

# Big Mountain Resort

Ticket Price Optimization – for the Executive Team

Wei Dong

12/7/20

# Big Mountain Ticket Price Optimization

Big Mountain Resort, Montana

Current price of Adult Weekend Daily Ticket: \$81

Vertical Drop: 2353 ft

14 chairs

105 trails

Skiable Terrain: 3000 acres

Snow Making: 600 acres

Average Snow Fall: 333 inches

# Limitation of the pricing strategy

- Profits NOT maximized
- Important facilities are NOT capitalized

## Can we adjust the ticket price for a better value?

1. Maximize the usage of useful facilities or install new facility to increase the ticket price
2. Cut down the facilities while maintaining the ticket price and revenue

# The potential strategy

**Recommended Big Mountain Resort Ticket Price: \$ 95.87**

- adding 1 run,
- increasing vertical drop by 150 feet
- installing 1 chair lift.
- Increase snow making

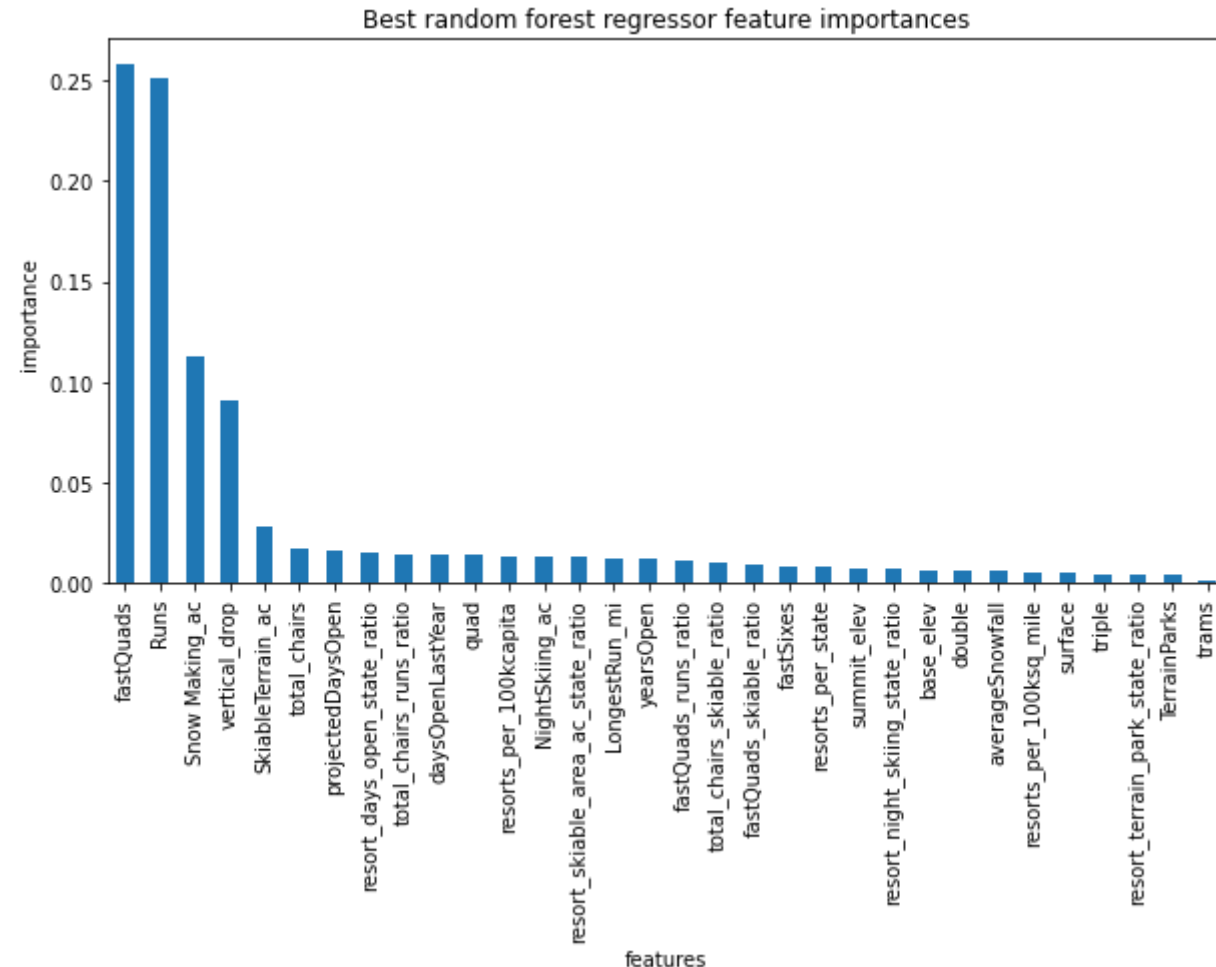
 Increase by \$ 9.90

**Adjusted price: \$90.9 for adult weekend daily ticket**

# Modeling results and analysis – Random Forest Regression

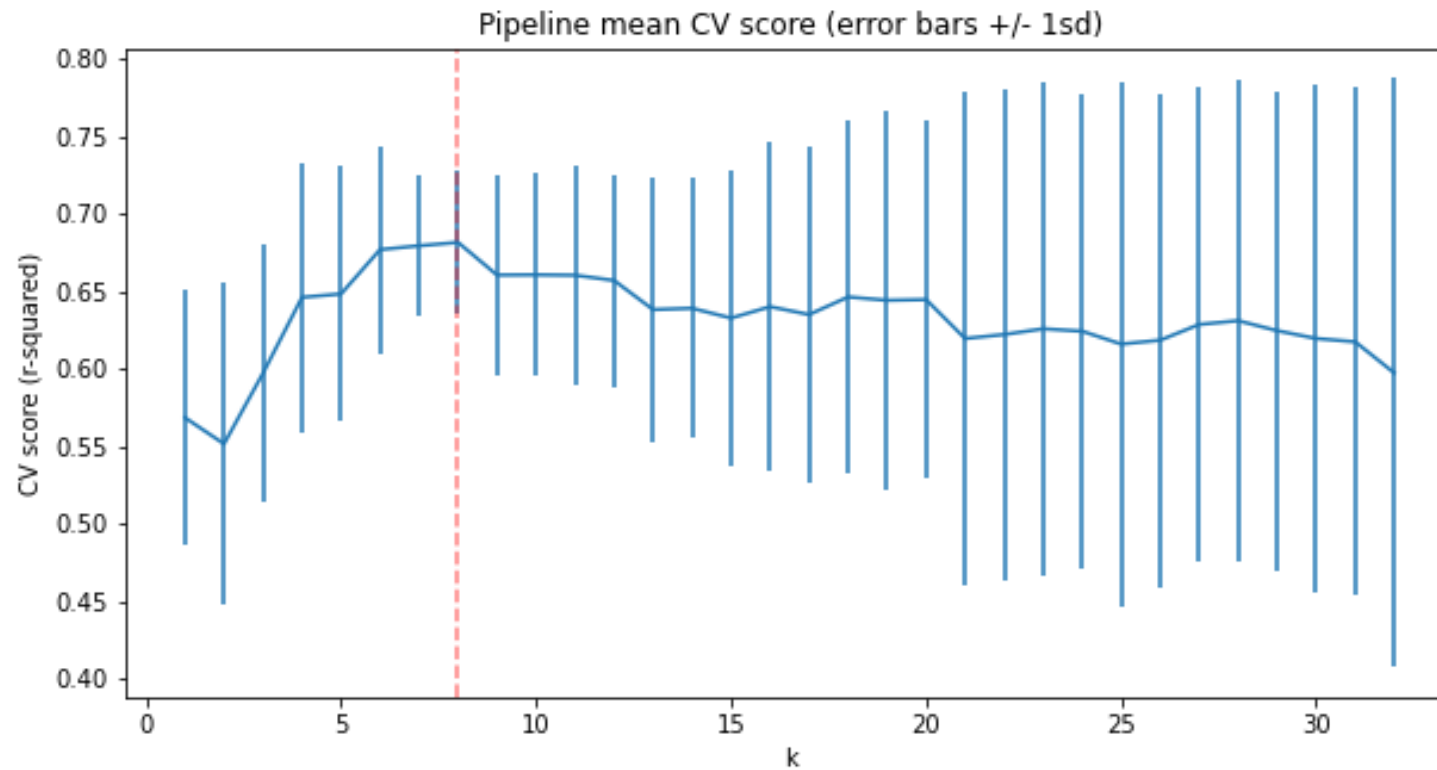
Eight important features in the modeling:

- **‘Baseline model’**: mean value, \$64
- Error of the ‘baseline model’ (Mean Absolute Error) off \$19
- **Linear Regression**: imputing mean or median values
- Error of the LR (mae): \$ 11.79
- $R^2$ : 0.63
- **Random Forest Regression**
- Error of the RF (mae): **\$ 9.54**
- Modelled ticket price: \$95.87
- $R^2 = 0.7$



# Modeling results and analysis – Random Forest Regression

- Cross-validation from linear regression model give the best  $K = 8$



# Modeling results and analysis – Random Forest Regression

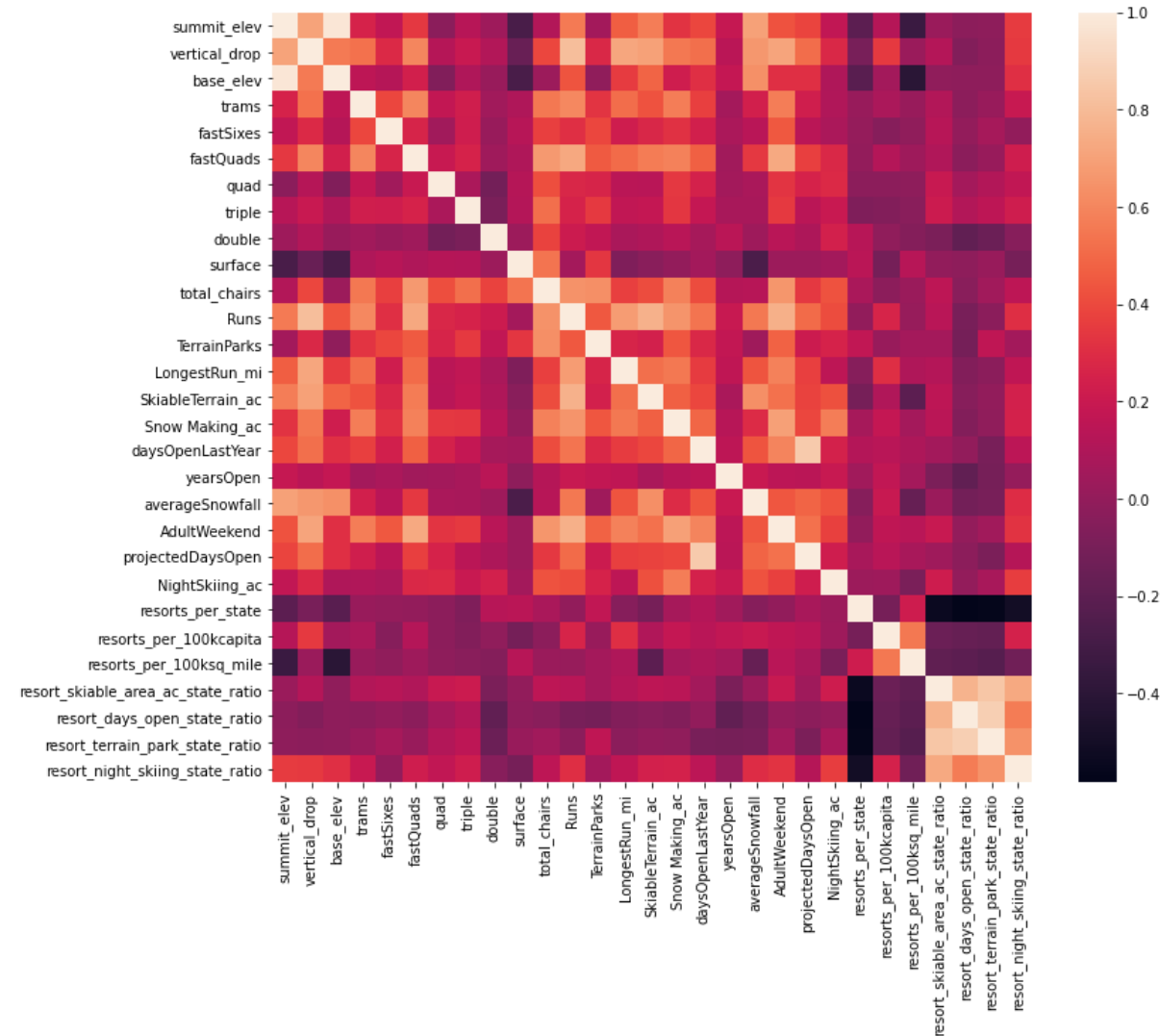
Pipeline: data 70/30 train/test split

- SimpleImputer(substitute miss values as median)
- StandardScaler(), None
- RandomForestRegressor(random\_state=47)
- GridSearchCV (cv =5, k = 8)

# Modeling results and analysis

## Eight important features in the modeling vs correlation heatmap

- fastQuads
- Runs
- Snow Making\_ac
- vertical\_drop
- SkiableTerrain\_ac
- total\_chairs
- projectedDaysOpen
- resort\_days\_open\_state\_ratio





# Summary and conclusion

- Current Weekend ticket price in the resort \$81.
- The recommended ticket price for Big Mountain is \$95.87.
- Proposed strategy may be tested.
- The top features from RF model:
  - fastQuads
  - Runs
  - Snow Making\_ac
  - vertical\_drop