

Summary

This analysis is carried out for X Education in an effort to attract more business professionals to their courses. We learned a lot from the fundamental data on how potential customers use the site, how long they stay there, how they got there, and the conversion rate.

The following are the steps used:

1. Cleaning data:

Except for a few null values, the data was mostly clean. However, the option choose had to be changed to a null value because it provided little useful information. To avoid losing too much data, only a small number of the null values were changed to 'not provided'. 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.

3. Dummy Variables:

The dummy variables were created and later on the dummies with 'not provided' elements were removed. For numeric values we used the MinMaxScaler.

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 $p\text{-value} < 0.11$ 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 80% each.

7. Prediction:

Prediction was done on the test data frame and with an optimum cut off as 0.35 with accuracy, sensitivity and specificity of 75%.

It was found that the variables that mattered the most in the potential buyers are (In descending order):

1. The total time spend on the Website.
2. Total number of visits.
3. When the lead source was:
 - a. Google
 - b. Direct traffic
 - c. Organic search
 - d. Welingak website
4. When the last activity was:
 - a. SMS
 - b. Olark chat conversation
5. When the lead origin is Lead add format.
6. When their current occupation is as a working professional.

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.