

# **Big Mountain Resort (BM)**

**Guidance on selecting a better value for the ticket price**

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# TODAY'S AGENDA

01. Introduction
02. Problem Identification
03. Recommendation And Key Findings
04. Modeling Results And Analysis
05. Summary And Conclusion

# 01 INTRODUCTION



"How can B.M. **increase revenue** for the resort by **at least \$1,540,000** by the next season by

- (1) **cutting costs** down without undermining the ticket price or
- (2) setting a **higher ticket price** via data-driven standards?"

# 02 PROBLEM IDENTIFICATION

## CONTEXT

- **Investment in the additional chair lift** increases their operating costs by \$1,540,000 this season.
- **Lack of good guidance for pricing**
- **Management** wants some guidance on selecting a better value for their ticket price

## CRITERIA FOR SUCCESS

- New pricing strategy based on a data-driven business strategy
- A clear set of actions to reduce operation costs by at least \$1,540,000.

## SCOPE

- Ski resorts in Montana
- Ski resorts with similar specifications to our resorts in the U.S.

## DATA

- CSV file containing information from 330 resorts in the U.S.

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# 03

## RECOMMENDATION AND KEY FINDINGS

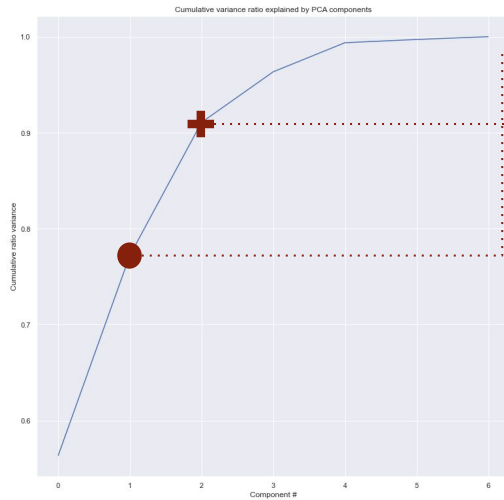


1. The ticket price should be increased by at least \$0.88 to cover the additional operating cost *(350,000 visitors and stay an average of 5 days)*.
2. \$95.87 is the right price for our resort ticket price. And the ticket price can be up to \$106.40.
3. Additional investment in ski resorts facility could raise the ticket price. *(Furthur discussion in the next chapter)*

# 04 MODELING RESULTS AND ANALYSIS

## EXPLORATORY DATA ANALYSIS

- TICKET PRICE AND STATES THROUGH PCA



● The first two components seem to account for over 75% of the variance

✚ The first four for over 95%.

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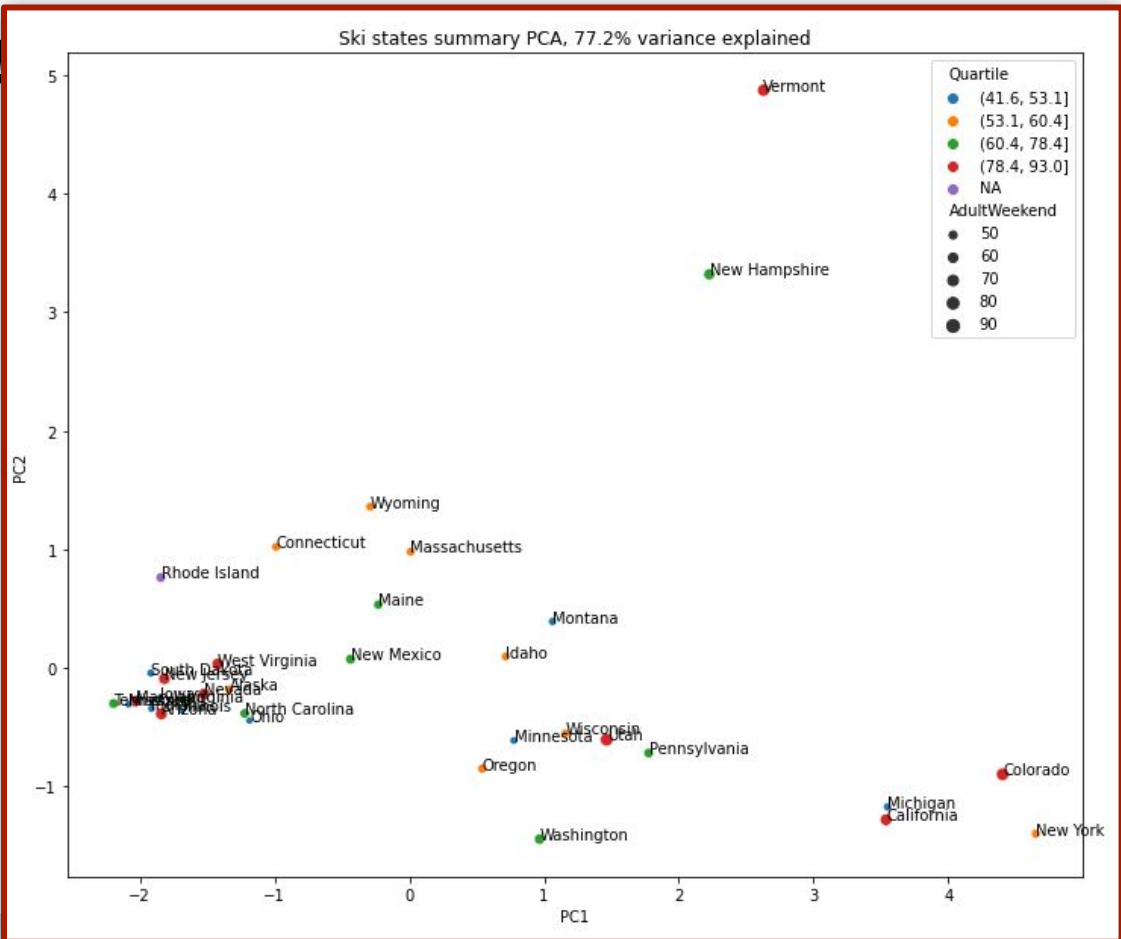
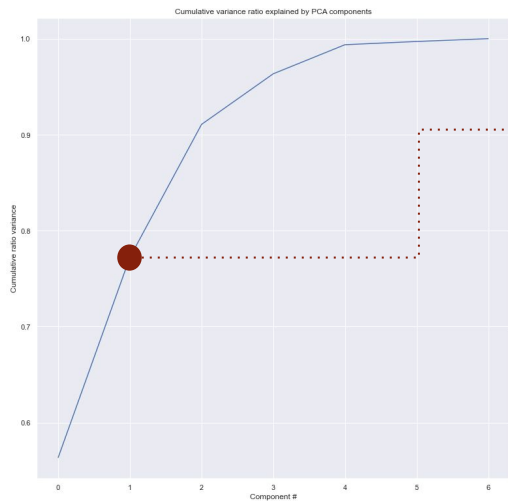
RECOMMENDATION & KEY FINDINGS

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## MODELING RESULTS

## EXPLORATORY DATA ANALYSIS



## RECOMMENDATION & KEY FINDINGS

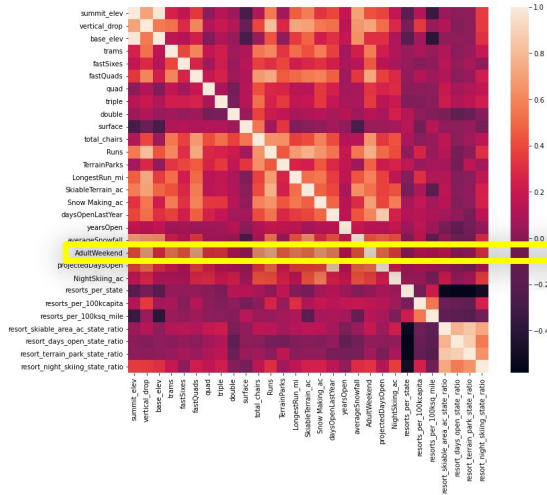
## MODELING RESULTS AND ANALYSIS

## CONCLUSION

# 04 MODELING RESULTS AND ANALYSIS

## EXPLORATORY DATA ANALYSIS

- TICKET PRICE AND FEATURES THROUGH HEATMAP



- Primary features: FastQuads, Runs, Vertical Drop, Total Chairs
- Secondary features: Longest Run, Skiable Acres, Snowmaking Acres, and Night Skiing

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# 04 MODELING RESULTS AND ANALYSIS

## PRE-PROCESSING AND TRAINING DATA

### THE DOMINANT TOP FEATURES

#### LINEAR MODEL

*vertical\_drop*  
*Snow Making\_ac*  
*Total\_Chairs*  
*fastQuads*  
*Runs*  
*LongestRun\_mi*  
*trams*  
*SkiableTerrain\_ac*

#### RANDOM FOREST MODEL

*fastQuads*  
*Runs*  
*Snow Making\_ac*  
*vertical\_drop*  
*SkiableTerrain-ac*  
*Total\_Chairs*  
*ProjectedDaysOpen*  
*Resort\_days\_open\_stateratio*

## RANDOM FOREST MODEL

### FINAL MODEL SELECTION

	LINEAR	RANDOM FOREST
mae_mean	10.49	9.64
mae_std	1.62	1.35
MAE	11.79	9.53

The random forest model has lower cross-validation mean absolute error by almost \$1. It also exhibits less variability.

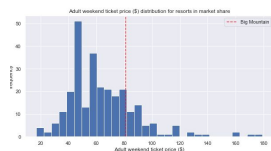
# 04 MODELING RESULTS AND ANALYSIS

## PRICE

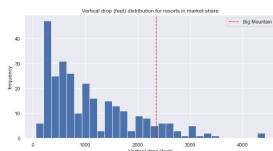
Calculate Expected Big Mountain Ticket Price From The Model

**\$95.87 with MAE \$10.39 (Current: \$81.00)**

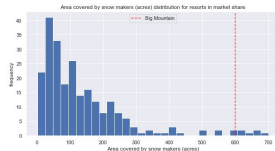
Big Mountain Resort In Market Context



Ticket Price



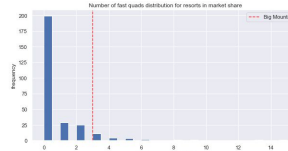
Vertical Drop



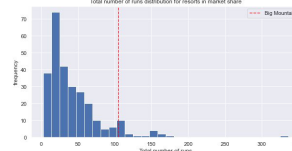
Snowmaking Area



# of chairs



Dast quads



Runs

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# 04 MODELING RESULTS AND ANALYSIS

## MODELING SCENARIOS

**Scenarios : potential scenarios for either cutting costs or increasing revenue (from ticket prices)**


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

# of Closing	Decreased Price
1	\$ 0
2	-\$ 0.40
3 - 5	-\$ 0.66
6 - 8	- \$ 1.26
9	- \$ 1.71
10	- \$ 1.81

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

This scenario increases support for ticket price by \$1.99  
Over the season, this could be expected to amount to \$3,474,638

# 05 SUMMARY AND CONCLUSION

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1. **Raise the ticket price:** \$95.87 is the right price for our resort ticket price. And the ticket price can be up to \$106.40. To cover the additional operating cost for the new chair, we need to raise the price by at least \$0.88.
  2. **Possibility to increase the revenue:** Additional investment in ski resorts facility could raise the ticket price. To verify that the investment increase revenue, we need to conduct further analysis with more data regarding expenses.