Improving NRA Membership

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Through Data-Driven Insights

Subtitle: *Predictive Modeling for High-Revenue Restaurant Targeting*

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Agenda

1. Key Challenges & Opportunities
2. Methodology
3. Model Performance Comparison
4. Feature Importance
5. Prediction Results
6. Recommendations
7. Q&A

8.References

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KeyChallenges & Opportunities

Challenges:

- Decline in NRA membership over the past year.
- Difficulty in attracting high-revenue restaurants.
- **Opportunities**:
  - Use predictive modeling to identify high-revenue restaurants.
  - Focus outreach efforts on high-potential prospects.

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Methods Used:

- **Dataset**:
  - Restaurant features: Rating, Seating Capacity, Average Meal Price, etc.
  - Target variable: Revenue_cat (1 if revenue $\geq$ $656,071, 0 otherwise).
- **Models Trained**:
  - Logistic Regression
  - Random Forest •Gradient Boosting
- **Evaluation Metrics**:
  - Accuracy, Precision, Recall, F1-Score.
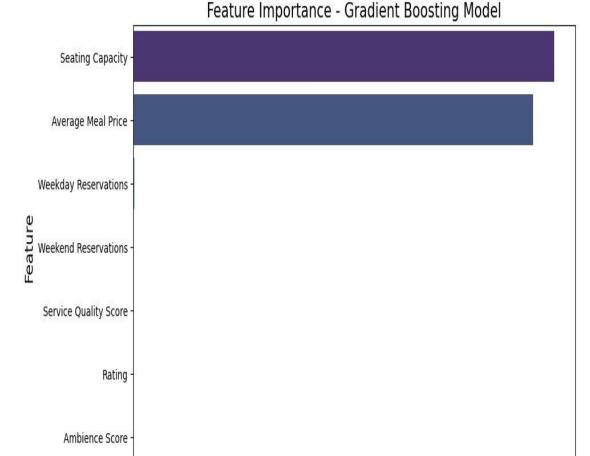
Model Performance Comparison

Comparison Table:

Key Takeaway: Gradient Boosting is the best-performing model.

Model	Accuracy	Precision	Recall	F1-Score
Logistic Regression	0.9514	0.9469	0.9380	0.9424
Random Forest	0.9606	0.9662	0.9398	0.9528

Gradient Boosting	0.9857	0.9813	0.9850	0.9831

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Feature Importance

Feature Importance - Gradient Boosting Model

•**Top Features**:

• **Average Meal Price** (0.45)

• **Seating Capacity** (0.30)

• **Ambience Score** (0.10) • **Service Quality Score** (0.08)

•**Recommendation**: • Focus on restaurants with higher average meal prices and larger seating capacities.

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Prediction Results

For 100 New Restaurants:

- **Correctly Forecasted as "1"**: 42
- **Correctly Forecasted as "0"**: 57
- **Incorrectly Forecasted as "1"**: 1
- **Incorrectly Forecasted as "0"**: 1

Key Takeaway:

- The model is highly accurate, with 99 correct predictions out of 100.

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Recommendations

- **Target High-Impact Variables**:

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- Focus on restaurants with higher **A**

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Invitation Strateg

- **Tailor Membership Benefits**: • Offer benefits that align with the needs of high-revenue restaurants.
- **Monitor Key Metrics**: • Continuously track top features to refine the targeting strategy.

Restaurants to Invite: • Use the Gradient Boosting model to identify high-revenue restaurants (class "1").

- Focus on restaurants with:
- High average meal prices.
- Large seating capacities.

- High ambience and service quality scores.

Why These Restaurants?: • They are more likely to benefit from NRA membership and engage with the Association.

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Conclusion & Q&A

- Monitor performance and refine the strategy over time.
- **Q&A**:
- Open the floor for questions

Summary:

The Gradient Boosting model is highly effective at identifying high-revenue restaurants.

- Implement the model for pre-screening potential members.

Next Steps:

from the Board.

Target

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ing the right prospects will maximize NRA membership grow

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