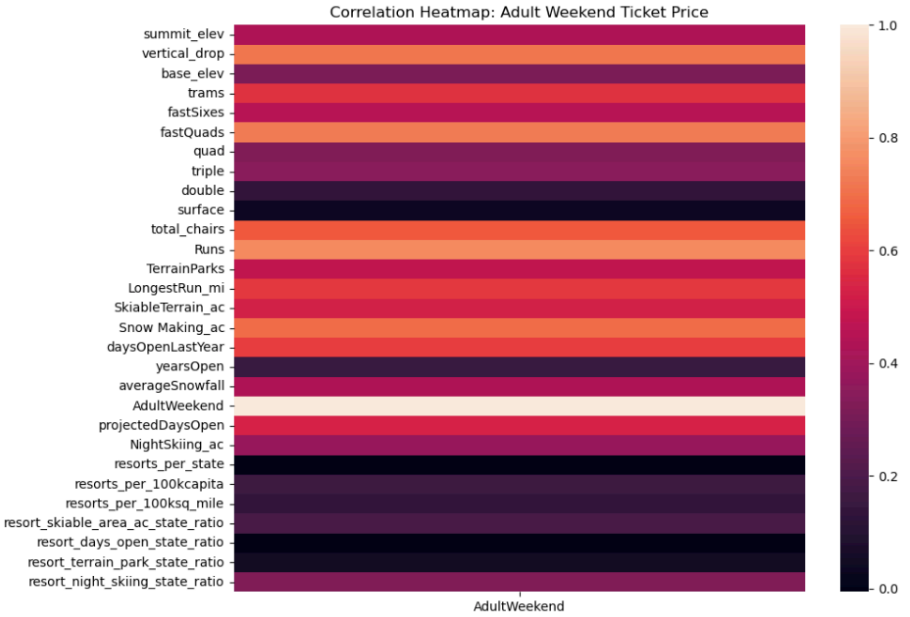
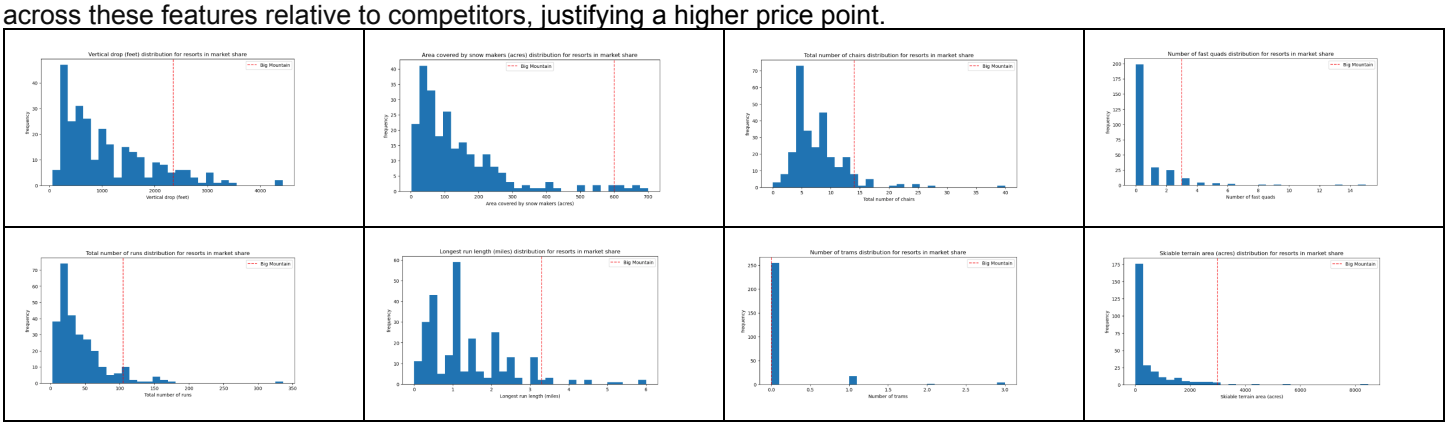
Context & Overview
Big Mountain Ski Resort, located in Montana, is a premier destination known for its diverse facilities catering to skiers of all abilities. Historically, the resort priced tickets based on market averages, but the current strategy overlooks the true value of the resort's amenities. The purpose of this analysis is to optimize the organization's pricing strategy and increase revenue by 10% before the upcoming ski season through facility investments or streamlining operational costs, without compromising customer satisfaction or market standing.

Methodology
This analysis reviewed data from 277 resorts across 25 different features, with Adult Weekend Ticket Price as the target feature. Rigorous data cleaning ensured accuracy and uniformity. While initial exploration examined state-wise correlations, a unified model treating all states equally was favored due to the absence of clear patterns. Additionally, there appeared to be strong positive correlations between ticket price and fast quads, runs, and snow making, suggesting visitors prioritize guaranteed skiing when choosing a resort and are willing to pay a premium.



During data-processing and model training, data was partitioned into training and testing sets, maintaining only numeric variables. Predictors were evaluated using mean, linear, and random forest models. The random forest model was selected for its superior performance, validated through cross-validation, and overall lower variability.

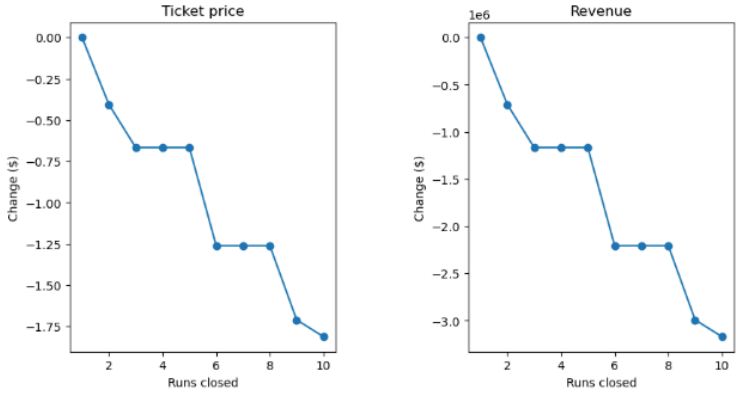
Modeling & Exploring Options
Eight key features were identified as significant predictors of ticket price, including vertical drop, snow-making, total chairs, fast quads, runs, longest run distance, trams, and skiable terrain. Big Mountain demonstrated exceptional performance across these features relative to competitors, justifying a higher price point.



The business shortlisted four potential options to maximize revenue, which are as follows:

1. **Permanently closing 10 of the least used runs**
   While this option reduces operating costs, Big Mountain should exercise caution, if they implement this approach. The analysis indicates that closing runs has a gradual impact on ticket prices, and subsequently, revenue, with a

significant decrease if 6 or more runs are closed.



2. **Increasing the vertical drop by 150 ft and adding a chair lift, without additional snow making**
   This option presents an opportunity to enhance the skiing experience, supporting an additional $1.99 increase in ticket price.
3. **Increasing the vertical drop by 150 ft, adding a chair lift, and additional two acres of snow-making coverage**
   Despite the added snow coverage, this option did not yield a significant gain in ticket price, suggesting limited returns on the investment in additional snow-making operating costs.
4. **Increasing the longest run by 0.2 mi and increasing snow-making by 4 acres**
   Increasing the longest run distance and snow-making area had no discernible impact on ticket price.

Recommendation & Looking Ahead
Currently priced at $81.00, Big Mountain can enhance its revenue by implementing Option 2. By adding 150 ft to the vertical drop and installing a new chairlift, the resort can support a ticket price increase of $1.99, projecting additional revenue of $3,474,683 annually. This option entails a one-time installation expense, with negligible operating costs associated with the new chairlift. If Big Mountain is interested in run closures, they can explore this through a phased approach, starting with temporarily closing the least used runs. Based on feedback from visitors, ticket sales data, and staff input on operational changes, Big Mountain can evaluate whether additional runs should be closed or if it is necessary to reopen.

While this analysis provides valuable insights, there are additional areas for exploration to further enhance revenue optimization and operational efficiency. Expanding the scope beyond just ticket prices, future analyses should consider other revenue streams such as rentals, lessons, dining, or lodging to provide a more holistic evaluation of the resort's financial health. Moreover, the analysis assumes that all resorts accurately price their tickets, which may not necessarily be the case. Further investigation into pricing strategies of competitors and market dynamics could provide deeper insights into potential pricing adjustments and market positioning.

Integration of the model into Big Mountain’s operational processes and decision-making processes is recommended. An interactive dashboard for real-time testing of inputs and variables would enhance accessibility and allow for ongoing optimization. Additionally, empowering staff through training sessions on understanding and utilizing the model would facilitate data-driven decision-making across the organization, fostering a culture of continuous improvement and innovation.