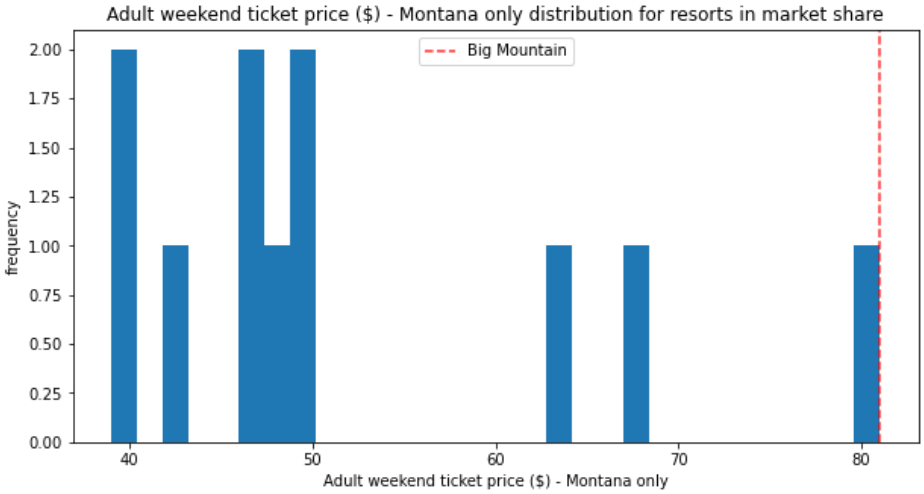
A data analysis of Big Mountain Resort's facilities and ticket prices relative to other resorts in their market segment gave insight into several strategies to improve their current pricing strategy and cut down on operating costs. The goal of this analysis was to get a better, data-driven pricing model, instead of the current pricing strategy of picking an above average ticket price relative to other resorts in its market segment.

From data exploration, the weekday vs. weekend ticket pricing was the same in the state of Montana, so it makes sense to keep this pricing strategy. There are only 11 resorts in Montana, so looking at the distribution of ticket prices of resorts in Montana shows that Big Mountain Resort is already at the highest end of ticket prices, as shown in the graph.



However, being on the top end of the pricing range is not informative to Big Mountain Resort's pricing strategy, and they need to look at data from other resorts in different States that provide similar perks/pricing.

The machine learning model incorporated internal data provided by Big Mountain Resort's Database Manager and state population data from Wikipedia. Numeric features were adjusted for state population (per 100k population) so that resorts across states were adjusted for density before a comparison.

The model predicts Big Mountain's ticket price to be approx $4.50 higher than the current price of $81 for a weekend ticket, suggesting there is room for a price increase for the current facilities at Big Mountain Resort.

A few facility upgrade scenarios were also modeled and the most promising one evaluated was to increase the vertical drop by adding a run to a point 150 feet lower down and installing an additional chair lift. The model predicted the change in ticket price to be an additional $1.99 per ticket. Because Big Mountain Resort has 350,000 customers per year, over the season, the predicted increase in revenue from this scenario would be $3.47 Million.

This scenario would add to the existing facilities and increase the competitiveness of Big Mountain Resort and allow them to justify increasing their ticket price. This raise in ticket price would be enough to offset the additional operating cost of the new chair lift installed this season (cost of 1.54 Million). Although this scenario requires an upfront amount of capital investment (it is unclear if the operating cost of each additional new chair lift includes the upfront chair lift installation), the increase in revenue from this facility upgrade is still a viable strategy for Big Mountain Resort.

For future seasons, I would recommend that leadership look into cutting down on facilities that make little to no difference in ticket price, such as removing a run (the predicted ticket price had no price change) as a way to cut operating costs. As shown in red on the graphs of the distribution of facilities of resorts, Big Mountain Resort sits on the high end of a lot of facilities counts such as snow making area, total number of chairs, total number of runs, and skiable terrain area.
The machine learning model can be used to predict the magnitude of ticket price changes Big Mountain Resort would expect to see for reducing facilities provided and thus reducing operating costs.