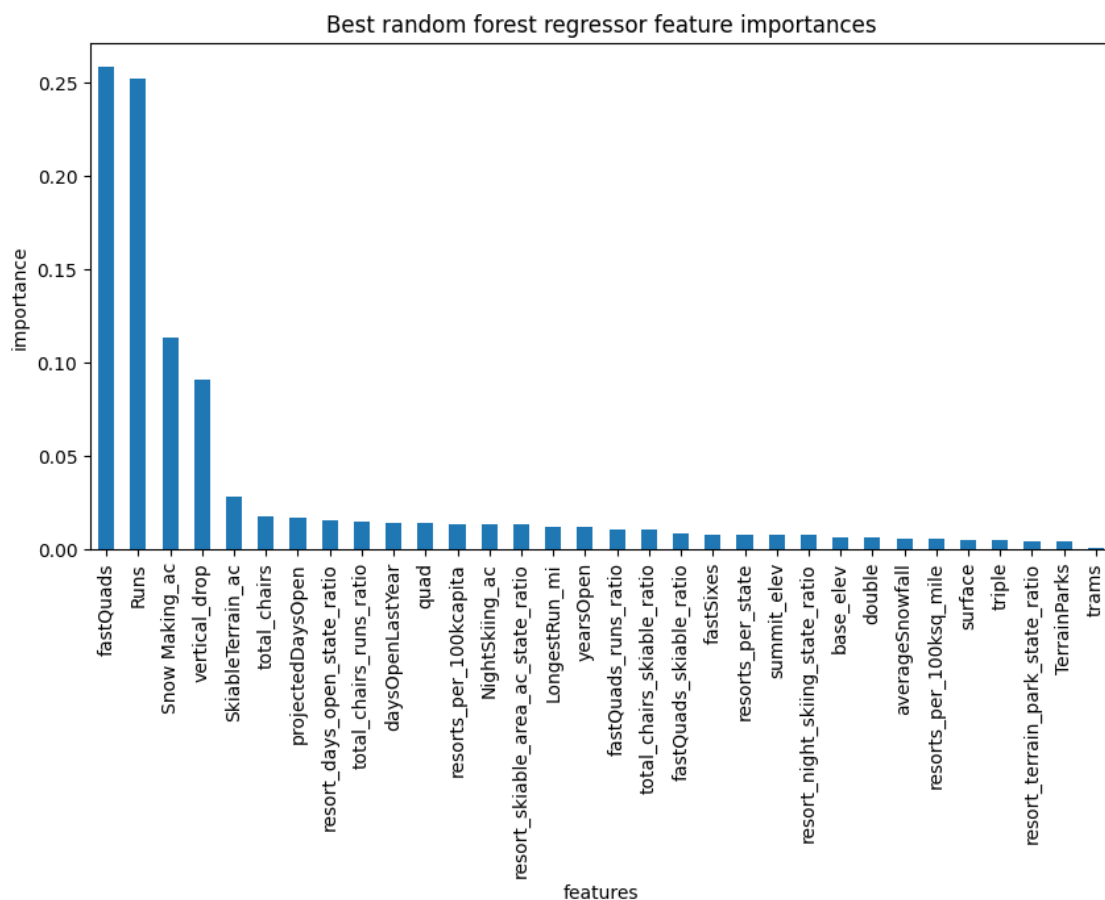


## Data Analysis and Insights

Big Mountain Resort is facing a significant increase in operational costs due to a newly installed chair lift. The resort needs to adjust its ticket pricing to reflect the added value of its new chair lift and premium facilities, aiming to offset the \$1,540,000 increase in operating costs while enhancing visitor distribution and the resort experience within the current ski season.

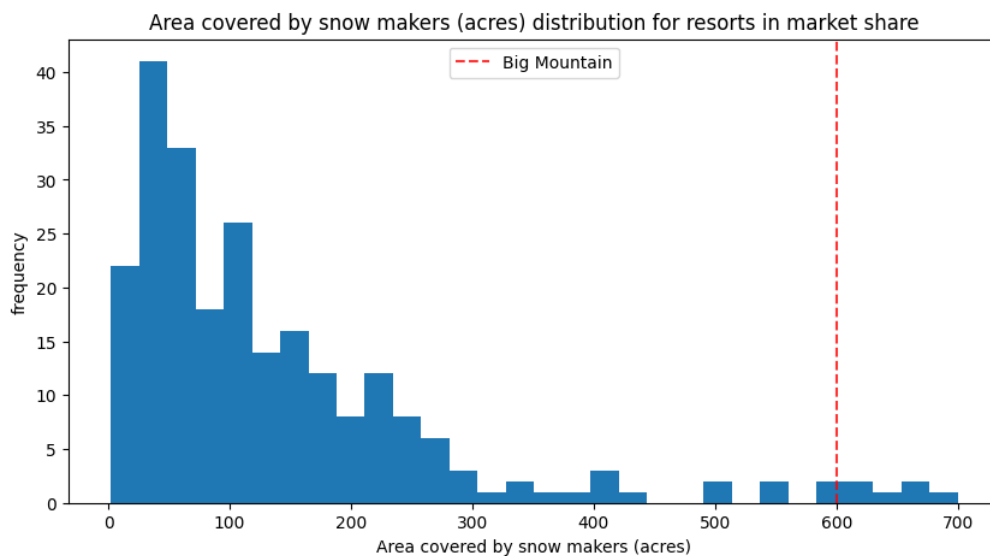
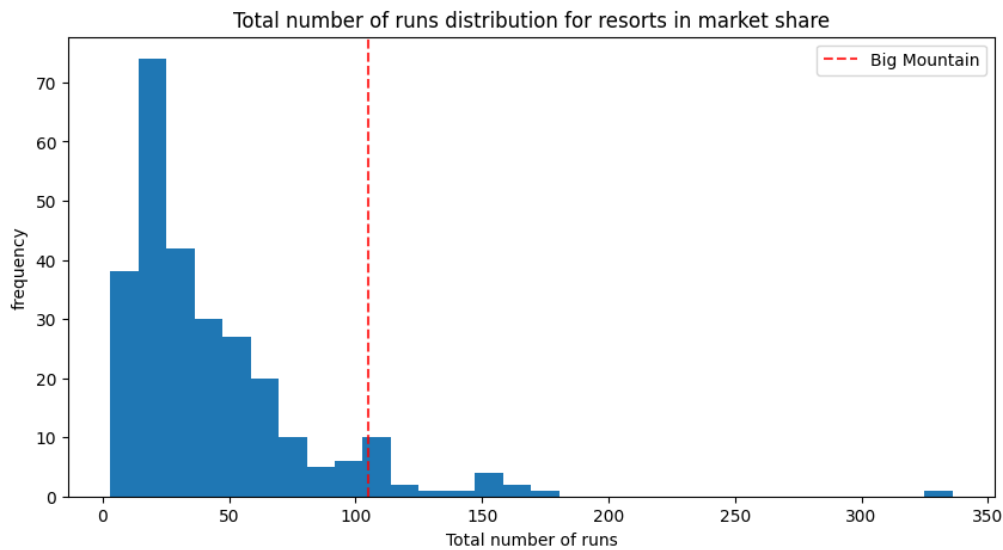
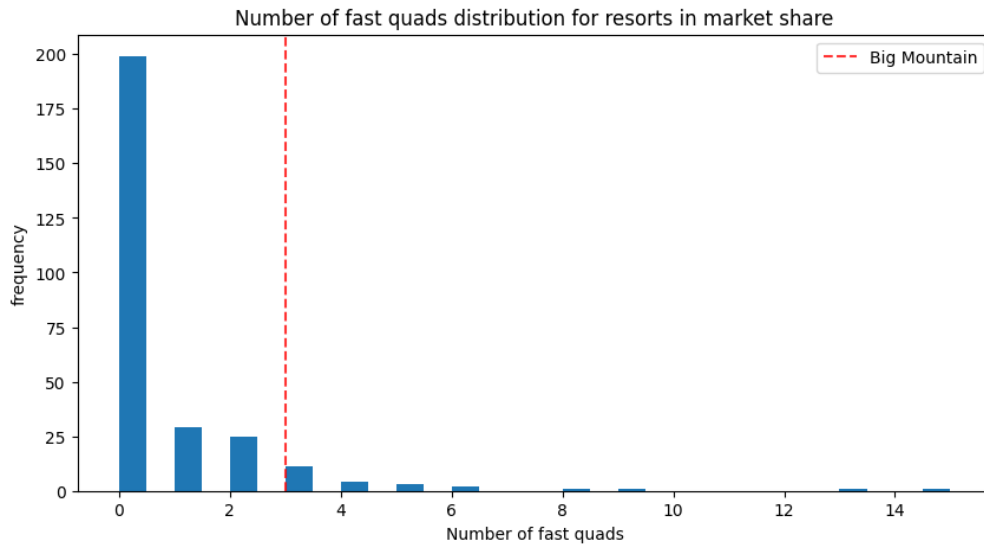
Our exploratory data analysis focused on ski resort data, revealing patterns suggesting a relationship between state and ticket price. Significant correlations were observed in features like fastQuads (number of fast four person chairs), Runs, and Snow Making\_ac (area covered by snowmaking machines in acres). These insights guided our decision to include these features in our modelling process.



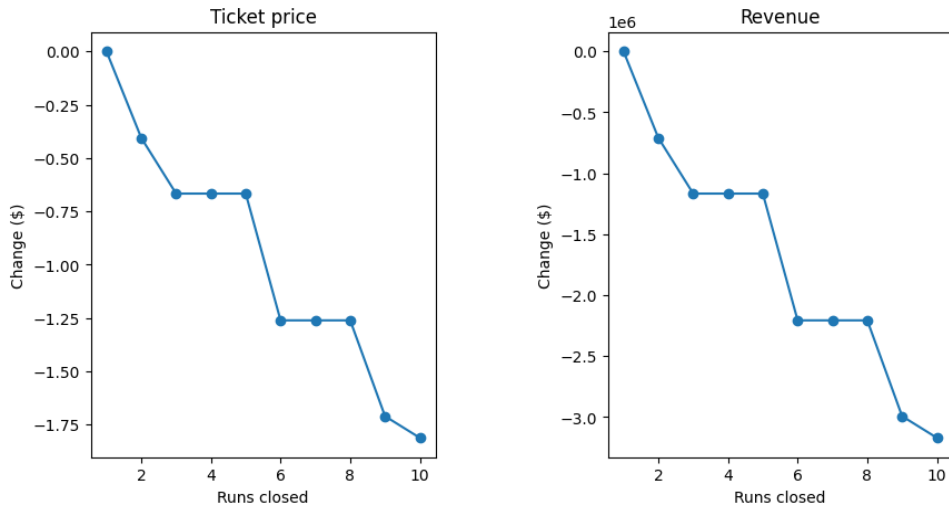
## Recommendations and Scenario Modelling

After establishing a baseline performance using the average price, we trained and compared the performance of two models and decided to proceed with the random forest model. This model suggests that the price could be USD 95.87 (with a mean absolute error of USD 10.39). Given that the expected number of visitors over the season is 350,000 and, on average, visitors ski for five days, the extra revenue from the price increase would be USD 26,021,486.

Although Big Mountain prices are relatively high, when compared to the other resorts in the state of Montana, the exploratory data analysis showed that Big Mountain has a lot of facilities that are not available in other resorts, such as a large number of chairs, fast quads, runs, and skiable terrain areas. Therefore, the model suggests that Big Mountain could increase its ticket price by USD 14.87, which is an 18.4% increase.



We also explored scenarios of closing up to five runs, which would impact the revenue by USD -1,166,667. If Big Mountain decides to close more than five runs, revenue will drop dramatically. On the other hand, adding a run, increasing the vertical drop by 150 feet, and installing an additional chair lift would have an impact on the revenue of USD 3,474,638.



## Conclusion and Future Scope

We recommend adopting the scenario of adding a run, increasing the vertical drop by 150 feet, and installing an additional chair lift, but raising the price by more than USD 1.99 and towards the USD 95.87 suggested by the model. However, we should be cautious not to increase the price too much, as the model is not perfect and we lack some key data, such as the consumer's price elasticity of demand.

In the future, we should consider conducting a survey of the visitors to Big Mountain Resort to learn about customer satisfaction, loyalty, lifetime value, acquisition cost, retention cost, and price elasticity of demand. This will provide us with more comprehensive data to refine our pricing strategy.