# Big Mountain Ski Resort Revenue Analysis

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# Current Situation

## New chair lift

- Recently installed a chair lift
- Increases operating costs by $1.54M

## Maintain profit margin

- Management and investors want to maintain 9.2% profit margin this winter season
- Assumptions :
  - 350,000 visitors with 5 ticket purchases
  - Current ticket price $81

How can Big Mountain Resort maintain a 9.2% profit margin this winter season while accounting for an additional $1.54M increase in operating cost due to the purchase of an additional chair lift?

# Problem Statement

How can Big Mountain Resort maintain a 9.2% profit margin this winter season while accounting for an additional $1.54M increase in operating cost due to the purchase of an additional chair lift?

# Recommendations

## Immediate :

- Increase ticket price to model suggested minimum $85.48, adding $7.8M revenue for the season

- Eliminate or close an existing run with no effect on revenue. Target runs with high maintenance costs to improve profitability

## Short Term :

- Adjust final ticket price within model set ticket price range ($85.48 - $106.26) accounting for market response.

- Add a run to increase the vertical drop by 150 feet and install an additional chair lift to increase ticket price by $1.99, an overall increase of nearly $3.5M in revenue.

# What data are we using to help model price?

## Dataset

- CSV file sent by data base manager

- Includes ski resort statistics from 330 resorts in the US

- Initial analysis to predict ticket price based on resort statistics
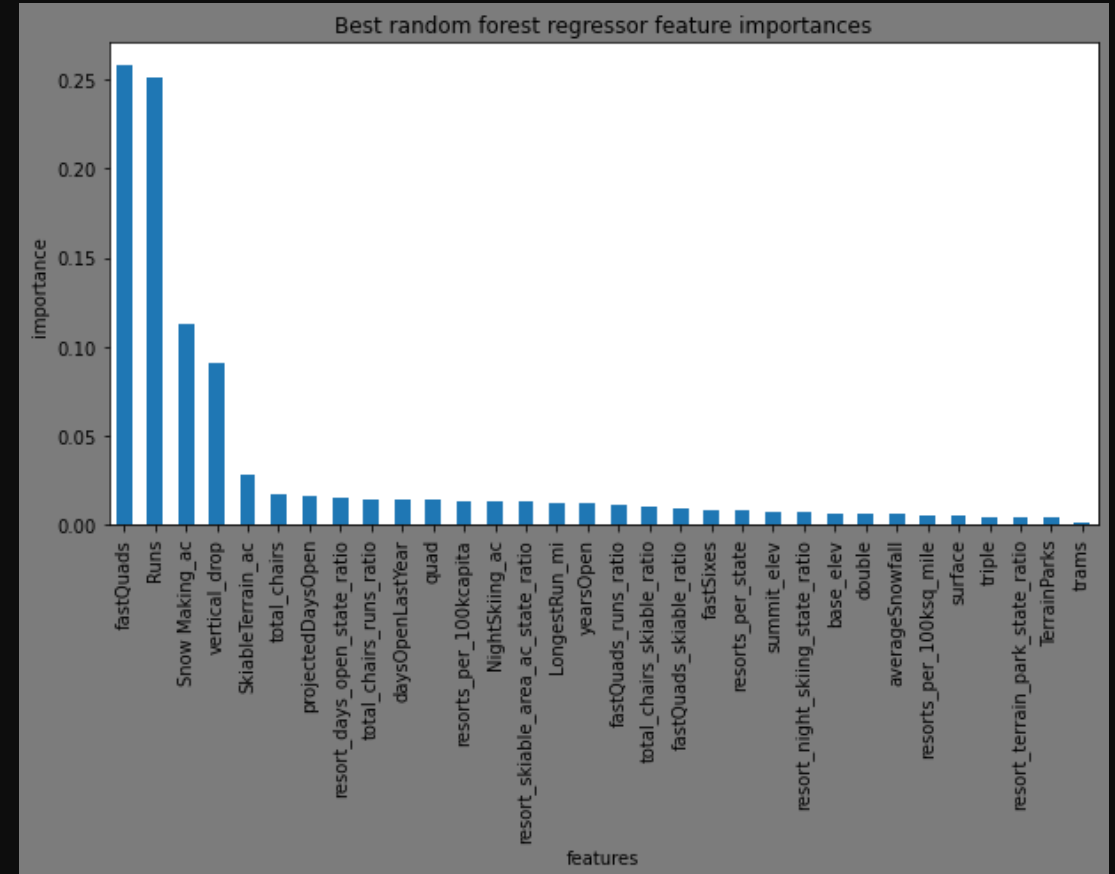
## Resort Statistics

- Mountain details (elevation, vertical drop)

- Chair lifts (types, speed)

- Runs, terrain parks, snow making area

- Operating details (days open, years of operation, snowfall, price)
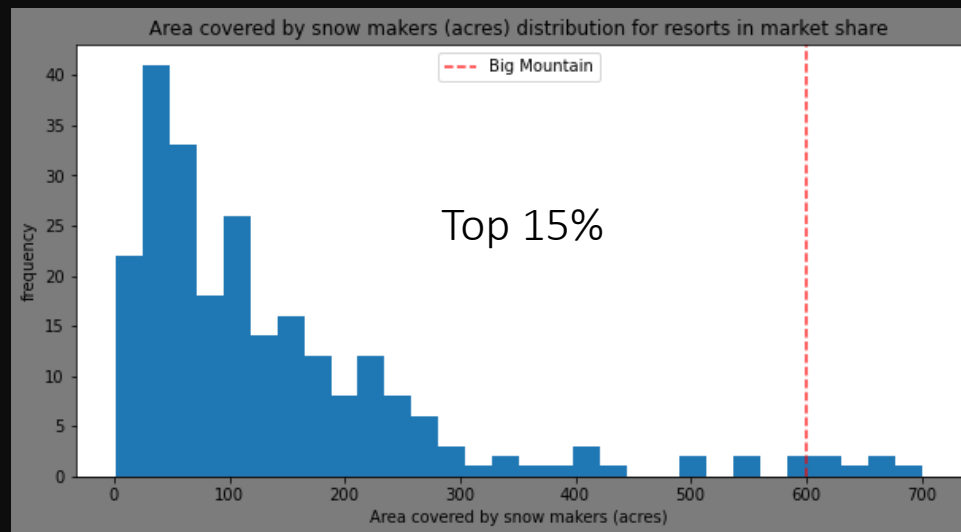
# Model - Analysis

## Model Details

- **Random Forest Regressor** trained on entire data set to predict Adult ticket price

- Four features showed significant importance when predicting ticket price :
  - Fast quad chair lifts
  - Number of runs
  - Snow making area
  - Vertical drop



Best random forest regressor feature importances

# How does Big Mountain rank in important features?
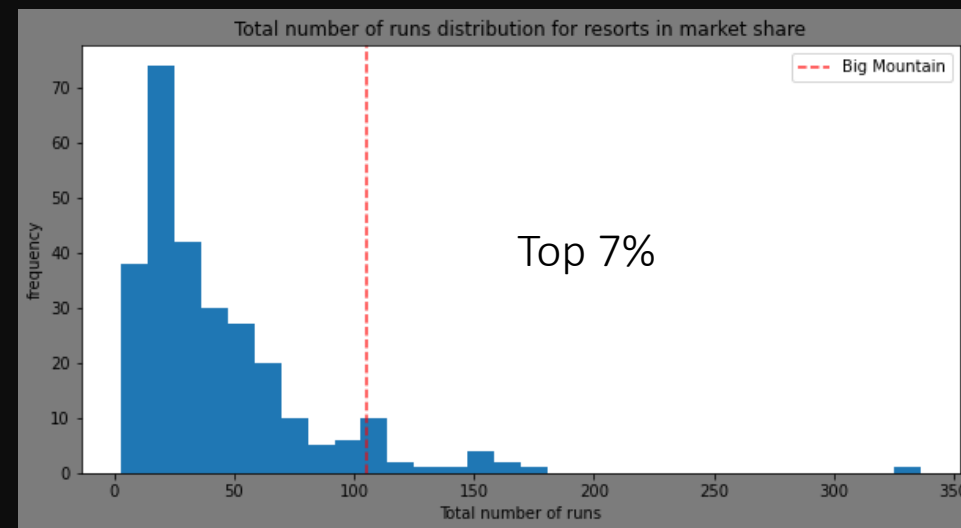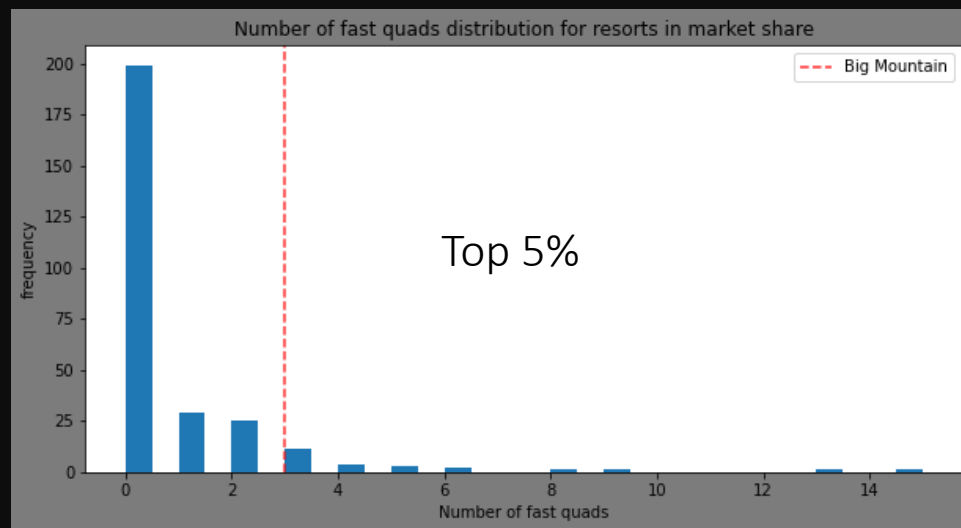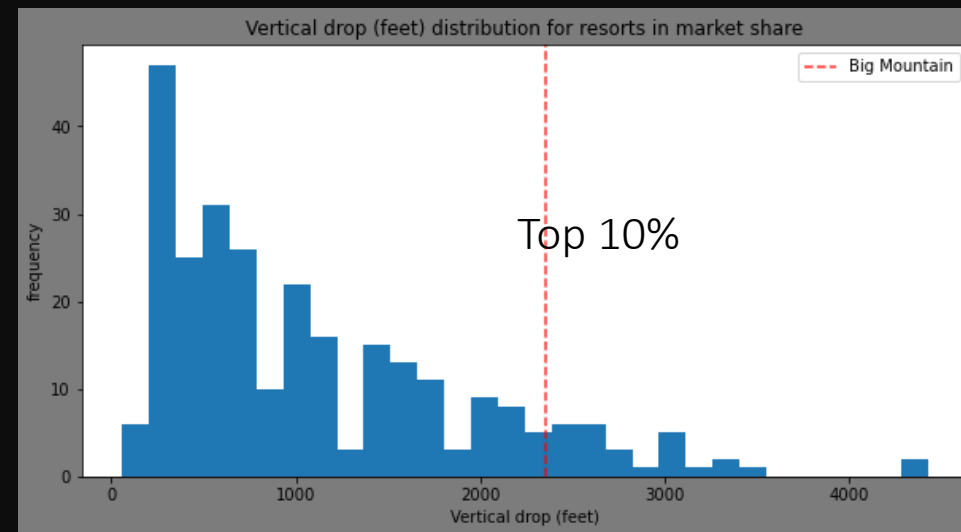
# How does Big Mountain rank in price?

## Pricing comparison and adjustment

- Big Mountain ranks in top 15% in four of the most important statistics

- Only ranks 81$^{st}$ percentile for price ($81)

- Room for price to increase based on market context

- Model suggests set price between $85.48 to $106.26 based on current resort amenities.

- Correlates to overall revenue increase of $7.8M – $44.5M per season.



Adult weekend ticket price ($) distribution for resorts in market share
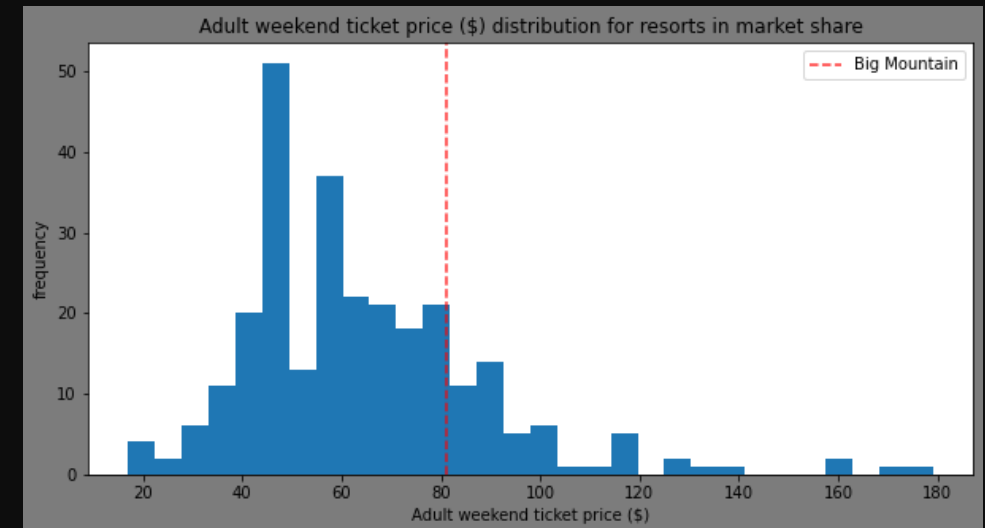
# Other methods to maintain / improve profitability

## Close runs to reduce operating cost

- Closing 1 run has no affect on revenue.

- Closing 3 – 5 runs has the same effect on revenue.

- Need more information about operating costs to fully analyse cost / benefits.
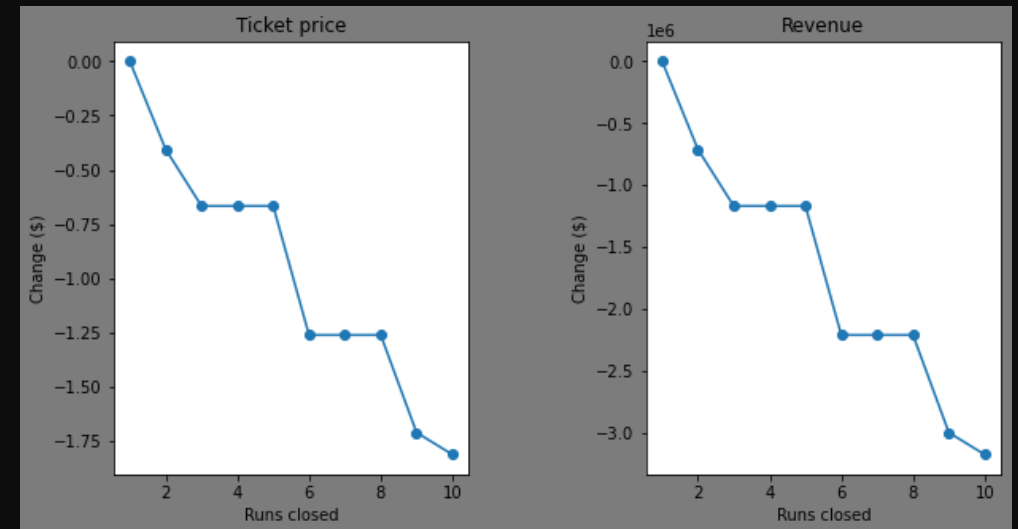
# Other methods to increase revenue

## Install new chair lift, add a run that increases vertical drop by 150ft

- Increase vertical drop by 150ft by adding a run.

- Install new chair lift to accommodate new run.

- Model predicts the ticket price to increase $1.99 based on new amenities.

- Increase of $3.5M in seasonal revenue.

- Need to account for potential costs of additional chair lift ($1.54M based on current

# Conclusion

- Model can take in extensive information on resort amenities and offer profitability of future decision making.

- Can make immediate improvements in profitability with expected ticket price based on current amenities.

- Initial mandate of maintaining 9.2% profit margin is achievable and can be easily exceeded based on data driven decision making.

# Thank You

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