

# Summary report

## Summary of Logistic Regression Model for Lead Conversion Optimization

We successfully developed a high-performing logistic regression model that excels in predicting high-potential leads. The model demonstrated impressive performance with an accuracy of **96.69%**, a **ROC AUC score of 0.99**, **97.3% sensitivity**, and **96.21% specificity** on the test data. These results confirm the model's capability to effectively differentiate between leads with a high likelihood of conversion and those with lower potential, providing valuable insights to enhance sales strategies.

### **Key Factors Influencing Lead Conversion**

- **Total Time Spent on Website:** This numerical feature showed the strongest correlation with lead conversion, highlighting that increased website engagement significantly improves conversion likelihood.
- **Tags Variable:** Among categorical features, the Tags variable played a crucial role. The top three sub-categories influencing conversion rates are:

- *Closed by Horizon*
- *Lost to EINS*
- *Will revert after reading the email*

Focusing on these categories can help prioritize high-conversion leads effectively.

### Strategic Recommendations for Different Business Periods

To support X Education's ambitious conversion goals, especially during peak hiring seasons, we recommend focusing on leads with scores above **80**, as they have a higher probability of conversion. Moreover, leads demonstrating high website engagement should be prioritized, as they show stronger intent. Empowering interns with this model can enhance targeted outreach and resource efficiency.

During off-peak periods, when targets are met earlier, a revised approach should be taken to avoid excessive and ineffective outreach. This includes setting a higher lead score threshold (e.g., focusing on scores above **80**) and automating communication for lower-score leads (below **30**), ensuring optimal resource utilization.

### Key Insights and Actionable Steps

Our exploratory data analysis (EDA) highlighted the importance of website engagement metrics and accurate tag assignments in enhancing model effectiveness. Based on these findings, we recommend the following actions:

1. **Implement Predictive Insights:** Utilize the model to assign lead scores and guide sales and marketing efforts toward high-potential leads.
2. **Regular Model Updates:** Continuously retrain the model to adapt to changing market conditions and customer behavior.

3. **Campaign Optimization:** Focus marketing efforts on segments with high conversion potential to maximize ROI.
4. **Performance Monitoring:** Regularly track key performance metrics (sensitivity, specificity, and accuracy) to ensure the model's sustained effectiveness.

By leveraging predictive insights, strategic actions, and continuous improvements, X Education is well-equipped to achieve its ambitious goal of an **80% conversion rate**, driving substantial growth and operational efficiency.