

Summary

This analysis is done for X Education and to find ways to get more industry professionals to join their courses. The basic data provided gave us a lot of information about how the potential customers visit the site, the time they spend there, how they reached the site and the conversion rate.

The following are the steps used:

1. Cleaning data:

The data was partially clean except for a few null values and the option 'select' had to be replaced with a null value since it did not give us much information. Few of the null values were changed to 'Not Specified' so as to not lose much data. Although they were later removed while making dummies.

2. EDA:

A quick EDA was done to check the condition of our data. It was found that a lot of elements in the categorical variables were irrelevant. The numeric values seems good and no outliers were found.

3. Dummy Variables:

The dummy variables were created and later on the dummies with 'Not Specified' elements were removed. For numeric values we used the Standard Scalar.

4. Train-Test split:

The split was done at 70% and 30% for train and test data respectively.

5. Model Building:

Firstly, RFE was done to attain the top 20 relevant variables. Later the rest of the variables were removed manually depending on the VIF values and p-value (The variables with $VIF < 5$ and $p\text{-value} < 0.05$ were kept).

6. Model Evaluation:

A confusion matrix was made. Later on the optimum cut off value (using ROC curve) was used to find the accuracy, sensitivity and specificity which came to be around 89.9%, 83.8% and 95.5%. The ROC curve area is found 0.96

7. Prediction:

Prediction was done on the test data frame and with an optimum cut off as 0.325 with accuracy, sensitivity and specificity of 91%, 90.9% and 91.4%.

8. Precision – Recall:

This method was also used to recheck and a cut off of 0.325 was found with Precision around 87% and recall around 90.9% on the test data frame. It was found that the variables that matter the most in the potential buyers are (In descending order):

1. The Tags:
 - a. Closed by Horizzon
 - b. Will revert after reading the email
 - c. Not Specified
2. Lead Source
 - a. Welingak Website
 - b. Olark Chat
3. Lead Origin_Lead Add Form
4. Last Notable Activity_SMS Sent
5. What is the current occupation
 - a. Working Professional
 - b. Student
 - c. Unemployed
6. Total Time Spent on Website

Keeping these in mind the X Education can flourish as they have a very high chance to get almost all the potential buyers to change their mind and buy their courses.

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