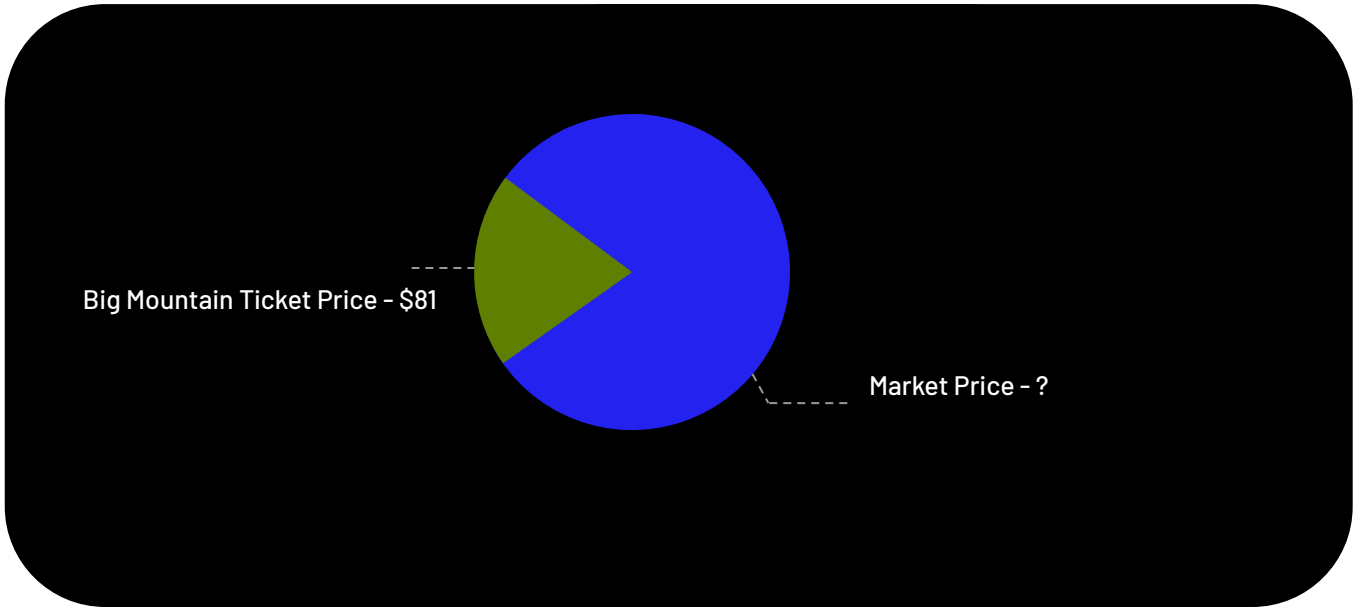
BIG MOUNTAIN RESORT CASE STUDY

Strategy Plan 2025

01

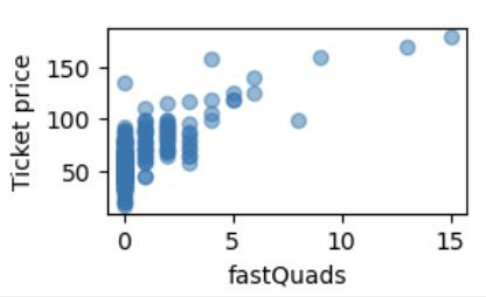
Problem Identification

Can we improve ticket price for Big Mountain ?

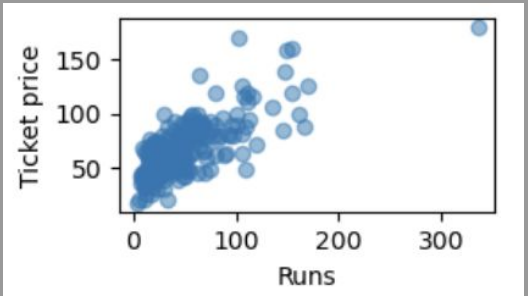


FEATURES INFLUENCING TICKET PRICE

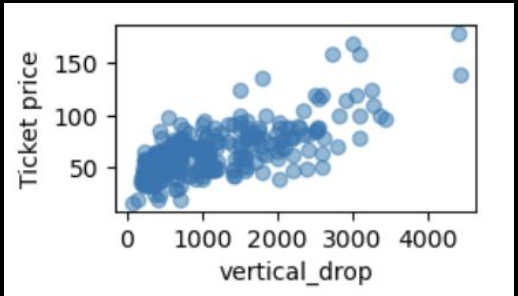
FAST QUADS



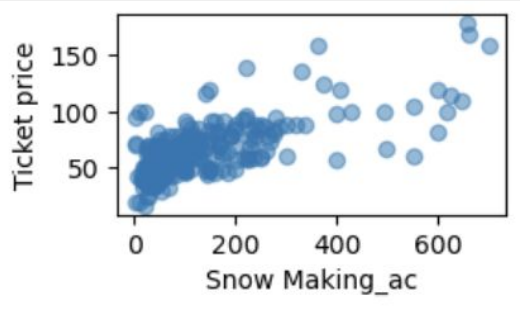
RUNS



VERTICAL DROP



SNOW MAKING AREA (acres)



02

Recommendation

SCENARIOS TO INCREASE REVENUE

SCENARIO 1

Permanently closing down up to 10 of the least used runs. This doesn't impact any other resort statistics.

SCENARIO 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

SCENARIO 3

Same as number 2, but adding 2 acres of snow making cover

SCENARIO 4

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

01 DATA WRANGLING

02 EXPLORATORY DATA ANALYSIS (EDA)

03 PRE-PROCESSING

04 MODELLING

Data Wrangling

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

Exploratory Data Analysis (EDA)

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

Pre-Processing

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

Modelling

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 •
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

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