

Summary for the Case Study:-

Business Problem: X Education, an online course provider for industry professionals, faces a low lead conversion rate despite generating a high number of leads through various channels such as search engines, direct traffic, and referrals. Currently, only about 30% of leads convert into paying customers.

Objective: The goal is to improve the lead conversion rate to approximately 80% by developing a lead scoring model that identifies high-potential leads ('Hot Leads') for the sales team to focus on.

Key Insights:

1. Lead Generation:

- Most leads are generated through landing page submissions.
- Primary traffic sources are search engines and direct traffic.
- Few users take advantage of the free "Mastering the Interview" course.
- Conversion rates are highest for leads from ad forms, referrals, and campaigns, although the bulk of traffic comes from search engines.

2. Data Analysis and Model Building:

- Non-essential columns were removed using Recursive Feature Elimination (RFE) and P-value analysis.
- Initial model analysis was conducted using statsmodel summary.
- The final model was built using Scikit Learn's LogisticRegression, focusing on the essential features.

3. Model Evaluation:

- The tradeoff between specificity and sensitivity was considered, with a cutoff point set at 0.37 for optimal predictions.
- **Train Data:**
 - Accuracy: 78.18%
 - Sensitivity: 78.78%
 - Specificity: 77.81%
- **Test Data:**
 - Accuracy: 79.04%
 - Sensitivity: 81.89%
 - Specificity: 77.23%

Conclusion: In this business scenario, sensitivity is the most critical metric. It measures the model's ability to correctly identify potential leads, ensuring most true positives are captured. Our model achieved an 81.89% success rate in predicting potential conversions, significantly improving the identification of leads likely to convert. This enhancement will enable the sales team to focus their efforts more effectively, thereby increasing the overall lead conversion rate and driving revenue growth for X Education.

This structured approach to lead scoring, coupled with the use of sophisticated modeling techniques, positions X Education to optimize its sales process and better serve its professional clientele.