Whitefish Mountain Resort Project Report

July 25, 2020

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Problem Identification

Whitefish Mountain Resort (WMR) 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 $1,540,000.00 this season. Management needs to know how much they can raise the adult weekday and weekend lift tickets to maintain their profit margin of 9.2% this season.

Problem Identification

How much will Whitefish Mountain Resort need to increase their lift tickets to maintain current profit margins this season, while covering new additional operating costs for the new chair lift?

Finding & Recommendation

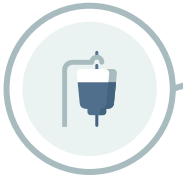
Findings

We have found that Whitefish Mountain Resort has a lower price than their competitors plus their features are stronger than most, at a top 10% across the nation. Our model shows that WMR is undervalued and should consider changing their ticket prices between $4 and $9.

Recommendations

We recommend that Whitefish Mountain Resort increase their adult weekend price to $86.00 to grow the shareholder profit margins goals of 10.12%, but to meet this new profit margin with this new price, the resort needs to stay open an extra week as predicted by our models.

Modeling Results & Analysis



Our Data

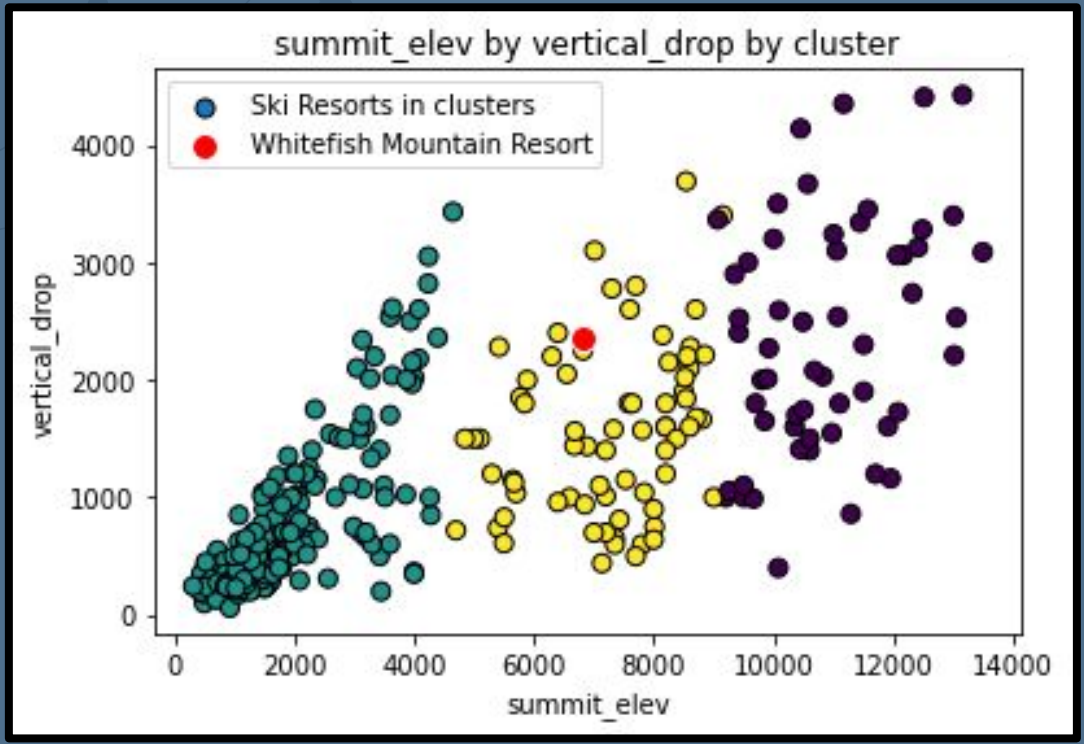
Our dataset contains 330 Ski Resorts with 26 features such as ticket price, years open, lift chairs, elevation, state etc.

Data Limitations

Our dataset contained missing values which required us to make assumptions while filling those empty values.

Data Outliers

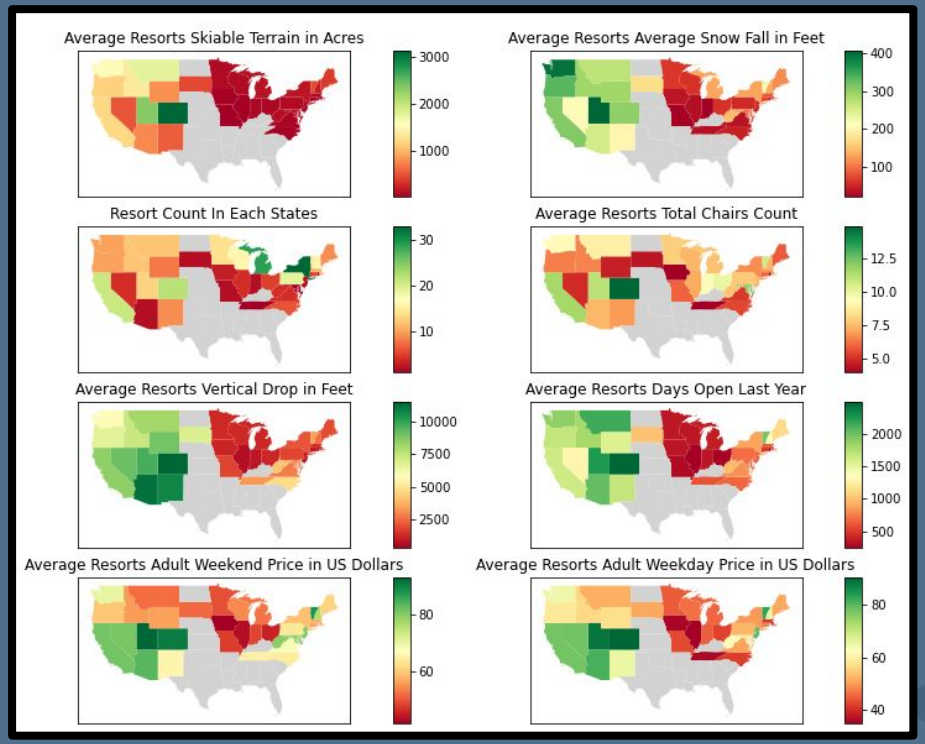
The outliers found in the dataset were left because they were correct observations. They are believed to be outliers because of the missing data.



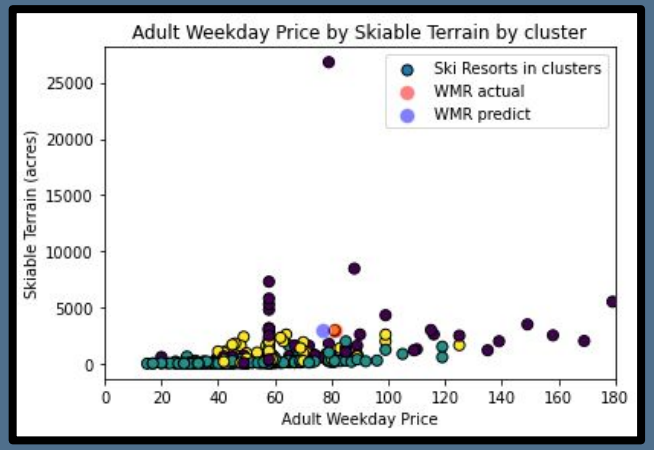
We fit the K-means algorithm with k parameter set to 3. The clusters seem to be created based on the summit elevations, and similar features which are all highly correlated

Figure 1
3 Clusters generated by K-means

Figure 2
US States' Average Resort Statistics



The northeastern states have more options for a more modest experience, but tends to have on average tickets that are much cheaper, smaller mountains, little snowfall, and a fraction runs in comparison to northwestern states.



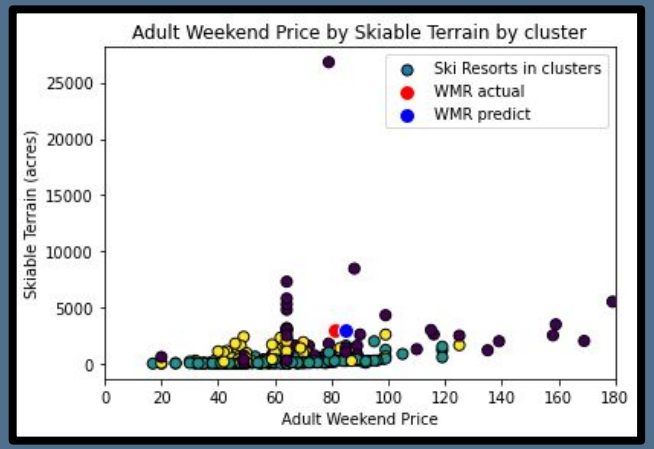
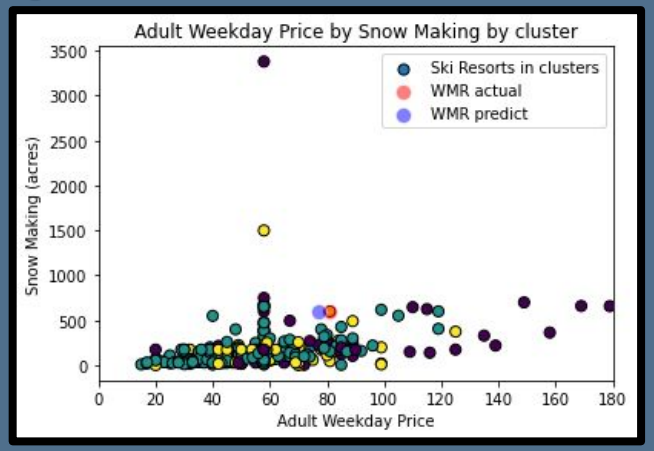


Figure 6
Adult Weekday & Weekend By Skiable Terrain

- Here we can see that the that with WMR being ~$20 more than the mean adult price the amount of skiable terrain is much higher than the mean. WMR's skiable terrain is actually in the top 10%.

- Which give more value to the ticket price when you are riding on a much less crowded mountain.



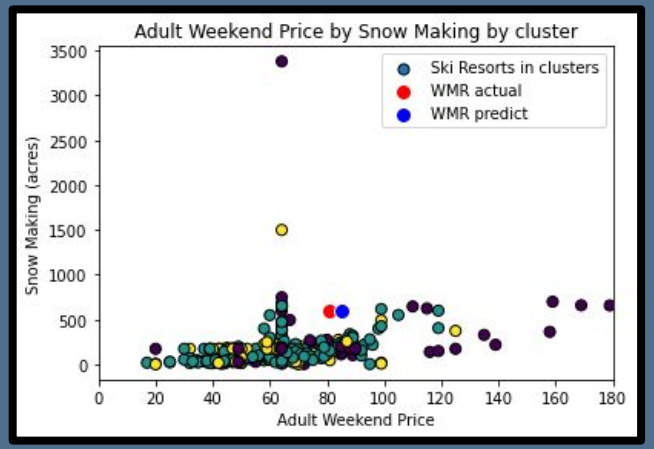
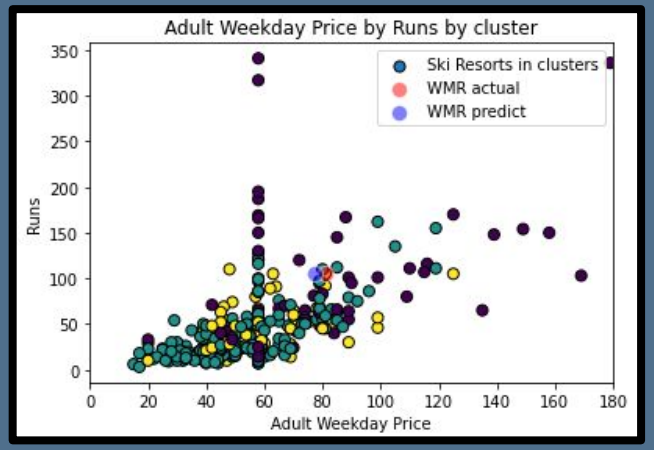


Figure 7
Adult Weekday & Weekend By Snow Making

- While the amount of snow making is much higher than the mean. With WMR's snow making also in the top 10%.

- WMR can maintain it's high skiable terrain even when the weather is not available. Plus, snow making abilities can help extend the snow season.s



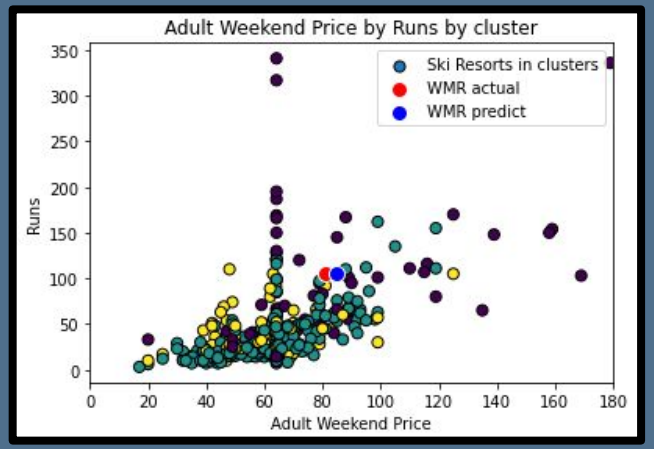
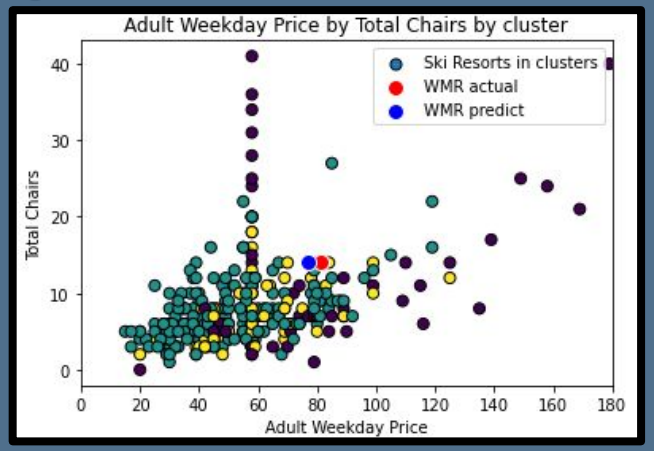


Figure 6
Adult Weekday & Weekend By Runs

- While the number of runs is much higher than the mean. With WMR's skiable terrain in the top 10% and runs are in the top 15%.

- The number of runs is huge for WMR, allowing rides to feel like there is variety. WMR with its beauty allows for amazing tree riding which is all over the park but only accounts for 1 run.



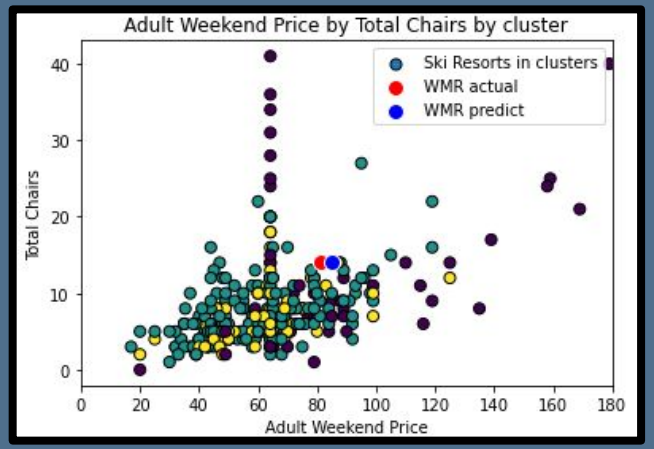


Figure 6
Adult Weekday & Weekend By Total Chairs

- While the amount of skiable terrain, snow making, and runs are all important. Riders at a park can't efficiently utilize the park.
- WMR has top 10% for the number of chair lifts which allows riders to disperse across the mountain.
- Mean prices holds high purple cluster for all 4 figures, null values.

Table 1 Financial Analysis

		Scenario 1 (40% weekday : 60% weekend)		Scenario 2 (25% weekday : 75% weekend)	
		Normal	Changing Price & Predicted Season	Normal	Changing Price & Predicted Season
Operating Revenue					
	Total Operating Revenue	$ 28,350,000.00	$ 30,870,000.00	$ 28,350,000.00	$ 31,145,625.00
Operating Expenses					
	Total Operating Expenses	$ 25,741,800.00	$ 27,746,780.49	$ 28,350,000.00	$ 31,145,625.00
Net Profit					
	Total Net Profit	$ 28,350,000.00	$ 30,870,000.00	$ 28,350,000.00	$ 31,145,625.00
	Net Profit Margin	$ 28,350,000.00	$ 30,870,000.00	$ 28,350,000.00	$ 31,145,625.00

Assumption 1: 350, 000 annual skiers.
Assumption 2: The number of weekday skiers is 40% or 25%, and weekend skiers are 60% or 75%.
Assumption 3: Only the net profit margin, there is not enough information to calculate gross or operating profits.
Assumption 4: OPEX doesn't change with the new lift, but changes with an increase in season length of 5%.

Summary & Conclusion

Whitefish Mountain Resort

Weekend Price: $86.00

Projected Season Length: 130 Days

Profit Margins: 10.12%

We ***analysed*** model results to recommend an increased ticket price and bring insights to season length

We ***recommend*** an increase in the weekend ticket prices to $86.00.

We ***predict*** profit margins will increase to 10.12%, with new price change and season length.

Our ***next steps*** would be gathering more data to improve models and see what type of curveball COVID-19 might throw.

Thank You

Code Is On Github