

Big Mountain Resort Ticket Pricing Challenge

Problem Statement and Approach

- Current adult weekend ticket price: **\$81**
- Objective: Boost profitability through:
 - Premium pricing strategy
 - Streamlined internal cost management
- Approach: Benchmark against national ski resort pricing and facility data

Data Insights

- Dataset: Resort-level numeric features + engineered ratios
- Excluded categorical variables: *Name, Region, State*.
- Key Exploratory Analysis Findings:
 - Summit & base elevation strongly correlated
 - Multicollinearity observed in ratio features
 - Night skiing ratio shows strong link with pricing
 - Runs, total chairs, and vertical drop correlate positively with higher ticket prices

Recommendation & Key Findings

- Predicted ticket price: \$95.87 vs. current \$81
- Safe recommended increase: +\$5–\$7 per ticket (allowing for MAE = \$10.39)
- Scenario modeling supports +\$1.99 additional increase with new investments (run, lift, snowmaking)
- Strategic outcome: Revenue growth + premium positioning

Modeling Results & Analysis

- Baseline: Mean predictor
- Models tested: Linear Regression and Random Forest Regressor
- Techniques:
 - Pipelines for feature scaling + transformation
 - 5-fold cross-validation
 - GridSearchCV for hyperparameter tuning

Modeling Results

Model	Train MAE (Mean)	Train MAE (Std. Dev)	Test MAE
Linear Regression	10.49	1.62	11.79
Random Forest	9.64	1.35	9.54

- Random Forest had consistently lower MAE (Mean Absolute Error)
- Selected as best-performing model

Scenario Modeling Results

- Scenario 2: New run + 150 ft vertical drop + new chair lift → supports +\$1.99 price → ≈ \$3.47M seasonal revenue
- Scenario 3: Scenario 2 + 2 acres snowmaking → also +\$1.99 price → ≈ \$3.47M seasonal revenue
- Pricing Strategy = \$81 + (\$5–\$7 baseline) + \$1.99 scenario
- Other scenarios: negligible impact → not recommended

Summary & Conclusion

- Big Mountain is currently underpriced
- Random Forest model provides best predictive accuracy
- Safe ticket price increase: \$5–\$7 per ticket
- Additional \$1.99 justified with new investments (runs, lifts, snowmaking)
- Strategy balances profitability, customer value, and long-term growth