Some key findings

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Springboard

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Outline

- Problem Description
- Modeling methodology
- Results & analysis
- Conclusion

- Big Mountain Resort has recently installed an additional chair lift to help increase the distribution of visitors across the mountain. This additional chair increases their operating costs by $1,540,000$ this season. Every year about 350,000 people ski or snowboard at Big Mountain. This business profit margin is 9.2% and the investors would like to keep it there. What recommendations can be given on recouping the increased operating costs from the new chair this season. Additionally, what can they expect this years' annual revenue to be if they make the changes recommended changes?

The solution process

- To perform this analysis we would like to perform a multilinear regression on the key attributes of the data.

- Since, the prices over the weekends are higher so we would like to get an indication of the factors affecting them–which may guide us in focusing on the key factors to increase the sales revenue.

- This may ultimately boost the profits and recoup some of the cost.

- We will create one extra features by grouping the data into clusters–which may guide us better in the decision process.

Fitted multi linear regression model vs the data
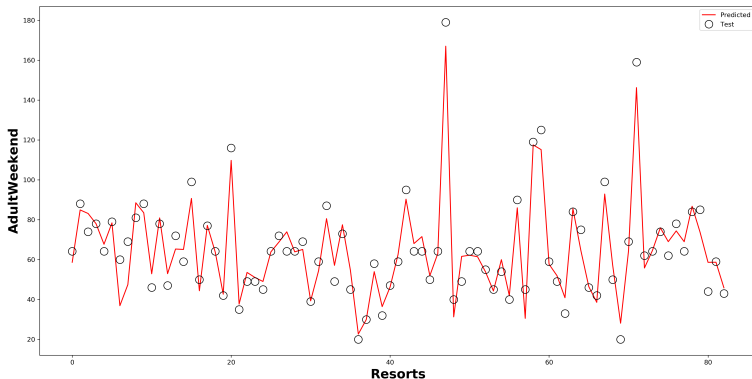
| explained_variance_score	mean_absolute_error	score
0.932	5.152253	0.931722

Computed weights of various features

Features	Coefficient
AdultWeekday	**19.804378**
clusters	**5.785507**
summit_elev	**4.615301**
Runs	**1.778356**
triple	**1.409817**
averageSnowfall	**1.403284**
surface	**1.400849**
vertical_drop	**1.110180**
quad	**1.034007**
fastQuads	**1.030865**

Table: Only features which have a significant weights are shown

Weekend prices after K-means clustering
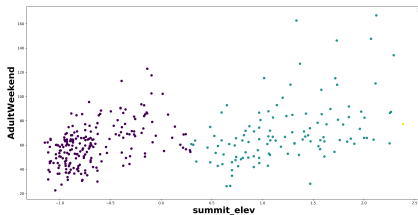
(a) Clustered plot of summit elevation vs prices on the weekend
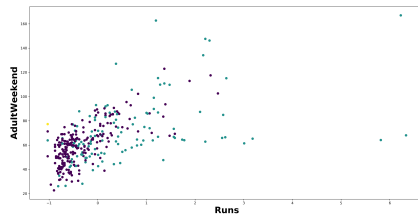
(b) Clustered plot of runs vs prices on the weekend

Figure: Clustered plots (shown in two different colors)

Key findings

- By clustering the data it became evidently clear that the runs which go to the summit have significantly higher prices on the weekend.

- Runs going to the summit are less in number.

- Revenue can be increased by increasing the number of runs going to the summit.

- It can be also increased by tinkering with the feature found to be most dominant in the regression i.e. the AdultWeekdays price.

  - However, this might not motivate the people to come in and can have a negative impact on the revenue streams.