Problem Identification

Big Mountain Resort — Pricing Misalignment

Key Insights:

- Big Mountain's weekend ticket price is **$81**, while comparable resorts charge **90–$96**
- Big Mountain's state Montana, **median** ticket price is **$51** and the national median: ≈ $60, showing local affordability expectations.
- This suggests a **pricing–value mismatch**, not overpricing.
- Aligning price with actual value could unlock new revenue potential.

📊 ***Figure 1 – Average Ticket Price by Region/State***

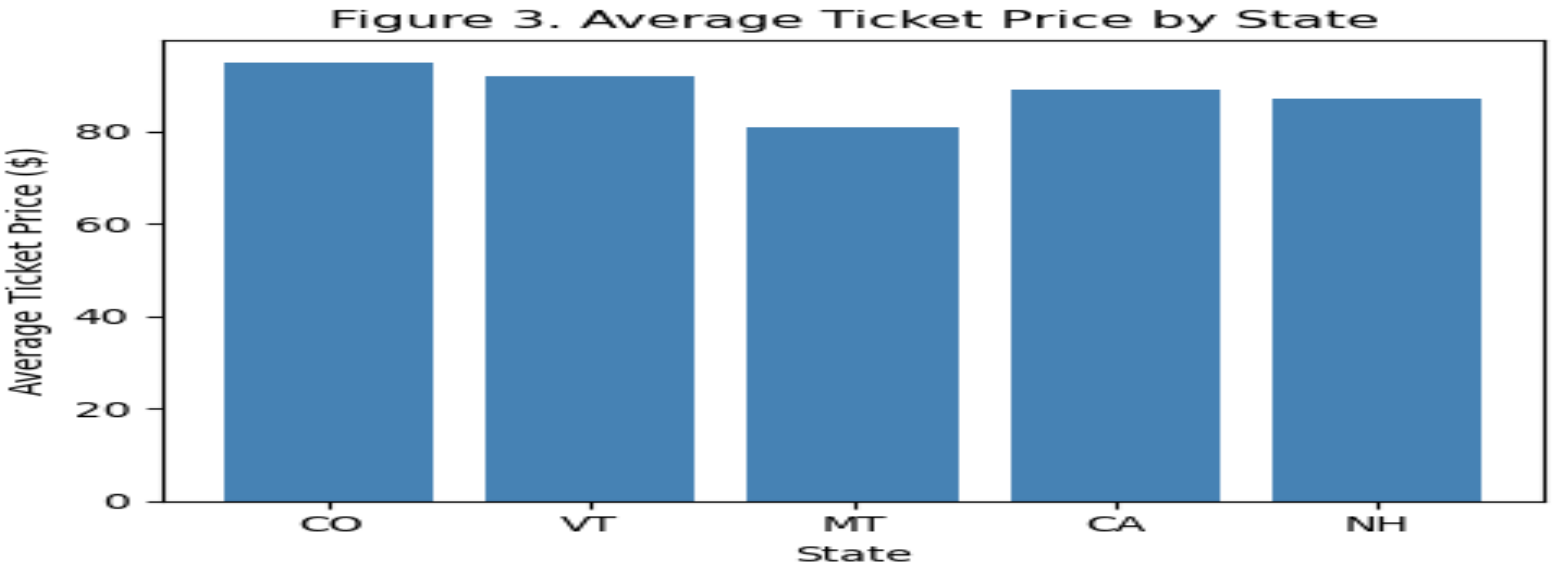
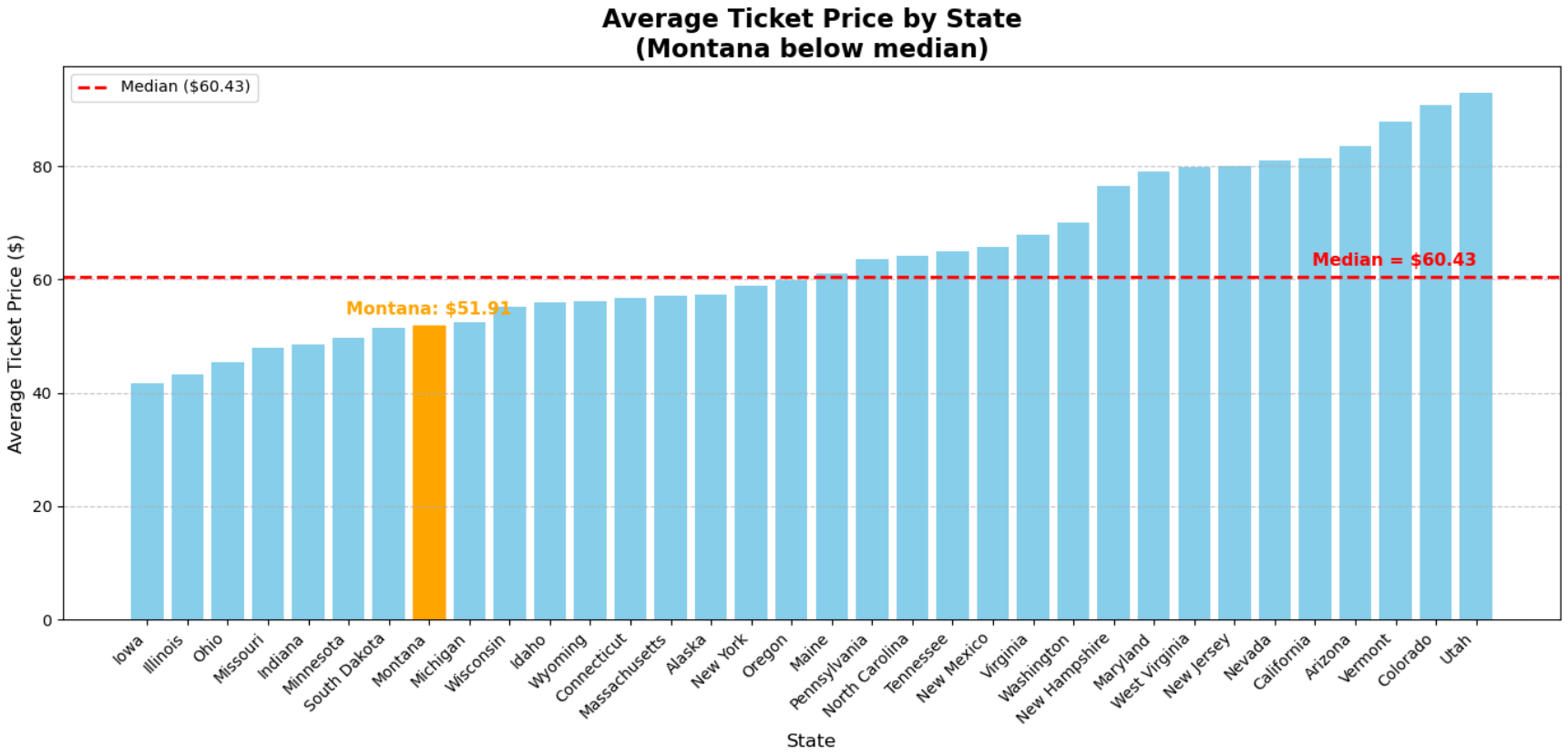


Figure 1 –Median Ticket Price (red) and Average Ticket Price by State



Takeaway:

Big Mountain's pricing is misaligned — locally premium but regionally and nationally undervalued — indicating a revenue opportunity.

Data & Project Scope

Building a Data-Driven Pricing Model

Key Points:

- Dataset**: 330 resorts, 27 features** (after cleaning**: 277 × 25**)
- Key variables: **Vertical Drop, Runs, Lifts, Snowmaking Acres**
- Target: **Adult Weekend Price ($)**
- Outliers removed, missing data values treated for consistency

🔄 Flow Diagram**: Raw Data → Cleaning → Model Inputs → Insights**

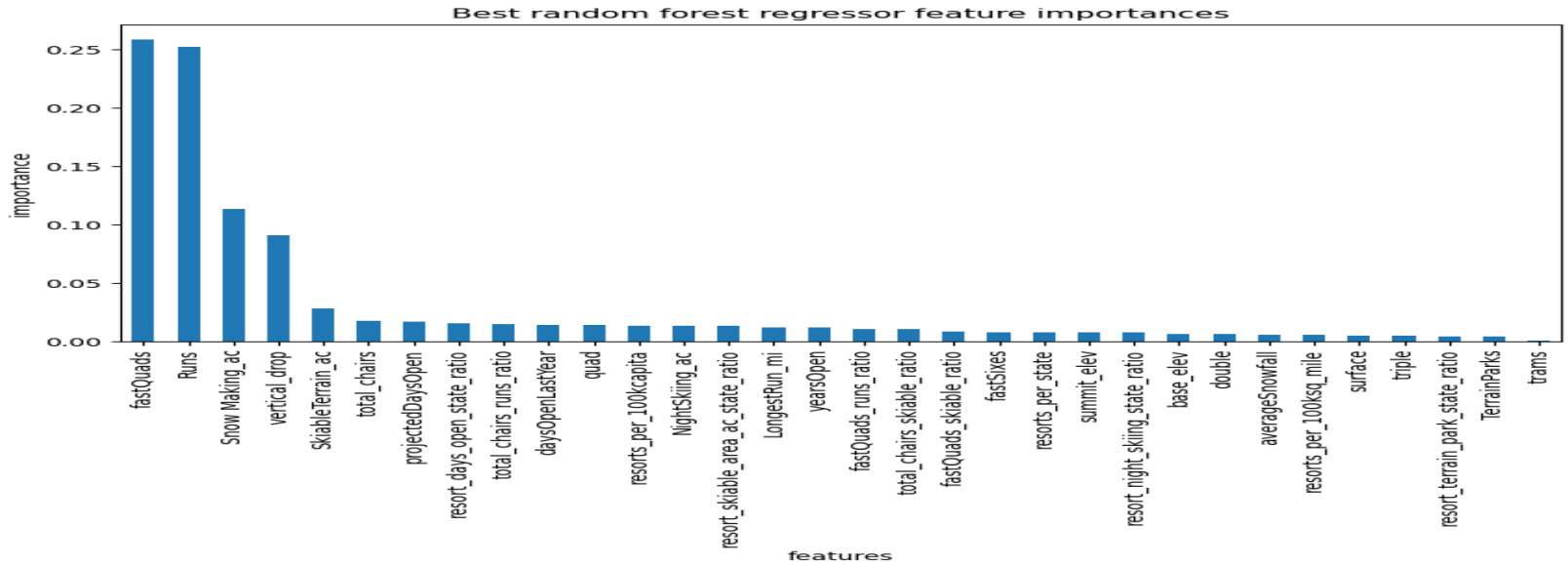
Model Findings & Recommendation

Data-Driven Pricing Strategy

Key Points:

- Model-predicted fair price: **≈ $95.7** and Actual price: **$81 → ≈ 18 % undervalued**
- Recommended path:
- • Raise to **$92** short-term
- • Move to **$95** post-lift upgrade
- Revenue Projection: **350K visitors * +$2 ≈ $3.5M** seasonal gain — offsets infrastructure costs
- Key value drivers: Fast lifts, Number of runs, Snowmaking capacity, Vertical drop

Figure 2: Feature Importance Bar Chart — Top Predictors



Top 4 features: Vertical Drop, Fast Lifts, Number of Runs, Snowmaking Acres

Key Pricing Drivers

Facility Scale Drives Value — Not Geography

- Resorts with greater capacity—more runs, lifts, and snowmaking—command higher prices.
- Vertical drop and lift speed amplify visitor value perception.
- Once these features are accounted for, region and state location contribute little to price variation.
- Infrastructure investment directly correlates with perceived quality and willingness to pay.
- The data confirms: price leadership follows facility scale, not physical location.

Takeaway:

- **Investing in resort scale and experience yields stronger returns than relying on geographic positioning.**

Model Performance

Predictive Accuracy and Model Selection

Summary:

- Three models were tested to predict ticket prices: Dummy Regressor (baseline), Linear Regression, and Random Forest.
- The Dummy model showed no predictive power ($R^2 = 0$).
- Linear Regression achieved $R^2 = 0.72$ with average error ≈ $9.4.
- Random Forest delivered $R^2 = 0.74$ with similar error ≈ $9.5 **but better stability across features**.
- The Random Forest was selected for its consistent **accuracy** and **robustness**.
- Predictions typically **fell within ± $10 of actual ticket prices**.

Takeaway:

- **The final model accurately reflects real-world pricing patterns and is suitable for strategic forecasting.**

Scenario Modeling & ROI

Operational Decisions and Their Impact:

Scenario	Effect
❌ Close runs	Reduces value and visitor appeal
✅ Add new run + high-speed lift	Strong return on investment
🟣 Expand snow coverage	Minor benefit to perceived value
🟣 Extend longest run	Negligible change in pricing

- Scenarios were simulated using the trained model.
- Only expanding runs and adding a new lift showed material pricing improvement.
- Snow or length enhancements offered diminishing returns.
- The lift project is financially justified through clear value uplift.

Takeaway:

- **Infrastructure investment — especially in lift capacity — provides the strongest ROI leverage for Big Mountain**.

Summary & Conclusion

Strategic Takeaways and Next Steps

Key Points:

- **Pricing Review Outcome:**
  Big Mountain's current ticket price (**$81**) is **above the national median ($60)** but **below its modeled fair value (~$96)**.

- **Key Insight:**
  Facility strength — not geography — is the main determinant of value and pricing power.

- **Financial Impact:**
  A **data-driven price realignment to $92–$95** can generate approximately **$3.5 million in additional seasonal revenue**.

- **ROI Validation:**
  The new **high-speed lift** provides the strongest measurable return, enhancing both **capacity** and **price justification**.

- **Strategic Direction:**
  Adopt a **value-based pricing strategy** supported by **brand repositioning** and **infrastructure investment** to sustain long-term competitiveness.

Closing Statement:

- *Big Mountain is well-positioned to move from a locally premium resort to a regionally recognized leader — by aligning its pricing with the value it already delivers.*