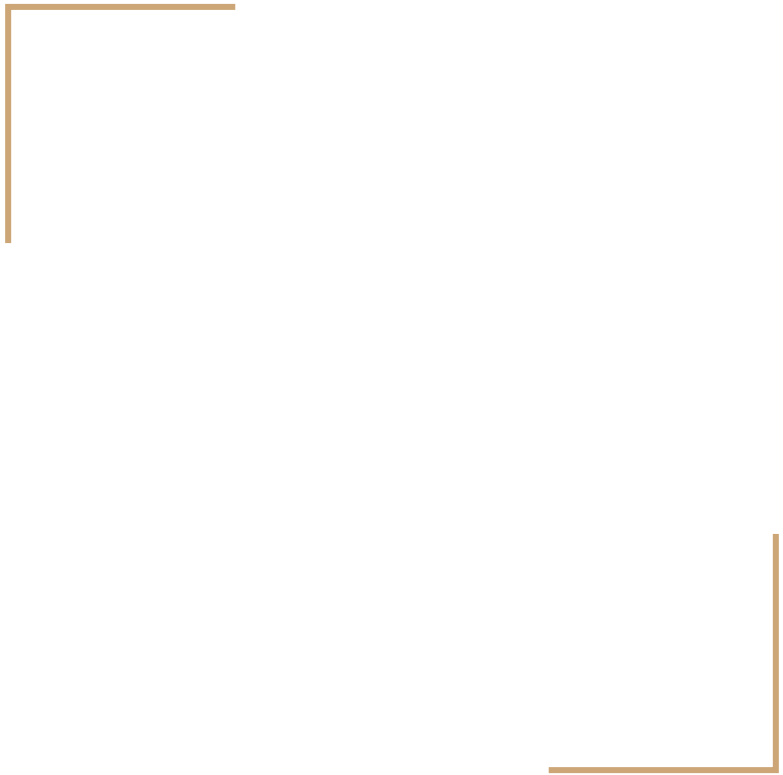


Problem Identification

- ➔ Big Mountain ski resort's pricing strategy has been to charge a premium above the average price charged by the resorts in its market segment.

- ➔ After installing **an additional chair** to help increase the distribution of visitors across the mountain, the **operating costs have increased by $1,540,000** this season.

Problem Identification

- ➔ Management believes Big Mountain is not capitalizing on its facilities, relative to its position in the market, and wanted a **new, data-driven pricing and investment model** for the next season.

- ➔ This model should help the business in selecting a **better value for the ticket price**, and also guide them in making **future facility investment plans** to maximize revenue over the coming year.

Recommendation & Key Findings

- ➔ **Ticket price** suggested by modeling: **$95.87**, with a mean absolute error of $10.39.

- ➔ Modeling clearly shows there is **room for increase in the ticket price** charged by Big Mountain, when being compared with prices set by the rest of the market, based on the facilities provided.

- ➔ To cover the additional operating costs of **$1,540,000** this season, caused by the installation of the new chair, **an increase of at least $8.80 in the ticket price is required** (based on 350,000 expected visitors buying 5 day tickets, on average).

- ➔ Changing the ticket price based on calculations made in the previous point, would raise the ticket price to about **$90**. This figure lies in the range predicted by our modeling.

Modeling Results & Analysis

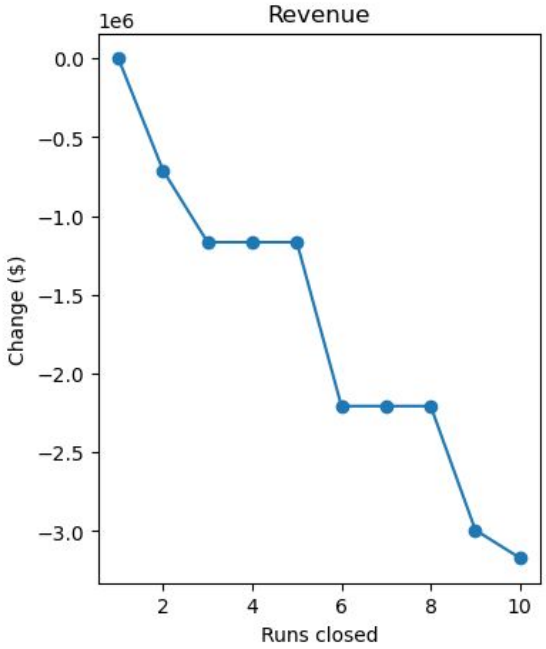
- ➔ **Linear Regression** and **Random Forest** models were analysed for this project.
- ➔ Random Forest displayed a **lower cross-validation MAE** compared to that of Linear Regression.
- ➔ Random Forest performance on the test set is **more consistent with the cross-validation estimates**.
- ➔ Random Forest also exhibits **less variability** (58-84%) compared to that of Linear Regression (44-82%).

Hence, **Random Forest** is chosen as the model to be used going forwards.

Modeling Results & Analysis

Scenario 1: Closing Runs

- ➔ According to the model, **closing 1 run will make no difference on the revenue**.
- ➔ Closing 2 and 3 runs successively will lead to a **reduction** in support for the charged ticket price, and hence, the revenue.
- ➔ If business decides on closing 3 runs, they can go ahead and close down 4 or 5 runs, as this will **not lead to any further loss** in revenue.
- ➔ Closing more than 5 runs will lead to a **significant drop** in revenue.



Modeling Results & Analysis

Scenario 2: Increasing the vertical drop by adding a run and installing an additional chair lift

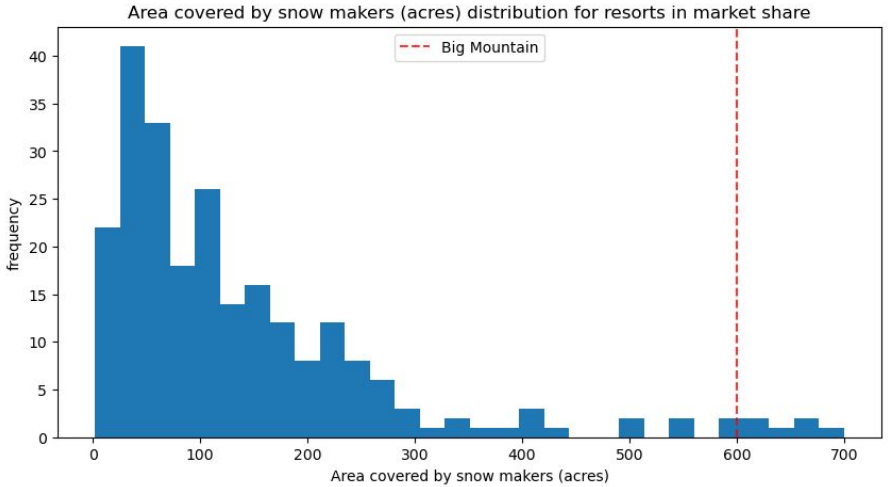
➔ An **increase of 150 ft** in the vertical drop, after adding a run and a chair lift, increases support for the ticket price by **$1.99**.

➔ Over the season, this change could lead to an increase of about **$3,475,000** in the total revenue.

Modeling Results & Analysis

Scenario 3: Increasing snow making cover, along with changes suggested in the previous point

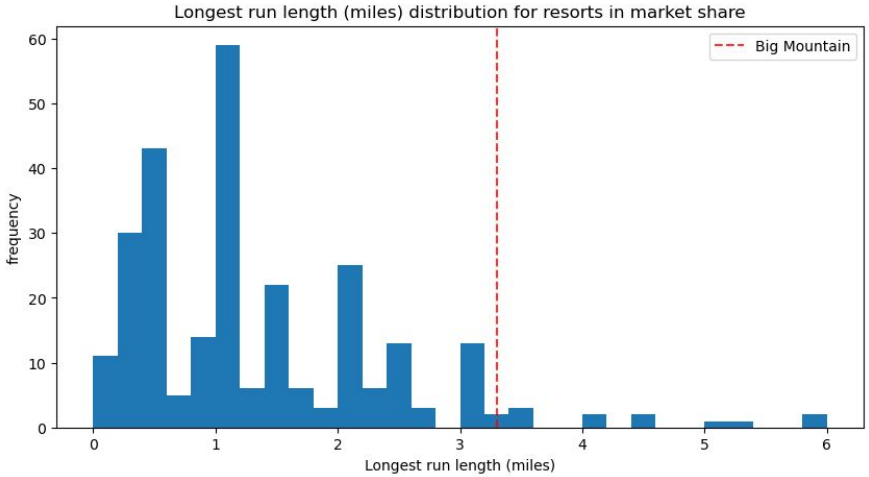
- ➔ An **increase of 2 acres** in the snow coverage is too small to make any difference in the projected revenue.
- ➔ Big Mountain is already very high up the league table of snowmaking area. Investing in more coverage **will not significantly affect** its position among its competitors.



Modeling Results & Analysis

Scenario 4: Increasing longest run to 3.5 miles, with an increase in the snow coverage of 4 acres

- ➔ An **increase of 0.2 miles** in the longest runs will **not lead to an increase in the projected revenue**.
- ➔ Big Mountain already has one of the longest runs in the country. Resorts with longer runs are rare.



Summary & Conclusion

Big Mountain is already charging the highest ticket price in the state of Montana.

This is a testament to Big Mountain not compromising on the quality and quantity of the facilities provided by them.

Therefore, changing the ticket price to a value, which accurately reflects that this is the best resort in the state, makes business sense.