Guided Capstone Report for the Executive Team

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Problem Statement

- Big Mountain Resort is not optimizing its revenue:
  - Undercharging ticket price
  - Unnecessary operation costs

Problem Statement

- By leveraging data:
  - Guide the increase of ticket price
  - Assess business strategies, such as introducing or discontinuing ski runs and lifts, expanding the snow-making area, and so on.

Recommendations from Model

- Increase the ticket price from $81 to $90.
  - Revenue will increase by $15,750,000, considering 350,000 visitors and each buying 5 tickets for the next ski season.
- Add 1 run and 1 lift to increase the vertical drop by 150 feet and increase the ticket price by $2.
- Cost reduction is possible by shutting down less used runs.
  - Operation costs information is lacking to make a solid call.

Model Results – Ticket Price

- Big Mountain Resort current ticket price: $81.
- Ticket price suggested from the model: $95.87 with a mean absolute error about $10.
- From Figure 1, ski resorts in Montana are highly possible undercharging their tickets compared to neighbors in the plot.

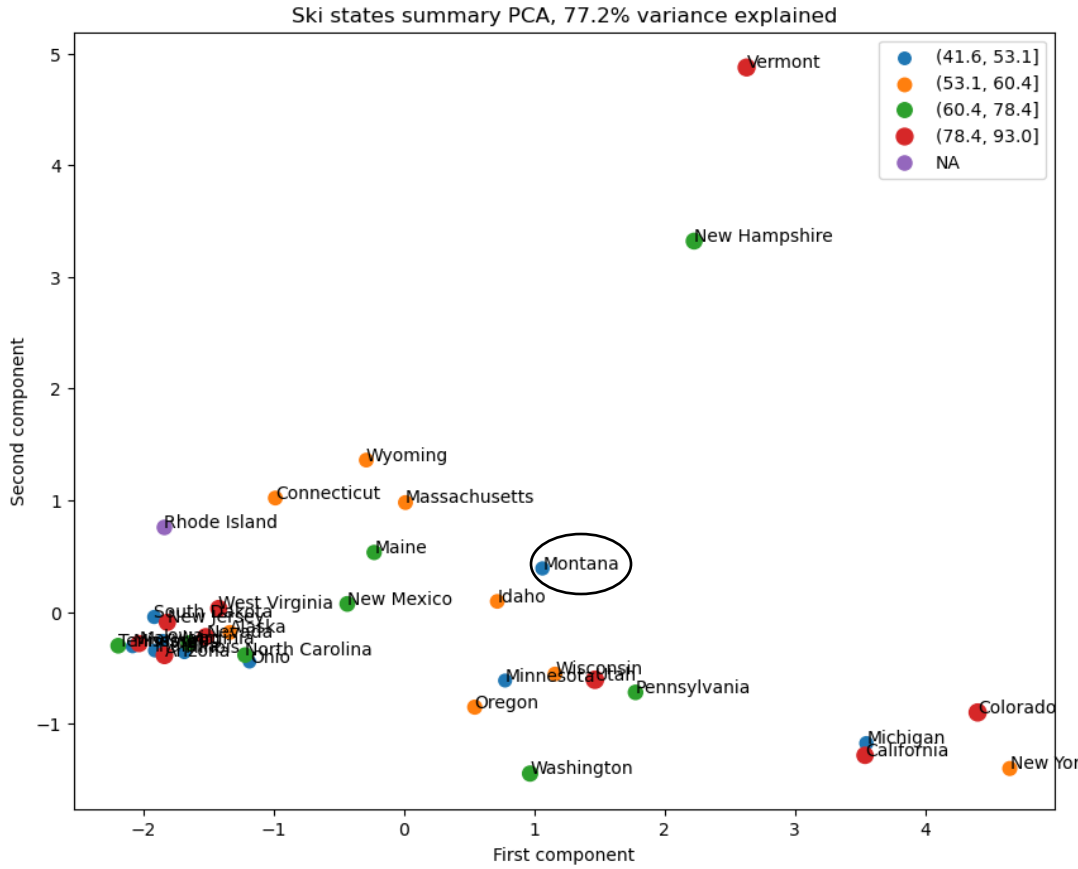

Figure 1. Ski States Summary PCA Analysis
(ticket price ranges indicated by colors)

Inferential Modeling – Closing Runs

- The model suggests an decrease in both ticket price and revenue by shutting down runs.
- The step pattern in the revenue lost figure suggesting more runs can be closed without impacting the revenue.
- If the cost reduction is more than the revenue lost in Figure 2, shutting down runs will boost revenue.

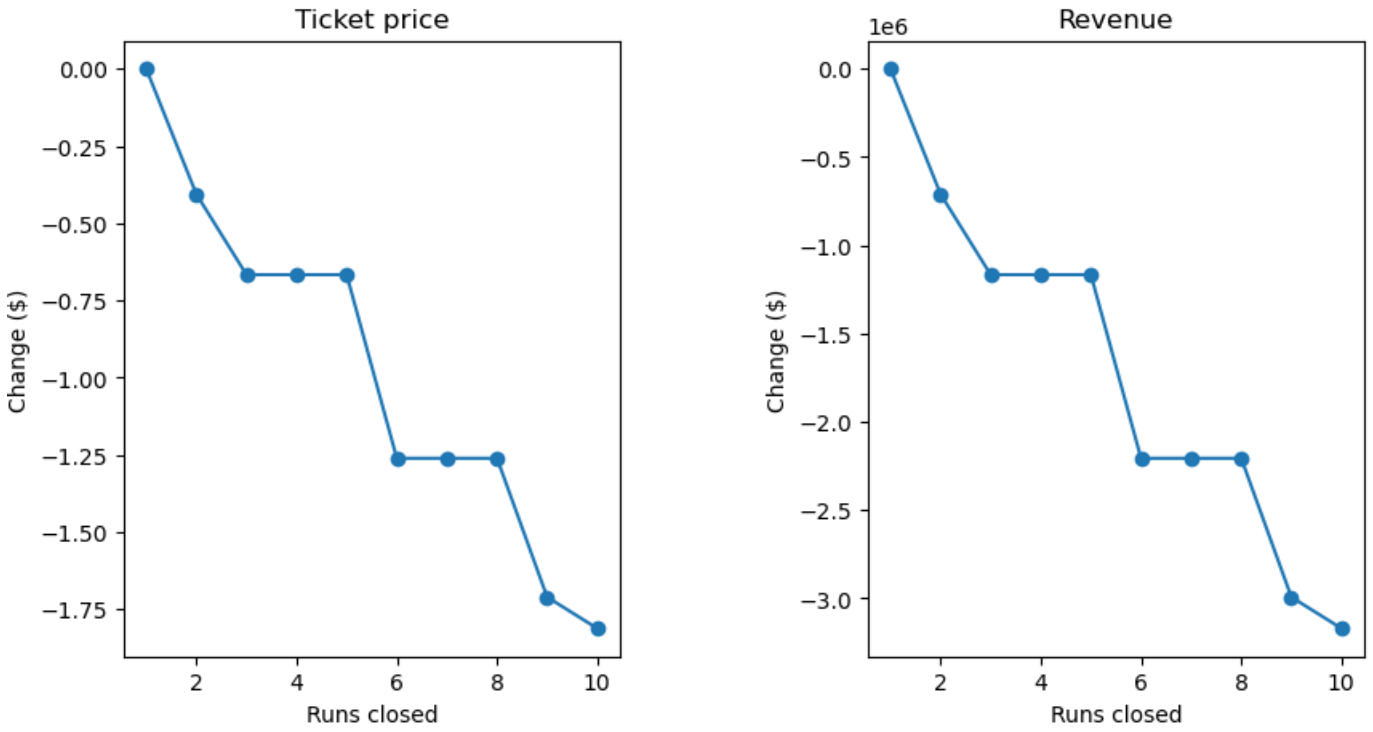

Figure 2. Model Predicted Ticket Price and Revenue upon Number of Runs Closed

Inferential Modeling – Adding Facilities

- Adding 1 run and 1 lift raising vertical drop by 150 feet
  - Supports an increase in ticket price by $1.99
  - Recommended by the model in the long term
- Adding 1 run and 1 lift raising vertical drop by 150 feet and adding 2 acres of snow making
  - Support an increase in ticket price by $1.99
  - Adding additional 2 acres of snow making not recommended by model
- Increasing the longest run by 0.2 mile with adding 4 acres of snow making
  - No increase in the predicted ticket price
  - Not recommended by model

Summary

- An increase in the ticket price is supported by Big Mountain Resort's current facilities from the model and data analysis.

- Model limitations:
  - The model assumes all resorts set their ticket prices based on their facilities.
  - The model is not taking number of visitors into consideration.

- Future improvements:
  - Operation costs are not available to map out data-driven strategies on cost reduction.
  - Number of tickets sold per season are not available to improve model accuracy and to aid revenue estimation.