The business problem was a general one of modeling resort revenue. You approached me hoping to gain some insight on your current pricing compared to that of your peers - other resorts. Combining the dataset you gave us with that from state park data we wanted to know which features correlated most with your peers prices and similar features, and then use these insights to predict a reliable price for Big Mountain Resort. Through our studies, we have found the Big Mountain Resort modelled price to be $94.22, when the actual price is $81.00. Even with the expected mean absolute error of $10.39, this suggests there is room for an increase. The fact that our resort seems to be charging that much less than what's predicted suggests our resort might be undercharging.

Furthermore, we managed to isolate specific features by using a datapool of 36 separate variables, everything from total skiable area, vertical drop, whether the resort offered night skiing, the ratios of resorts per capita so on and so forth, to examine which variables both positively and negatively impacted the price that resorts sell their tickets to consumers. Features that came up as important in the modeling included:

```
Out[119]: vertical_drop        10.767857
          Snow Making_ac        6.290074
          total_chairs          5.794156
          fastQuads             5.745626
          Runs                  5.370555
          LongestRun_mi         0.181814
          trams                -4.142024
          SkiableTerrain_ac    -5.249780
          dtype: float64
```

The list can be broken down by tier, where the top 5 variables all contribute positively to the ticket pricing. Strangely enough, skiable terrain actually has a *negative* impact on ticket pricing, suggesting a propensity for consumers to pay a premium for exclusivity compared to resorts with larger total ski areas. This fact will become important as we transition to real business recommendations for Big Mountain Resort and how we can use that negative relationship to close areas but save money at the same time.

Big Mountain Resort has been reviewing potential scenarios for either cutting costs or increasing revenue (from ticket prices). Being able to sense how facilities support a given ticket price is valuable business intelligence. The results suggest that vertical drop is your biggest positive feature. This makes intuitive sense and is consistent with other statistical analysis we performed. This also proves to be a selling point for Big Mountain Resort and more than justifies the price of $81.00. Onto another positively impacted variable, snow making, you see the area covered by snow making equipment is a strong positive correlation as well. People like guaranteed skiing! And finally, fast quads have proven to be an effective selling point for consumers and another reason for projected higher pricing. Fast quads are rare as less than 75% resorts even have a single fast quad, while Big Mountain Resort has 3, giving us another reason to reconsider what we're currently pricing. So now the million dollar question - what is our solution?

Knowing what we know, here's one scenario we tested to see impact on your bottom line:

1. Permanently closing down up to 10 of the least used runs. This doesn't impact any other resort statistics.
2. Increase the vertical drop by adding a run to a point 150 feet lower down but requiring the installation of an additional chair lift to bring skiers back up, without additional snow making coverage
3. Same as number 2, but adding 2 acres of snow making cover
4. Increase the longest run by 0.2 mile to boast 3.5 miles length, requiring an additional snow making coverage of 4 acres

The expected number of visitors over the season is 350,000 and, on average, visitors ski for five days. Assume the provided data includes the additional lift that Big Mountain recently installed. The model says closing one run makes no difference. Closing 2 and 3 successively reduces support for ticket price and so revenue. If Big Mountain closes down 3 runs, it seems they may as well close down 4 or 5 as there's no further loss in ticket price. Increasing the closures down to 6 or more leads to a large drop.

Big Mountain currently charges $81.99 for a ticket. Big Mountain would benefit by adding a run, increasing the vertical drop by 150 feet, and installing an additional chair lift. This scenario increases support for ticket price by $1.99 and, over the season, this could be expected to amount to $3474638, which is calculated using our expected visitors multiplied by the average amount of times visited per year, which is 5 days, and then multiplied by the new ticket price. The new dollar amount is negligible to the average consumer, and way lower than our almost $14 projection price. Knowing your resort from a bird’s eye view shows that consumers are getting incredible value compared to competitors on a national scope. My recommendation for other features that should be considered are installation of fastQuads, and a higher vertical drop. Statistically speaking, fastQuad is the model's most important feature, followed closely by vertical drop.