

BIG MOUNTAIN RESORT CASE STUDY

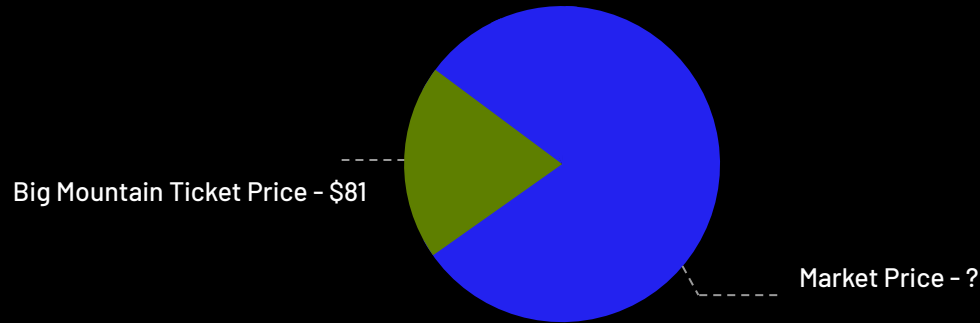
Strategy Plan 2025

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01

Problem Identification

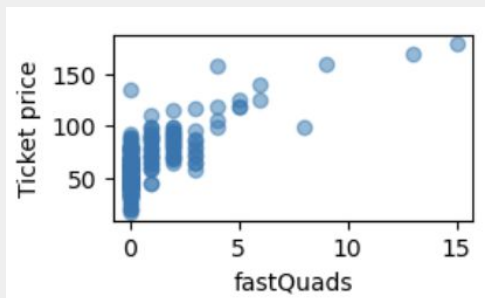
Can we improve ticket price for Big Mountain ?



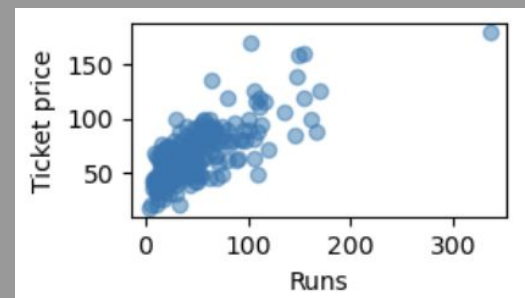
FEATURES INFLUENCING TICKET PRICE

4

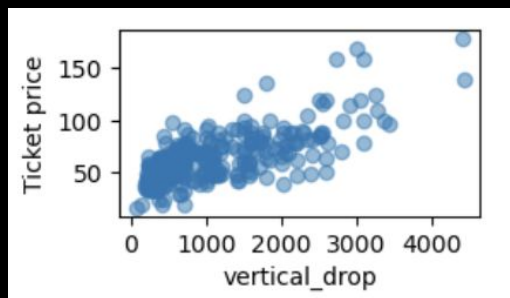
FAST QUADS



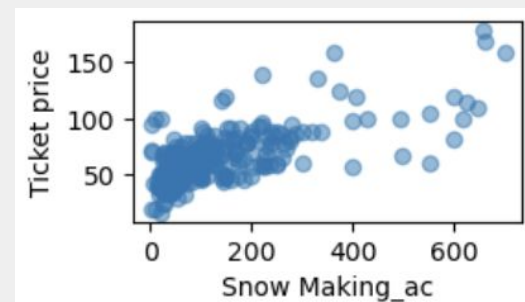
RUNS



VERTICAL DROP



SNOW MAKING AREA (acres)



02

Recommendation

SCENARIOS TO INCREASE REVENUE

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SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4
Permanently closing down up to 10 of the least used runs. This doesn't impact any other resort statistics.	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	Same as number 2, but adding 2 acres of snow making cover	Increase the longest run by 0.2 mile to boast 3.5 miles length, requiring an additional snow making coverage of 4 acres

ACTION PLAN

SCENARIO 2: IT BUMPS UP THE TICKET PRICE FROM \$81 TO \$95.87.
INCREASES REVENUE COLLECTION BY \$3,474,638

03

MODEL RESULTS & ANALYSIS

AGENDA

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01 DATA WRANGLING

02 EXPLORATORY DATA ANALYSIS (EDA)

03 PRE-PROCESSING

04 MODELLING

Initial Data (csv file)

- 330 ski resort rows and 27 columns

Clean Data

- Drop Columns that were not informative in the analysis of ticket price
- Drop Rows that had missing values

Check for Target Value

- Verify if ticket predictor variable is present in data - AdultWeekend

Final Data - Set up for EDA

- Store cleaned data (csv) - 270 rows , 25 columns
 - Generate a new dataset with state information to aid further analysis
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Check relationship of features

- No direct trends observed between AdultWeekend column and Feature columns

Perform PCA

- No clear groupings in the prices by state.

Heatmaps for Correlation

- Showed correlation of AdultWeekend with fastQuads, Runs, Vertical_Drop and total_chairs

Set up for Pre-processing

- Store the analysis of important feature types for Pre-processing
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Clean data for ML model

- Scaling the data - StandardScaler
- Imputing missing values using median

Train Model on Random Forest Tree

- (Mean , Std)=(9.644, 1.352)
- Mean Absolute Error = 9.537

Train Model on Linear Regression

- (Mean , Std)=(10.499, 1.622)
- Mean Absolute Error = 11.793

Final Model Selected

- Random Forest model is chosen for further analysis because it had lower Mean Absolute Error compared to Linear Regression Model
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Verify Big Mountain facilities with the rest

- Plot distributions of important features and we see Big Mountain is among the big leagues of facilities provided at ski resorts
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Apply Random Forest Model

- Predicted Price = \$95.87
- Actual Price = \$81.00

Scenario Modelling

- Model 4 scenarios discussed and check delta in revenue

Final Suggestion

- By increasing the ticket price to \$1.99, which considers increase in vertical_Drop by 150 feet and additional of a run and chair, we can generate a revenue of \$3474638
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04

Closing Comments

Future Work ?

- Model doesn't account for operational cost, so something to consider in future after appropriate data collection
- If adopted, strategies to maintain the model need to be considered.

Questions?

THANK YOU

COMPANY NAME