What are the main features at Big Mountain Resort that drives the optimal ticket price?

By Mitchell Ramsey

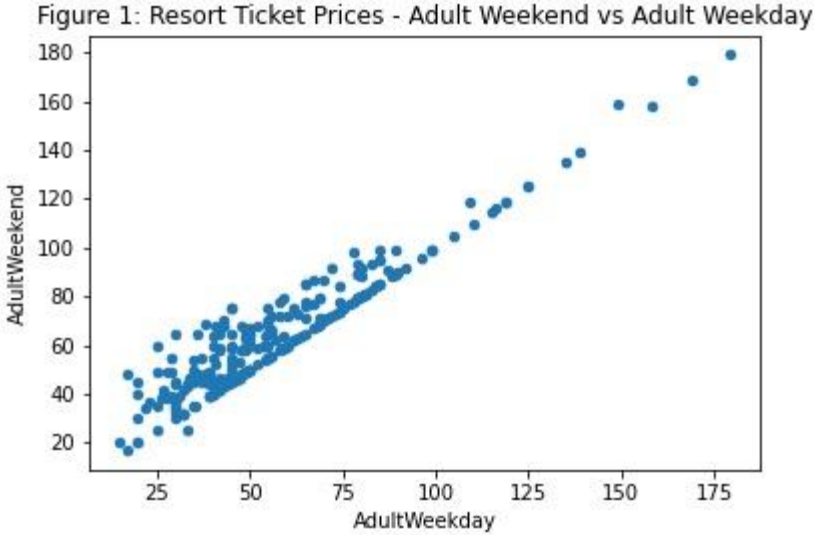
Guided Capstone #1

Background and Problem Identification

- Big Mountain Resort is a premier ski resort in Montana
- Business leaders are wanting to maximize profits by determining optimal ticket price; current ticket prices are set at $81
- Price increase should also cover the new operating costs of a chair lift which increase costs by $1.56 million
- Data used in this analysis includes 329 resorts across 33 states in the U.S.
- Analysis will analyze which resort features provide the most value to the resort

Key Findings - Part 1

- Big Mountain Resort does not differentiate between weekday and weekend prices (and so do many others)
- Due to this, analysis will only use one pricing feature
- Weekend data only had had 4 missing values; Weekday data had 7
- Weekend value was retained because of this



Key Findings - Part 2

- Analysis revealed no distinct differences between states and pricing. (Graph shown on next slide)
- While states may price for different reasons, analysis did not reveal any strong indicators that pricing was due to geographical location

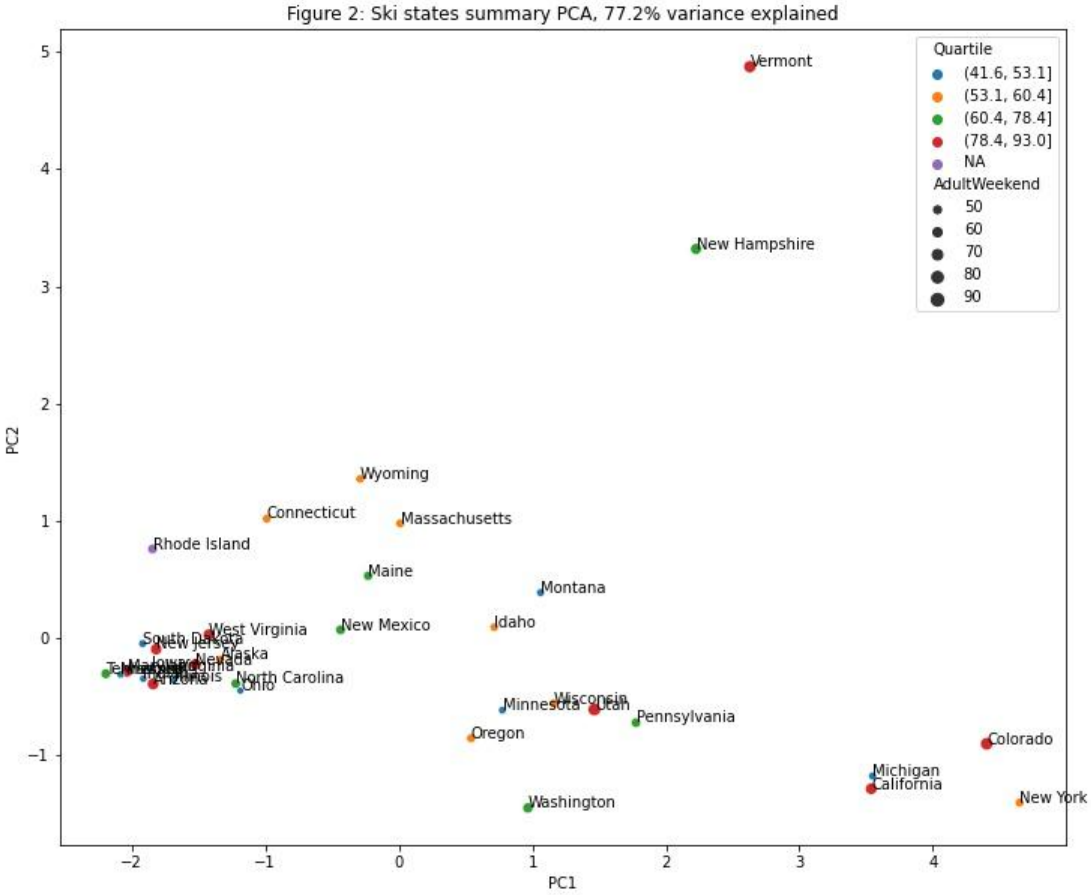
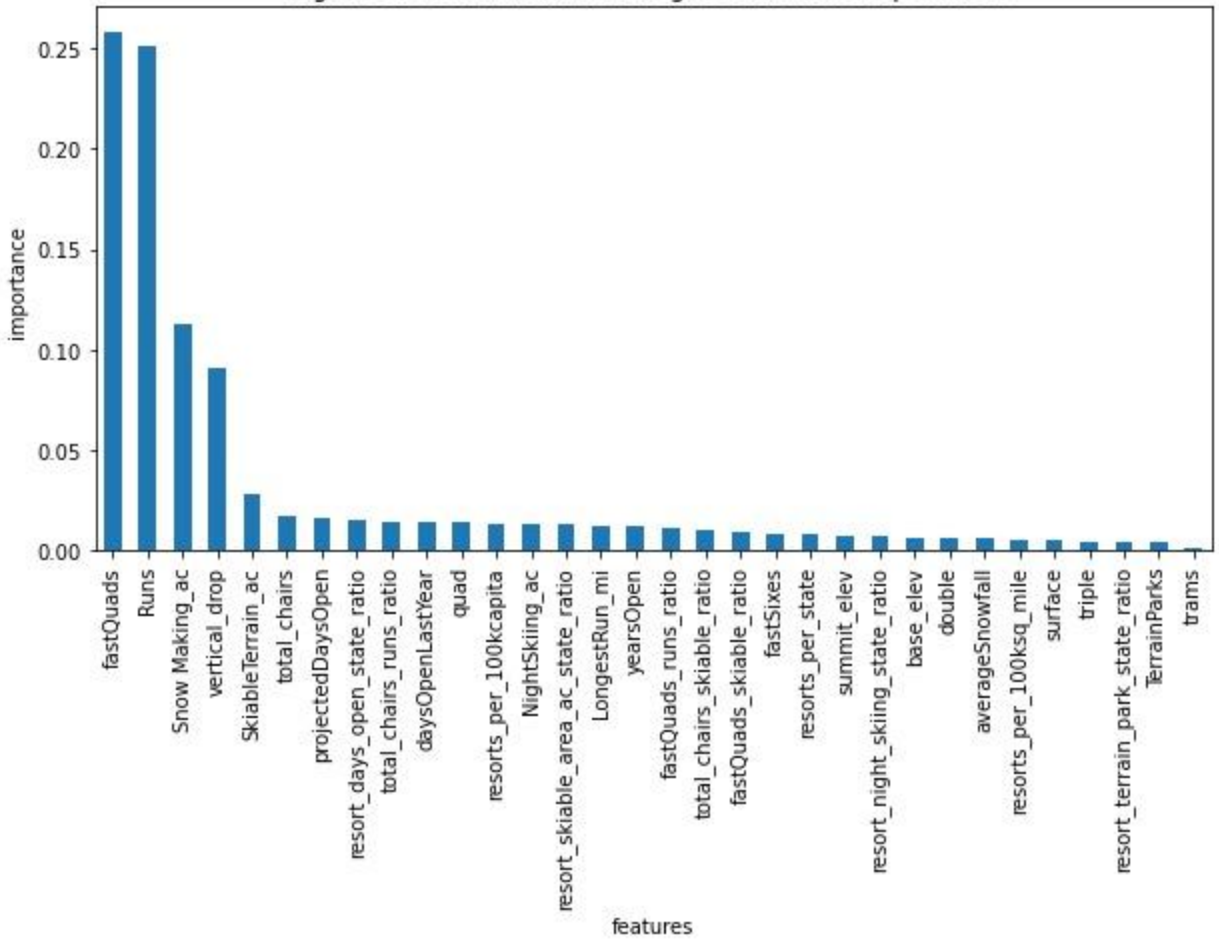


Figure 2: Ski states summary PCA, 77.2% variance explained
Quartile
(41.6, 53.1]
(53.1, 60.4]
(60.4, 78.4]
(78.4, 93.0]
NA
AdultWeekend
50
60
70
80
90
Vermont
New Hampshire
Wyoming
Connecticut
Massachusetts
Rhode Island
Maine
Montana
West Virginia
New Mexico
Idaho
North Carolina
Ohio
Minnesota
Wisconsin
Utah
Pennsylvania
Oregon
Colorado
Michigan
California
Washington
New York
PC1
PC2

Key Findings - Part 3

- Linear modeling and random forest modeling indicate that number of fast quad chair lifts, total number of runs, number of acres covered by snow, and vertical drops play the strongest influences on pricing
- The random forest modeling was the stronger model with an error pricing average being $1 less than the linear model
- The feature importances highlighted by the random forest model is shown on the next slide

Figure 3: Best random forest regressor feature importances



Recommendation

- Modeling results suggest that Big Mountain Resort should set prices at $95.87
- This includes a standard error of $10.39. Therefore, Big Mountain Resort's most conservative recommendation would be at $85.48
- The most conservative recommendation projects a revenue increase of $1.568 million dollars which would cover the new operating cost of the chair lift