

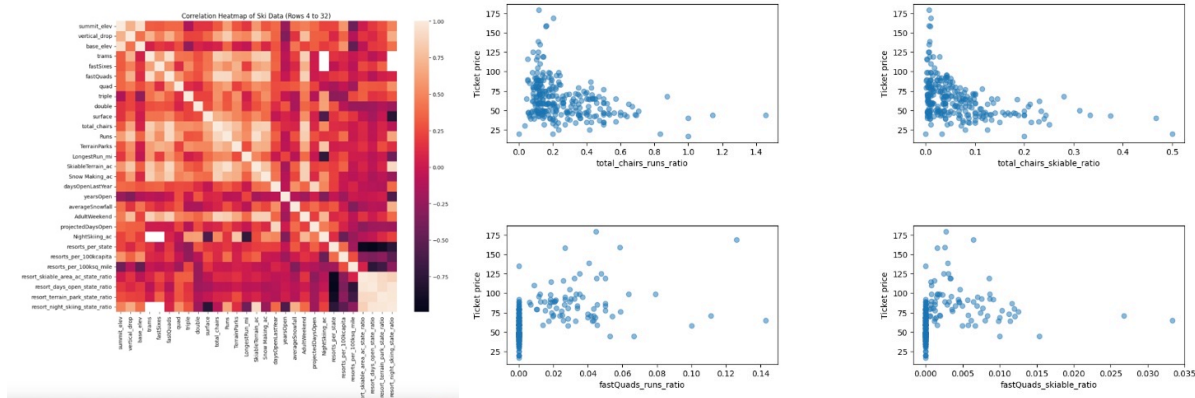
## **Big Mountain Ski Resort Business Recommendations**

Big Mountain Resort has been using a pricing strategy that places a premium over the market average for resorts in its category. However, there are worries that this technique does not properly use the resort's capabilities and potential. The resort recently boosted its operating expenses by \$1.54 million due to the addition of a new chair lift but has yet to review its pricing strategy based on the value that individual amenities provide. This lack of understanding makes it difficult for the resort to efficiently plan investments and optimize pricing.

The resort requires a data-driven method to identify a more exact value for its ticket price, taking into consideration the use and effect of its amenities. Furthermore, it is looking for ways to reduce operational expenses or boost ticket prices without alienating consumers. As part of a new data science team, the purpose is to help the company make these choices by analyzing data from 330 similar resorts around the United States.

The data includes 330 ski resorts, their faculties amounts, and their ticket prices. In order to understand the data deeply, we do data wrangling and exploratory data analysis (EDA) in the initial part. We got the distribution of the tickets in each state. We also plot the distribution of the all the features. In addition, by using data visualization, the heatmap is a great way to gain a high-level view of relationships amongst the features. The association

between ticket pricing and chairs/runs and having a quad lift may enhance the ticket price.



After we found the important features, we tried to find the suitable regression model for this business system. Comparing to linear regression, the result shows that random forest regression has the better performance, which has a lower MAE value. Once you've completed modeling, we offered a few scenarios to evaluate the ticket cost if certain characteristics were adjusted. In summary, we found that if Big Mountain added a run, increasing the vertical drop by 150 feet, and installing an additional chair lift, it could increase the ticket price by \$8.61. Moreover, the other method may affect the business profit. When repeating the previous one but adding 2 acres of snowmaking, this scenario increases support for the ticket price by \$9.90. By using tests of the scenario, the model could support the manager to think if they could adjust the facility to increase the revenue.

Even though we found the chances to increase the ticket price in the specific conditions, it may exist some limitation. Because the only price data in our dataset were ticket prices, we might miss other critical information, such as other operation costs.