

Lead Conversion Predictive Modelling

Powering X Education's Sales Transformation

We successfully developed a logistic regression model that provides robust predictive power for identifying high-potential leads. On the test set, the model achieved 78.2% accuracy, an AUC score of 0.85, 79.2% sensitivity, and 77.5% specificity. These strong results, particularly the high sensitivity, indicate that the model can effectively distinguish between likely conversions and those with lower potential, empowering the sales team to focus its efforts where they will have the greatest impact.

Key Predictors of Lead Conversion

Our analysis revealed that a lead's origin, profile, and occupation are the most powerful predictors of conversion.

- **Foundational EDA Insight:** The exploratory data analysis confirmed that Total Time Spent on Website is a critical indicator of user intent. Leads who converted spent significantly more time on the site.
- **Top Model Predictors:** The final model pinpointed specific categorical features that have the most significant impact on conversion probability:
 1. **Lead Source - Welingak Website:** This acquisition channel delivers the highest quality leads.
 2. **Lead Profile - Lateral Student:** This specific profile represents a key segment with a very high likelihood to convert.
 3. **Occupation - Working Professional:** This demographic stands out as a core customer base for X Education.

Focusing on these high-performing sources and profiles will be crucial for prioritizing sales efforts and optimizing marketing spend.

Tailored Strategies for Peak and Off-Peak Periods

To support X Education's aggressive lead conversion targets during the intern hiring period, we recommend a strategy focused on maximizing reach. By setting a lead score threshold of 35 or higher, interns can target approximately 79% of all potential conversions, ensuring broad coverage of promising leads. This allows for aggressive outreach while still being guided by data.

For periods when the company reaches its quarterly targets early, a different approach is required to minimize unnecessary phone calls. The strategy should shift to maximizing precision by setting a very high lead score threshold of 80 or higher. Only these "near-certain" leads would receive a phone call, while all other leads are nurtured through automated communication. This respects the sales team's time and focuses on the most valuable opportunities.

Unlocking Insights and Actionable Recommendations

Our comprehensive analysis revealed the pivotal role of specific lead sources, profiles, and engagement activities in driving conversions. We provide the following actionable recommendations for X Education:

- **Predictive Insights:** Implement the model to assign lead scores and guide sales and marketing teams to focus on high-potential leads.
- **Optimize Campaign Strategies:** Direct marketing efforts and budget towards segments proven to be effective, such as the Welinkak Website source, Lateral Student profiles, and Working Professionals.
- **Periodic Model Validation:** Continuously retrain the model with new data to ensure it reflects evolving market conditions and customer behaviours.
- **Monitor Key Metrics:** Regularly track sensitivity, specificity, and accuracy to ensure the model's ongoing performance and business impact.

This predictive modelling project has equipped X Education with a powerful, data-driven tool. By combining robust model performance, actionable insights, and strategic recommendations, the company is well-positioned to achieve its ambitious 80% conversion target for "Hot Leads" and drive significant growth with high operational efficiency.