The goal of this project was to find a solution to the question that Big Mountain Resort is trying to solve: The business wants some guidance on how to select a better value for their ticket price. They are also considering a number of changes that they hope will either cut costs without undermining the ticket price or will support an even higher ticket price. Using the Data Science Method, we try to find answers to this difficult problem.

Using the ski_data dataset, we used data wrangling to help clean the data and to fix any formatting issues. In the next step of Exploratory data analysis (EDA), we used **AdultWeekendprice** column to find any relationship with the other columns in the dataset. From there, the dataset was preprocessed to prepare for model training and imputing on the missing values. We then used different models using the linear regression model and the random forest to train and test the data.

For the linear regression mode, the top features to consider that will impact ticket prices are: vertical_drop, Snow Making_acm total_chairs, and fastQuads. For the random forest mode, it was fastQuads, Runs, vertical_drop, and Snow Making_ac. The random forest model has a lower cross-validation mean absolute error by almost $1. It also exhibits less variability.

Big Mountain Resort modeled price is $95.87 versus the actual price is $81.00. Even with the expected mean absolute error of $10.39, this suggests there is room for an increase. Comparing our resort to others using different models, we see Big Mountain is in the upper echelon for these observed categories.

From our modeling scenarios, we have expected attendance of 350,000 people and that they will usually purchase a 5 day ticket, meaning we should see expected revenue of $3,474,638. That means we would need to increase our ticket price by $1.99, or the ticket price of about $82.99. We tested some features like: Runs, vertical_drop, total_chairs, Snow making_ac, and LongestRun_mi to help us come with this conclusion.

We should look into other relationships of the key features to see if there are other ways we can increase the ticket prices taking into account the additional lift that was added. However, we should explore other ways to cut cost by exploring the operating cost through additional columns to see if there are things we can cut back without jeopardizing customers.