Big Mountain Resort in Montana is adding a new chair lift, which increases the distribution of visitors across the mountain as well as the operating costs by $1.54M this season. Our team has some proposed points on either adjusting pricing or features. Before we dive in, I’d like to point out that there were missing data and inaccuracies while exploring the data. *(examples: 1. at least 50% of the fastEight values were missing and the ones were missing had ‘0’s 2. Silverton Mountain’s terrain area was listed as 26,819 when it is actually 1,819 3. Pine Knob Ski Resort claims to have been open for 2019 years).*

Chart

Description automatically generated

**Features by State**  
We evaluated the states in terms of area, population, and resort density. Then the resort features against their own states as well as others.

Chart, histogram

Description automatically generatedVermont and New Hampshire’s resort density by capita and resorts by 100k square mile far exceeds the other states. These two areas have a direct correlation implying that we should be evaluating states equally. The graphic on the right shows the features as seen through the positioning of the plot, the colors categorize each quartile of the price (see legend for more detail).

**Top Features**

We ran tests through several models giving us the top features for a resort:

Fast Quads, Runs, Snow Making Machine, Vertical Drop.

*See figure on left.*

**Reoccurrence on the Topic of Supply and Demand:**

* The more chairs a resort has, the lower the ticket price. When supply is high, people will pay less for the ticket. If there are data on visitors per year, we can investigate this further.
* When the amount of resorts per 100K capita is low, there is a bigger variability in ticket price and its capable of going pretty high. The ticket price may drop a little before climbing upwards again as the number of resorts increases. The lower price can also indicate fewer resorts because of less of a demand in that area.

**Adult Weekend Ticket Price**  
We focus on weekend ticket prices as there was a lot of missing data in the weekday prices. Big Mountain Resort currently charges $81 for a ticket. Based on the facilities and how it compares within the marketplace, there is a significant room for increase by $10.39 ($91 per ticket). Please keep in mind that because there are errors within the data, our estimates are subject to this uncertainty and could be the reason why the modeled price is so much higher than the current price. We are also under the assumption that other resorts accurately set their process according to the marketplace. Big Mountain seems to be undercharging, but if you are mispricing, we need to ask the question if others are as well. Resorts will either be put under the category of overpricing or underpricing, but if they are accurate in setting these pricings, we may need to remodel with more data.  
  
The additional operating cost of a new chair lift per ticket is $1,540,000. If we raise the ticket prices, as suggested, and given that a visitor usually buys 5 day tickets, it would equate to $455 per visitor, per season. We expect 350K visitors over the season, totaling the projected amount to $159,250,000 as opposed to $141,750 (at $81 per ticket). This amounts to an increase of $17,500,000 in extra revenue which should cover this extra cost of operating the new chair lift by a considerable margin.

**BMR Features in Comparison**  
It’s important to know where Big Mountain’s features fall in comparison to the others before we discuss ticket price even further. From the results of models built to assess where Big Mountain Resort’s (in red) features lay in comparison, you can see that Big Mountain Resort’s features are mostly above average in comparison.

Chart, histogram

Description automatically generatedChart, bar chart

Description automatically generatedChart, histogram

Description automatically generatedChart, histogram

Description automatically generatedChart, histogram

Description automatically generatedChart, histogram

Description automatically generatedChart, histogram

Description automatically generatedChart, histogram

Description automatically generatedChart

Description automatically generatedA picture containing chart

Description automatically generated

**Proposed Scenarios**  
We also wanted to discuss your proposed scenarios. Each were tested and are our recommendations are below:

1. Chart, line chart

   Description automatically generated*Permanently closing down up to 10 of the least used runs.* There is opportunity to close 1 run to save on operating costs. This would not make a difference in terms of ticket price in comparison to the marketplace, however, the more runs closed, the worse for the revenue. One caveat is if BMR decides to close 3 runs, it may as well close 4 or 5 as there would be no further loss in ticket price. We do suggest closing 1 run (no more than 1) and evaluating after the season to see if it’s worthwhile to close any more. Start slow. See figure on right.
2. *Increase the vertical drop by adding a run increasing the vertical drop by 150 feet.* This requires the installation of an additional chair lift to bring skiers back up which supports an increase of the ticket price by $8.61, which amounts to an overall seasonal increase by$15,065,471.
3. Same as number 2, but adding 2 acres of snow making cover – this increases the ticket price $9.90 totaling to $17,322,717 which does not make a difference especially since we haven’t calculated the difference in operating costs.
4. *Increase the longest run by 0.2 mile to boast 3.5 miles length, requiring an additional snow making coverage of 4 acres* – this also makes no difference. Longest run is a very low in the feature importance list.

**Takeaway, Next Steps, and Things to Consider:**

The data inaccuracies need a revisit. Other data points that would be useful are total amount of visitors at the resorts, operating costs of features, machinery costs (i.e. snow-maker).

We have built models to help you see how Big Mountain Resort compares in all aspects of features and pricing. Your team will have access to use these models (even with new information) so there will be no need to come to me to test new combinations of parameters. All your team needs to do is load information into new tables, run those through the model to test. We will provide these models in a notebook for your analysts to use.