

LEAD SCORING CASE STUDY SUMMARY

X Education sells online courses to industry professionals. The company needs a model wherein you a lead score is assigned to each of the leads.

The CEO, in particular, has given a ballpark of the target lead conversion rate to be around 80%.

The following are the steps used:

1. **Cleaning data:**

- a) Check percentage of null values in columns and drop the columns which have more than 45% missing values.
- b) Some of the variables are created by the sales team once they contact the potential lead. We will drop these columns too.
- c) Some of the columns have only 1 category These columns can be deleted.
- d) Some of the columns have one of the value as "Select" These should be considered as null values. Data Value needs to be updated for these columns

2. **EDA:**

- a. Univariate and bivariate analysis of categorical and numerical columns was performed.
- b. Checked the correlations between the variables.
- c. Detected Outliers and cap them using 99% - 1% quantile range.

3. **Dummy Variables and scaling :**

The dummy variables were created for categorical variables and scaling is done using StandardScaler.

4. **Train-Test split:**

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

5. **Model Building:**

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 around ~81% each.

7. Prediction:

Prediction was done on the test data and with optimum cut off 0.34 with accuracy, sensitivity and specificity of 80.71%,81.79%,80.03% respectively.

8. Precision – Recall:

This method was used to recheck and a cut off of 0.41 was found with Precision around 86% and recall around 85% on the test data frame.

Conclusion :

Major indicators that a lead will get converted to a hot lead:

1. Lead Origin_Lead Add Form
2. Occupation_Working Professional
3. Lead_Source_Welingak website
4. Last Activity_SMS Sent
5. Lead Source_Olark Chat

Major indicators that a lead will NOT get converted to a hot lead:

1. Last_Activity_Olark chat conversation
2. Lead Ongin_Landmg Page Submission
3. Do Not Email

Recommendations :

The company should use a leads score threshold of 34 to identify "Hot Leads" as at this threshold, Sensitivity Score of the model is around 81% which is as good as CEO's target of 80%.