Recommendation for Big Mountain Resort:

Big Mountain Resort, a ski resort in Montana recently installed an additional chair lift to increase the distribution of visitors across the mountain. The operating cost is increased by approximately 1.5 million due to the additional chair lift. The Resort ticket pricing is based on above the average price of resorts in its market segments. The management wants to revisit their pricing strategy either by increasing ticket prices or by cutting the operating cost because they suspect that they are not capitalizing as much as it could.

Based on the provided dataset, which contains detailed information of 330 resorts across the USA, a machine learning model is developed to predict the ticket price of the Big Mountain Resort and summarized the findings as follow:

The model suggests that the ticket price could go up to $94.22 which is approximately $13 more than their current price of $81. The features such as runs, fastquads, snowmaking_ac, and vertical drop are found to be the most important to determine the ticket price (Fig 1).

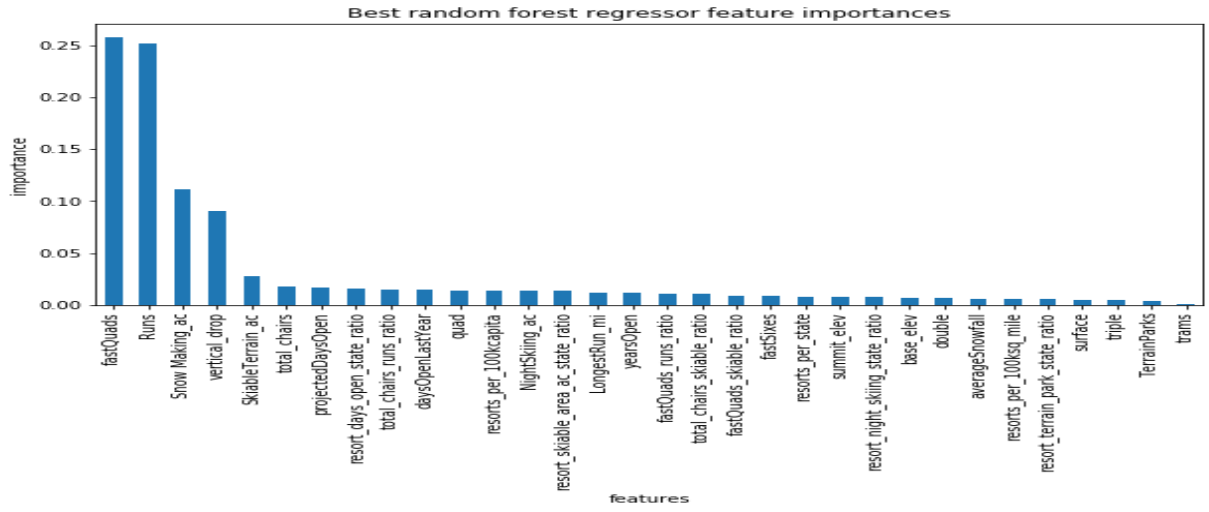

Fig 1: Visualizing feature Importance, which shows their importance in determining ticket price.

Based on the scenarios provided by the management, the following is the recommendations:

1. Closing Runs:

   The model suggests that closing one Run does not affect the ticket price and revenue. Closing 2 to 3 Runs slightly affects the ticket price and the revenue. If they want to close 3 runs, then they may close 4 or 5 runs because there is no further loss. However, closing 6 or more runs significantly reduces the revenue (See Fig 2).

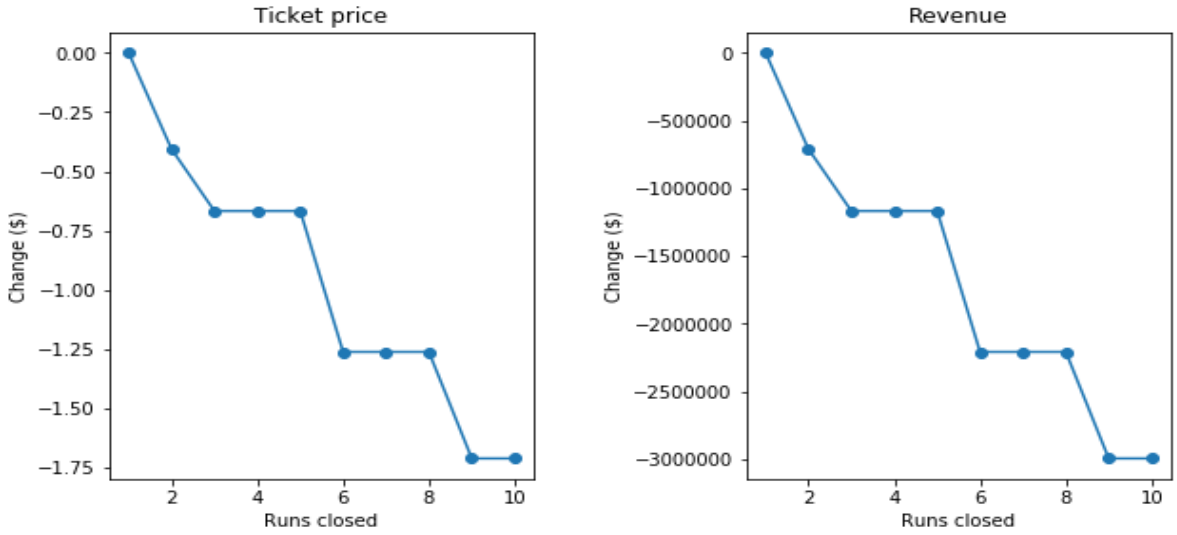

   Fig 2: Changes in the ticket price and revenues due to Run closure.

2. Increasing Vertical drop

   By adding a vertical drop by 150 ft, the ticket price could be increased by $1.99, resulting in a revenue of 3.5 million. This also supports the fact that there are still a few resorts with a greater drop (See Fig 3).

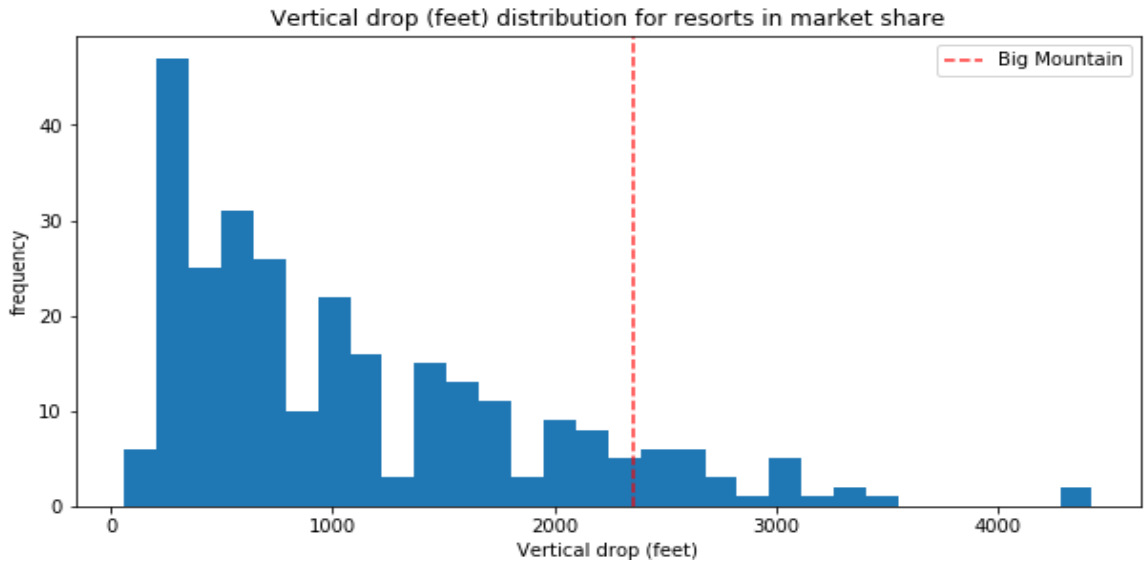

Fig 3: Frequency distribution of vertical drop. The red dash line represents Big Mountain.

3. Adding extra snowmaking area make no difference in revenue collection.
4. Increasing the longest run by 0.2 miles would not support the ticket price.

Conclusion:

From the above analysis, the best way to increase the revenue is by adding a vertical drop by 150 ft.