Big Mountain Resort is a ski resort in Montana with wide offerings of skiable terrain, runs, lifts, and other supporting services. On average per season, they attract 350,000 skiers who stay for 5 days. Recently they installed a new lift that increases their operating costs by $1.54m per season. Historically they have priced their tickets based purely on the average of other resorts in their market range, but they suspect that they may be undercharging based on the features they offer. They would like to know two things: how much they could actually charge based on their features, and whether any number of changes they are considering could either cut costs or support an even higher ticket price.

Built on data from all other US ski resorts within Big Mountain’s market range, I created a model to predict ticket price based on the resorts’ features most highly correlated with ticket price. Currently, Big Mountain charges $81.00 per adult ticket on weekends. If they were to price based on the features they offer, the model predicts that the true value of the ticket should be $108.30 - significantly higher than the current price, even accounting for error. Assuming the seasonal attendance of 350,000 skiers who stay for 5 days each, increasing the price from $81.00 to $108.30 would result in a [350,000 \* 5 \* ($108.30 - $81.00) = **$47.78m**] **increase** in revenue.

A deeper look at Big Mountain’s features further validates the increase in ticket price: it shows that they often offer much more than do its competition. Analysis showed that the eight unique resort features most likely to influence ticket price are vertical drop, snow-making area, total number of lifts, number of fast quad lifts, number of runs, length of the longest run, number of trams, and total skiable terrain. Out of all comparable resorts, Big Mountain ranks near the top in each of the features except for vertical drop and number of trams, the former of which it still ranks highly, and the latter of which most parks have none of. Big Mountain is therefore undercharging for its ticket price because they are basing it around the average resort while offering above-average features.

The ticket price increase alone would greatly compensate for the operating cost of the new lift, but Big Mountain is additionally considering four scenarios to further increase revenue: permanently close up to 10 of the least used runs; increase the vertical drop by 150 feet and install an additional lift to support this drop, **without** additional snow-making coverage; increase the vertical drop and install the additional lift similarly, but **with** additional snow-making coverage; and increase the longest run by 0.2 miles to 3.5 miles, requiring 4 additional acres of snow-making coverage. I modeled each of these scenarios and determined the expected price increase allowed as a result. Only the second scenario allowed for a price increase, from $81.00 to $84.00; this would lead to a [350,000 \* 5 \* ($84.00 - $81.00) = **$5.25m**] **increase** in revenue, although it did not consider the operating cost of the additional list. The third scenario, with its additional snow-making coverage, would only have further increased operating cost compared to the second, and the fourth scenario would not allow for a price increase at all. Finally, with regards to the first scenario, closing the least used run would not call for a price decrease, but closing two to eight runs would call for a price decrease of $0.80, leading to a **$1.4m decrease** in revenue, and closing nine or ten runs would call for a price decrease of $1.00, leading to a **$1.75m decrease** in revenue, all of which decreasing operating costs by an unknown amount. The recommended changes, therefore, would be to increase the vertical drop and install the required lift, and to close the single least used run.