

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 provided' so as to not lose much data. Although they were later removed while making dummies. Since there were many from India and few from outside, the elements were changed to 'India', 'Outside India' and 'not provided'.

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 seem good and no outliers were found. Columns with more than 20% null data is dropped.

3. Dummy Variables:

The dummy variables were created and later on the dummies with 'unknown' elements were removed.

4. Train-Test split:

The split was done at 80% and 20% 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.

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 80% each.

7. Prediction:

Prediction was done on the test data frame and with an optimum cut off as 0.55 with accuracy, sensitivity and specificity of 80%.

8. Precision - Recall:

This method was also used to recheck and a cut off of 0.41 was found with Precision around 73% and recall around 75% on the test data frame. It was found that the variables that mattered the most in the potential buyers are (In descending order):

1. const
2. what_is_your_current_occupation_Unemployed
3. what_matters_most_to_you_in_choosing_a_course_...
4. do_not_email_Yes
5. total_time_spent_on_website
6. last_activity_Email Bounced
7. what_is_your_current_occupation_Working Professional
8. last_activity_Sms Sent
9. last_notable_activity_Olark Chat Conversation
10. lead_profile_Potential Lead
11. lead_source_Olark Chat
12. last_notable_activity_Unreachable
13. lead_profile_Student Of Someschool
14. lead_profile_Lateral Student
15. lead_origin_Lead Add Form
16. last_notable_activity_Had A Phone Conversation
17. lead_source_Welingak 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.