

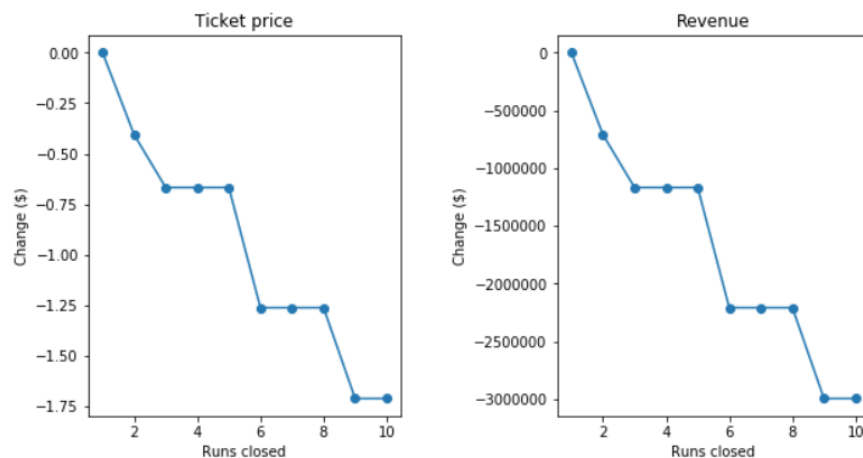
Big Mountain Ski Resort: Ticket Pricing Report

Big Mountain Ski Resort wants to maximize its returns by catering to the needs and preferences of the visitors and thus wants a recommendation on either ticket price increase or cost reduction. Its considering the following four scenario:

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

We looked at the data provided and did some preprocessing and model selection to eventually choose a random Forest model that we built. Based on that model we looked at the scenario proposed by the resort.

As seen in the plot below, closing a single lift wouldn't impact revenue but would not be a huge cost saving either. If the resort decides to close the runs it is better of closing upto 5 runs. Closing more than 5 runs would significantly drop the revenue.



However, if the resort adds a chairlift to increase the vertical drop by 150ft it could increase the ticket price by \$2, raking in additional \$3.5 million in revenue. Adding 2 acres of snow covering on top of that chairlift does not increase the revenue so additional snow cover cannot be recommended.

Similarly, increasing the longest run by 0.12 miles might provide a 3.5 mile long boasting badge and will require additional 4 acres of snow making equipment but does not increase the revenue at all.

So, we recommend the Big Mountain ski Resort to increase the vertical drop by 150ft and increase the ticket price to maximize the return.