Big Mountain Resort

Capstone Project

Ancy Joseph - 6/24/23

Problem Statement

Context:

Big Mountain Resort has recently installed an additional chair lift to help increase the distribution of visitors across the mountain. This additional chair increases their operating costs by $1,540,000 this season. Every year about 350,000 people ski or snowboard at Big Mountain. This business profit margin is 9.2% and the investors would like to keep it there. The business is eager to get recommendations on recouping the increased operating costs from the new chair this season. Additionally, have visibility into current years' revenue expectations based on the recommendations.

Criteria for Success:

Improve the pricing strategy for Big Mountain resort by keeping the the profit margin at 9.2%

Scope:

Conduct comparative market price analysis across ski resorts in the country (based on available data).

Problem Statement (Cont..)

Constraints:

No further increase in operating costs. Accommodate the same ~350,000 visitors that the resort receives today annually.

Stakeholders:

Jimmy Blackburn - Director, Operations
Alesha Eisen - Database Manager

Key Data Sources:

CSV File from Database Manager

Recommendations & Key Findings

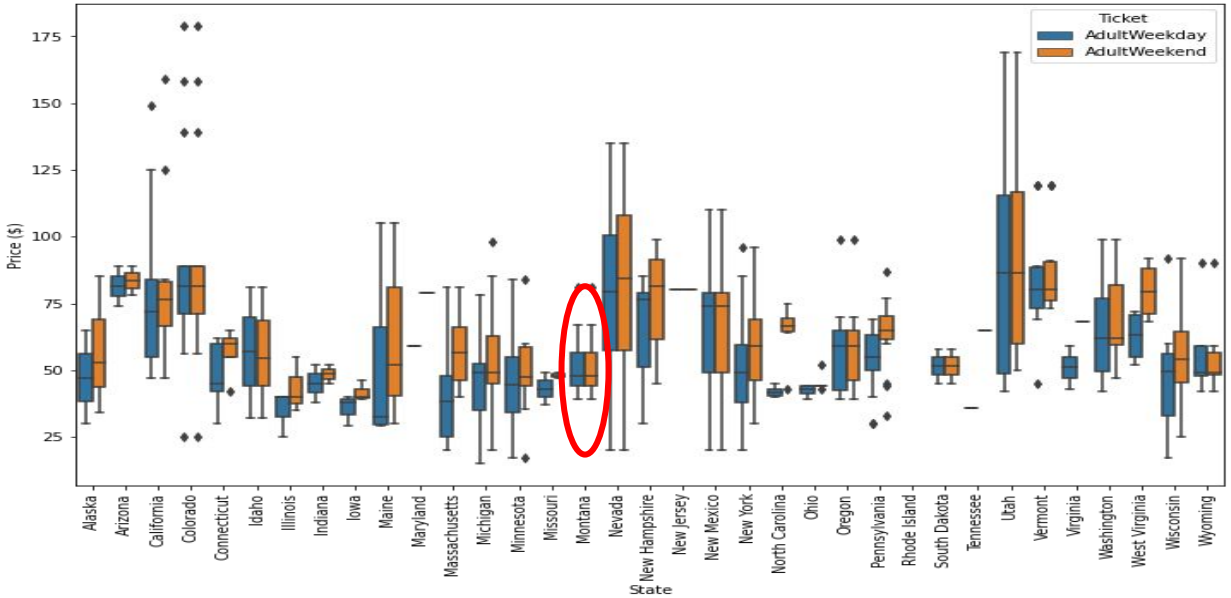

Fig. 1

Price analysis across all states (as shown in Fig.1):

A. Aside from some relatively expensive ticket prices in California, Colorado, and Utah, ***most prices*** appear to lie in a broad band from around 25 to over 100 dollars.

B. Some States show more variability than others -

I. ***Montana*** and South Dakota both show fairly *small variability* as well as *matching weekend and weekday ticket prices.*

II. Nevada and Utah, on the other hand, show the most range in prices.

III. North Carolina and Virginia, have weekend prices far higher than weekday prices.

Recommendations & Key Findings

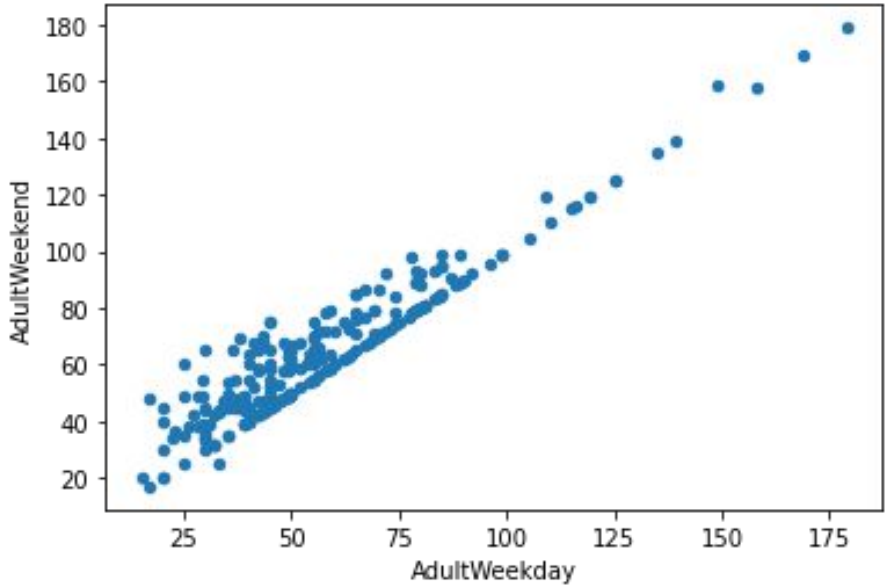

Fig. 2

Relationship between Weekend and Weekday prices (as shown in Fig.2):

A. A clear line where weekend and weekday prices are equal.

B. Weekend prices being higher than weekday prices seem restricted to sub $100 resorts.

Recommendations & Key Findings (Cont..)

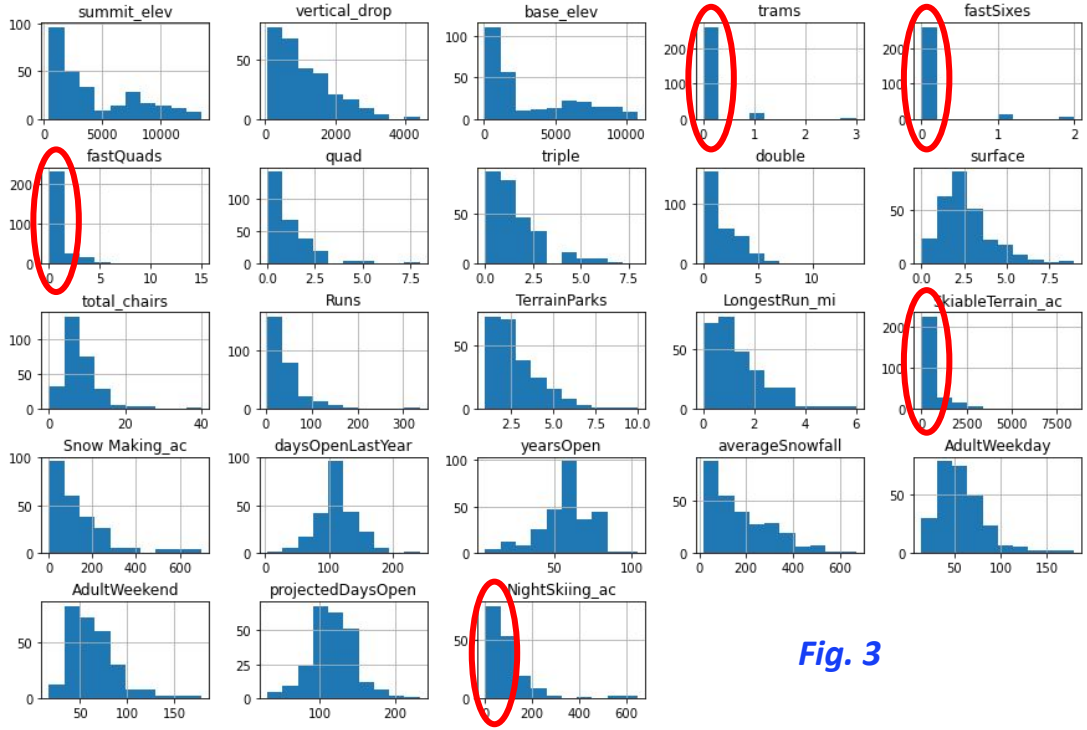

Fig. 3

Features comparison (as shown in Fig.3):

A. ***# of Trams, Fast Sixes, fastQuads, Skiable Terrain & Night Skiing*** seem to be the most critical features.

B. Other features like ***Quad, # of Runs*** may also be considered in determining the ideal price point.

Recommendations & Key Findings (Cont..)

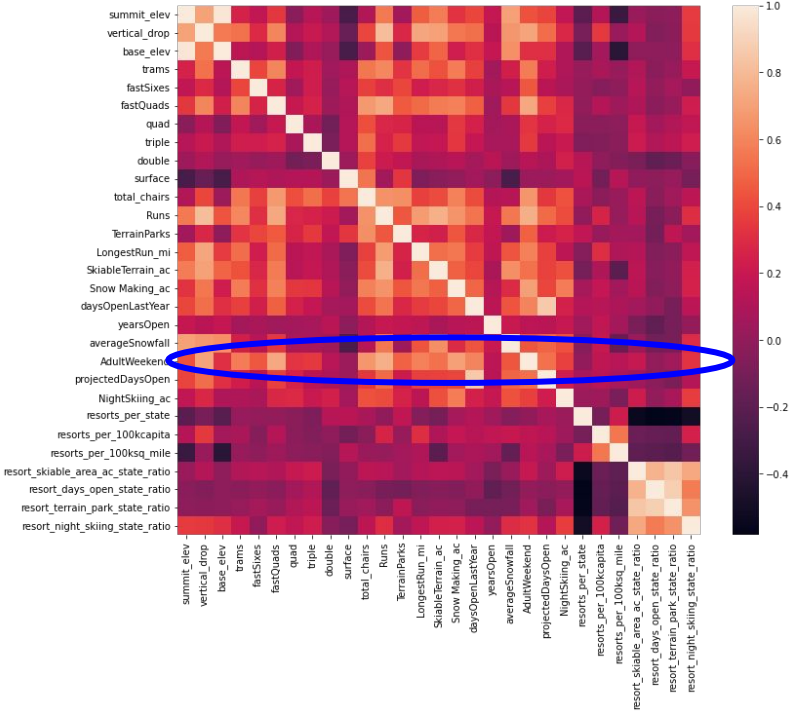

Fig. 4

Features correlation heatmap (as shown in Fig.4):

A. "**AdultWeekend**" row shows that there is clear positive correlation associated strongly with ***fastQuads, Runs, SnowMaking_Ac, and resort_night_skiing_state_ratio***.

Recommendations & Key Findings (Cont..)

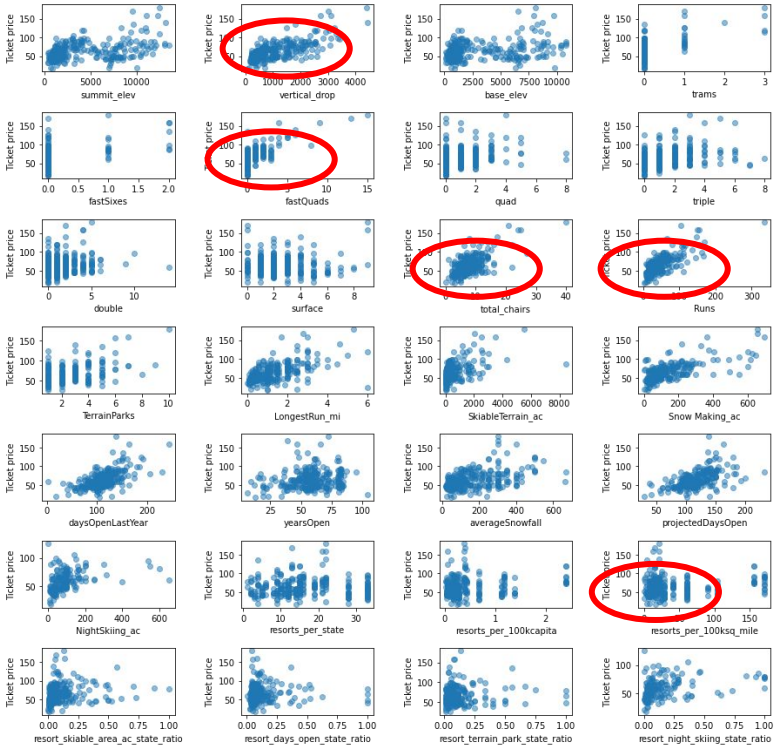

Fig. 5

Features comparison with ticket prices (as shown in Fig.5):

A. Strong positive correlation with ***vertical_drop*** and ***fastQuads***.

B. ***Runs*** and ***total_chairs*** appear quite similar.

C. ***resorts_per_100kcapita*** shows something interesting - When the value is low, there is quite a variability in ticket price, although it's capable of going quite high. Ticket price may drop a little before then climbing upwards as the number of resorts per capita increases.

Modeling Results & Analysis

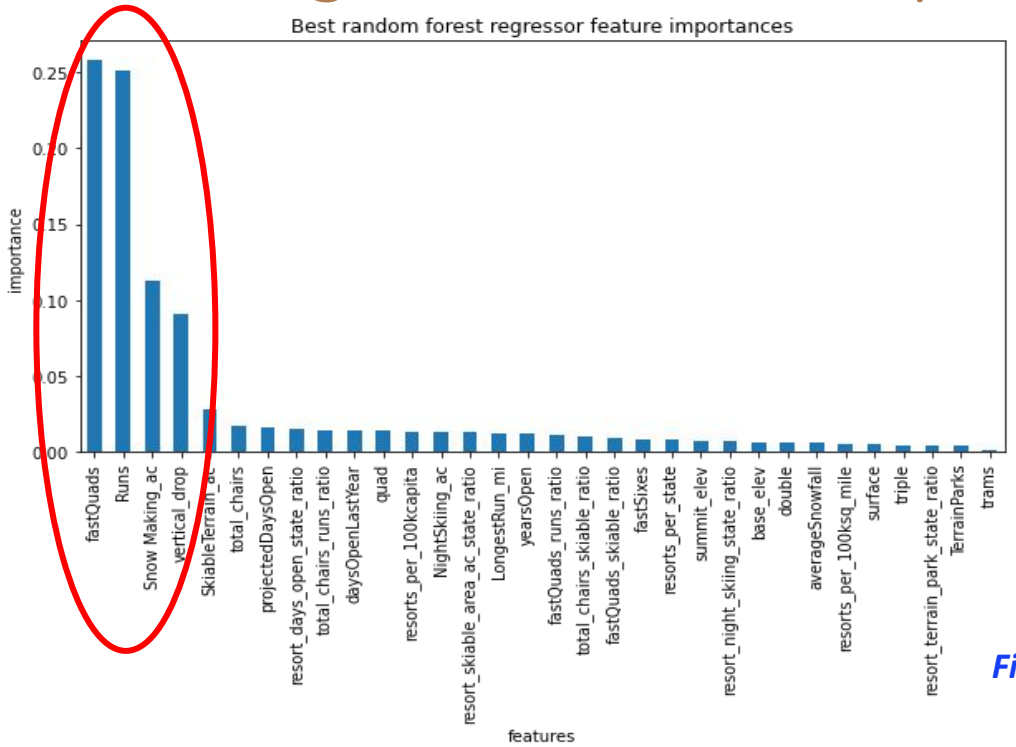

Fig. 6

Feature significance (as shown in Fig.6):

A. The **Top 4 dominant features** as indicated by the analysis are:

   a. Fast Quads
   b. Runs
   c. Area covered by Snowmakers
   d. Vertical drop

Modeling Results & Analysis (Cont..)

The business has shortlisted ***4 possible scenarios***:

1. Permanently closing down up to 10 of the least used runs.

Analysis Result: **Closing one run makes no difference. Closing 2 and 3 successively reduces support for ticket price and so revenue. If Big Mountain closes down 3 runs, it seems they may as well close down 4 or 5 as there's no further loss in ticket price. Increasing the closures down to 6 or more leads to a large drop.**

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.

Analysis Result: **This scenario increases support for ticket price by $1.99.**

3. Same as number 2, but adding 2 acres of snow making cover.

Analysis Result: **This scenario increases support for ticket price by $1.99. Such a small increase in the snow making area makes no difference.**

4. Increase the longest run by 0.2 mile to boast 3.5 miles length, requiring an additional snow making coverage of 4 acres.

Analysis Result: **No difference whatsoever. Although the longest run feature was used imodel, it was lowest in the feature importance list.**

Summary & Conclusion

Big Mountain Resort is an exceptional resort with many great facilities. The confirmation from the statistical analysis completed and the recommended price modelled ($95.87) is in-line with the facilities provided.

Additional observations are:

1. Money can be saved by not having all runs open at once. Upto 5 possibly 6 runs can be closed without a huge drop run in revenue. (as shown in **Fig.7**.)
2. Increasing the vertical drop by 150 ft and additional chair lift will support the ticket price by $1.99 per ticket. This could be expected to amount to $3,474,638 per season.

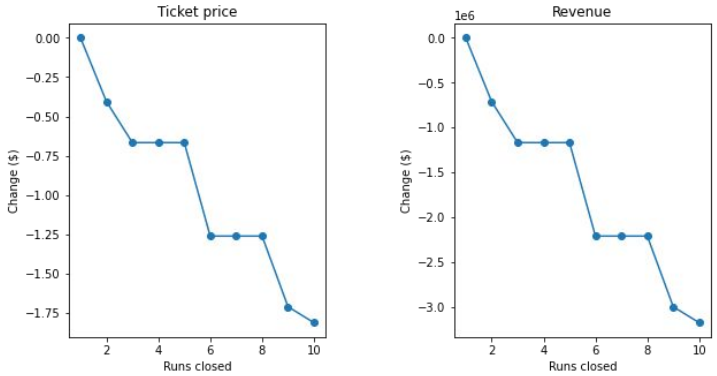

Fig. 7