

# BIG MOUNTAIN SKI RESORT

TICKET PRICE ANALYSIS BY  
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## PROBLEM TO BE SOLVED

- Big Mountain Ski Resort wants to select a better value for its ticket price, but is unsure what is the best approach
  - It is suspected that there is an opportunity to better capitalize on existing facilities
- Recently made a big investment in an additional ski lift that needs to be recouped by increasing ticket price, reducing costs, or some combination of the two
- Wants to take a data-driven approach to help determine the best path forward for solving these problems

# RECOMMENDATION AND KEY FINDINGS

## Top Recommendations:

- Add an additional run that results in an extra 150 feet of vertical drop at the resort
- Install an additional FastQuad chair lift for the new run
- Add 2 acres of additional snowmaking to the new run
- Increase ticket price by ~\$18.50 per ticket

## Net Expected Result of Implementing These Recommendations:

- Over \$3M+ in additional revenue per year (assuming 350,000 visitors per year that each ski for an avg of 5 days per year)

## Key Findings Behind this Recommendation:

- Our modeling suggests that this combination of enhancements would support and justify the biggest ticket price increase



## MODELING RESULTS AND ANALYSIS

### Our approach:

- Combined ski resort market data with a useful state dataset
- Cleaned the data and scaled to make useful for analysis, so that we can be confident in the net output of our models
- Determined which facilities (i.e., features) of resorts have the strongest correlation to higher pricing
- Trained our model on these features, and in the process optimized so that it could generalize price predictions as accurately as possible when exploring various scenarios



# MODELING RESULTS AND ANALYSIS

## Analysis Step #1 - Determine the Key Features of Resorts:

- After data wrangling and cleaning, our initial exploration of the data revealed that the following resort features had the strongest relationship to higher pricing:
  - Vertical Drop
  - Total Snow Making (by acreage)
  - Total Chairs
  - Total FastQuad Ski Lifts
  - Total Runs
  - Longest Run Length (by mileage)
  - Total Trams
  - Total Skiable Terrain (by acreage)



# MODELING RESULTS AND ANALYSIS

## Analysis Step #1 - Determine the Key Features of Resorts:

- Using several analysis approaches to refine our focus on the highest impact features, it became clear that the following features had the highest correlation with our target feature, ticket price.
  - Vertical Drop
  - Total Snow Making (by acreage)
  - Total Chairs
  - Total FastQuad Ski Lifts
  - Total Runs
  - Longest Run Length (by mileage)
  - Total Trams
  - Total Skiable Terrain (by acreage)



# MODELING RESULTS AND ANALYSIS

## Analysis Step #2 – Determine the Best Performing Model:

- With our 4 key features narrowed down, we trained, tested, then compared the model performance results of a linear model and a random forest model
- The winner?
  - Random Forest
- Because the random forest model performed best, we choose to use this model for the remaining analysis



## MODELING RESULTS AND ANALYSIS

### Analysis Step #3 – Generate model predictions on the pricing impact of various scenarios:

After learning of the 4 highest impact resort features that we determined, the business developed 4 specific scenarios that they wanted to test, using our new model. What pricing could we expect if we:

1. Permanently close 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

We tested these various scenarios against our model and found that Scenario 3 would lead to the highest justifiable ticket price increase.



## SUMMARY AND CONCLUSION

- Ultimately, our model suggested that Big Mountain Resort could achieve the greatest ticket price increase by:
  - Adding a run to a point 150 feet lower down, which would increase the resort's vertical drop
  - Adding an additional FastQuad chair lift to bring skiers back up the new run
  - Adding 2 additional acres of snowmaking in the process

In Conclusion, the data and model suggest that implementing these actions would justify a ticket price increase of \$18.50/ticket, which would gross an additional \$3M+ revenue per year.

This would recoup the cost of the recent lift investment that Big Mountain already made, as well as the cost of the additional chair lift purchase that we are suggesting, within approx. 1 year, putting Big Mountain in a much better cash flow position heading into the subsequent years.