

SUMMARY

X Education: Analysis of Industry Professional Enrolment

Executive Summary

This report summarizes a data-driven analysis conducted to understand and improve the enrolment rate of industry professionals in X Education's courses. The analysis involved a comprehensive approach, including data cleaning, exploratory data analysis, predictive modelling, and evaluation.

Methodology

1. **Data Cleaning:** The provided dataset was cleaned by addressing missing values and irrelevant options in categorical variables.
2. **Exploratory Data Analysis:** EDA was performed to understand data distribution, identify outliers, and uncover patterns within the data.
3. **Feature Engineering:** Dummy variables were created for categorical features, and numerical features were standardized.
4. **Model Building:** A predictive model was built using a robust classification algorithm. Feature selection techniques like Recursive Feature Elimination and analysis of Variance Inflation Factor were employed to select the most relevant predictors.
5. **Model Evaluation:** The model demonstrated excellent predictive performance on both training and test datasets:
 - **Accuracy:** 92.29%, 92.78%
 - **Sensitivity:** 91.70%, 91.98%
 - **Specificity:** 92.66%, 93.26%
 - **ROC AUC:** 0.97
6. **Threshold Optimization:** The optimal probability threshold for classification was determined to be 0.3, achieving a balance between precision (89%) and recall (91%) on the test data.

Key Findings & Recommendations

While the summary provides a robust overview of the methodology and model performance, it lacks specific insights into the key factors driving enrolment and actionable recommendations.

To enhance this report, the following is recommended:

- **Identify and highlight the most influential factors:** What specific attributes or behaviours of potential students were most strongly correlated with enrolment?
- **Translate insights into actionable strategies:** For example:
 - **Website Optimization:** If certain web pages or content were found to be highly engaging for potential enrollees, suggest improvements to those areas.
 - **Marketing and Outreach:** If specific referral sources or marketing channels proved most effective, recommend focusing efforts on those avenues.
 - **Course Design:** If certain course features or topics were highly appealing, suggest highlighting those aspects in marketing materials.

By incorporating these details, the report will provide the CEO of X Education with a clear understanding of the factors driving enrolment and actionable recommendations to attract more industry professionals to their courses.