

Summary

This analysis focuses on X Education's efforts to increase enrollment from industry professionals in their courses. The initial dataset provided insights into potential customers' website interactions, visit durations, referral sources, and conversion rates.

Steps Involved:

Data Cleaning:

Addressed minor null values and replaced non-informative "option select" entries with nulls.

Categorized geographical data into "India," "Outside India," and "Not provided."

Handled null values by marking some as "not provided" and later excluded these during dummy variable creation.

Exploratory Data Analysis (EDA):

Conducted a brief EDA to assess data quality.

Identified irrelevant categories within categorical variables.

Verified numeric data for outliers, finding none.

Dummy Variables:

Generated dummy variables, subsequently removing those with "not provided."

Applied MinMaxScaler to normalize numeric data.

Train-Test Split:

Split the dataset into 70% training data and 30% test data.

Model Building:

Employed Recursive Feature Elimination (RFE) to select the top 15 variables.

Model Evaluation:

Constructed a confusion matrix.

Determined the optimal cut-off value using the ROC curve, achieving approximately 80% accuracy, sensitivity, and specificity.

Prediction:

Applied the model to the test dataset, using an optimal cut-off of 0.35, resulting in 80% accuracy, sensitivity, and specificity.

Precision-Recall:

Re-evaluated using Precision-Recall analysis.

Identified a cut-off of 0.41, achieving around 78% precision and 70% recall on the test data.

Key Variables Influencing Potential Buyers (in descending order of importance): Total time spent on the website.

Total number of visits.

Lead source:

Google

Direct traffic

Organic search

Welingak website

Last activity:

SMS

Olark chat conversation

Lead origin being Lead add format.

Current occupation as a working professional.

By leveraging these insights, X Education can significantly enhance their conversion rates and attract more industry professionals to their courses.