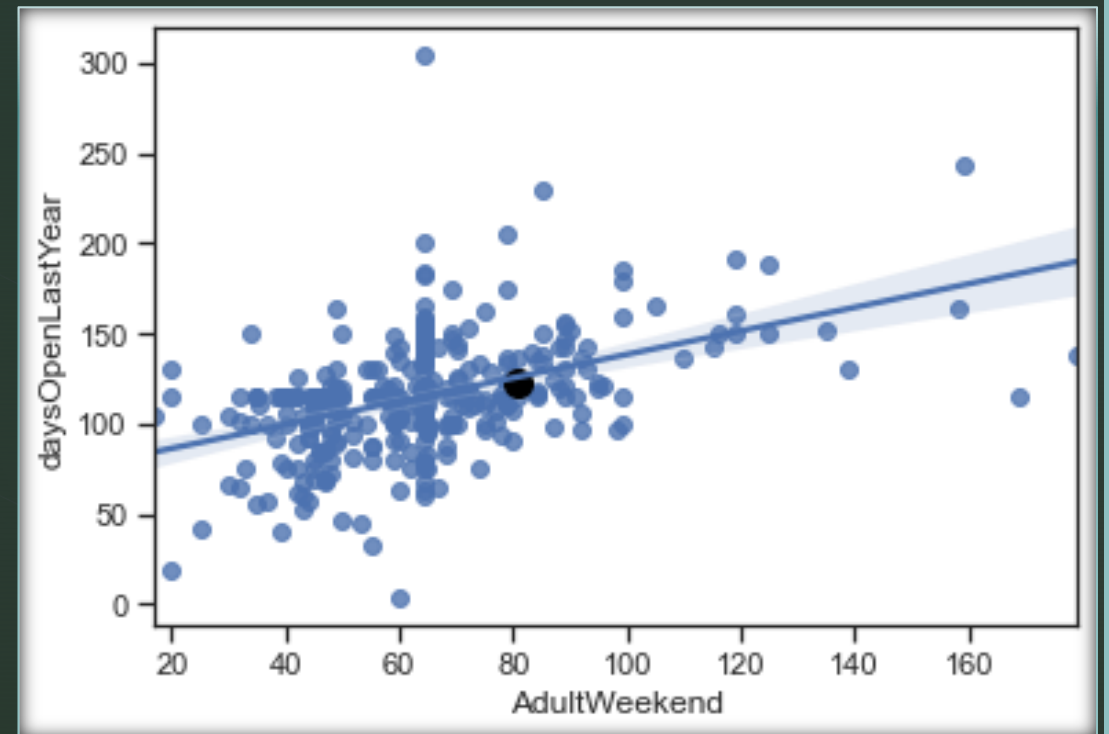
Summary & Conclusion

- $87 Adult Weekend ticket price.

  - Based on our model & given the characteristics of the resort in comparison to other ski resorts and their unique characteristics.

- More days open per season based on Adult Weekend price comparison across competition.