

Lead Score Case Study

Group Members

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Problem Statement

- X Education sells online course to industry professionals.
- Although X Education gets a lot of leads , its lead conversion rates is very poor . For example, if say ,they acquire 100 leads in a day only about 30 of them get converted.
- To make this process more efficient the company wishes to identify the most potential lead also known as 'hot leads'.
- If they successfully identify this set of leads, the lead conversion rate should go up as the sales team will now be focusing more on communicating with the potential leads rather than making calls to everyone.

Business Objective

- To find most promising leads for X Education
- To build the model to find the hot leads.
- Deploy the model for future use.

Solution Methodology

- Data cleaning and data manipulation.

1. Check and handle duplicate data.

2. Check and handle NA values and missing values.

3. Drop columns, if it contains large amount of missing values and not useful for the analysis.

4. Imputation of the values, if necessary.

5. Check and handle outliers in data.

- EDA

1. Univariate data analysis: value count, distribution of variable etc.

2. Bivariate data analysis: correlation coefficients and pattern between the variables etc.

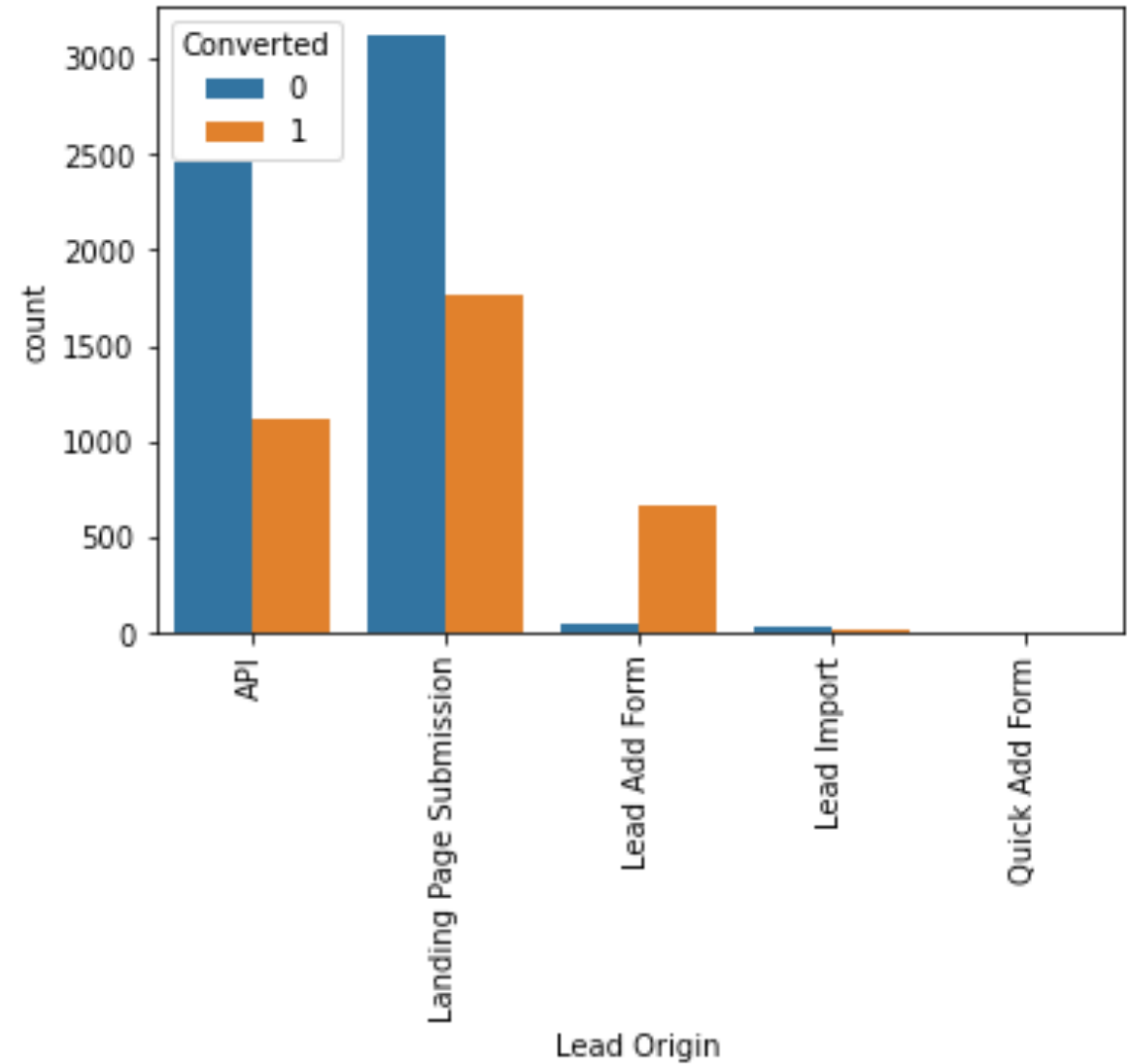
- Feature Scaling & Dummy Variables and encoding of the data.
- Classification technique: logistic regression used for the model making and prediction.
- Validation of the model.
- Model presentation.
- Conclusions and recommendations.

Data Manipulation

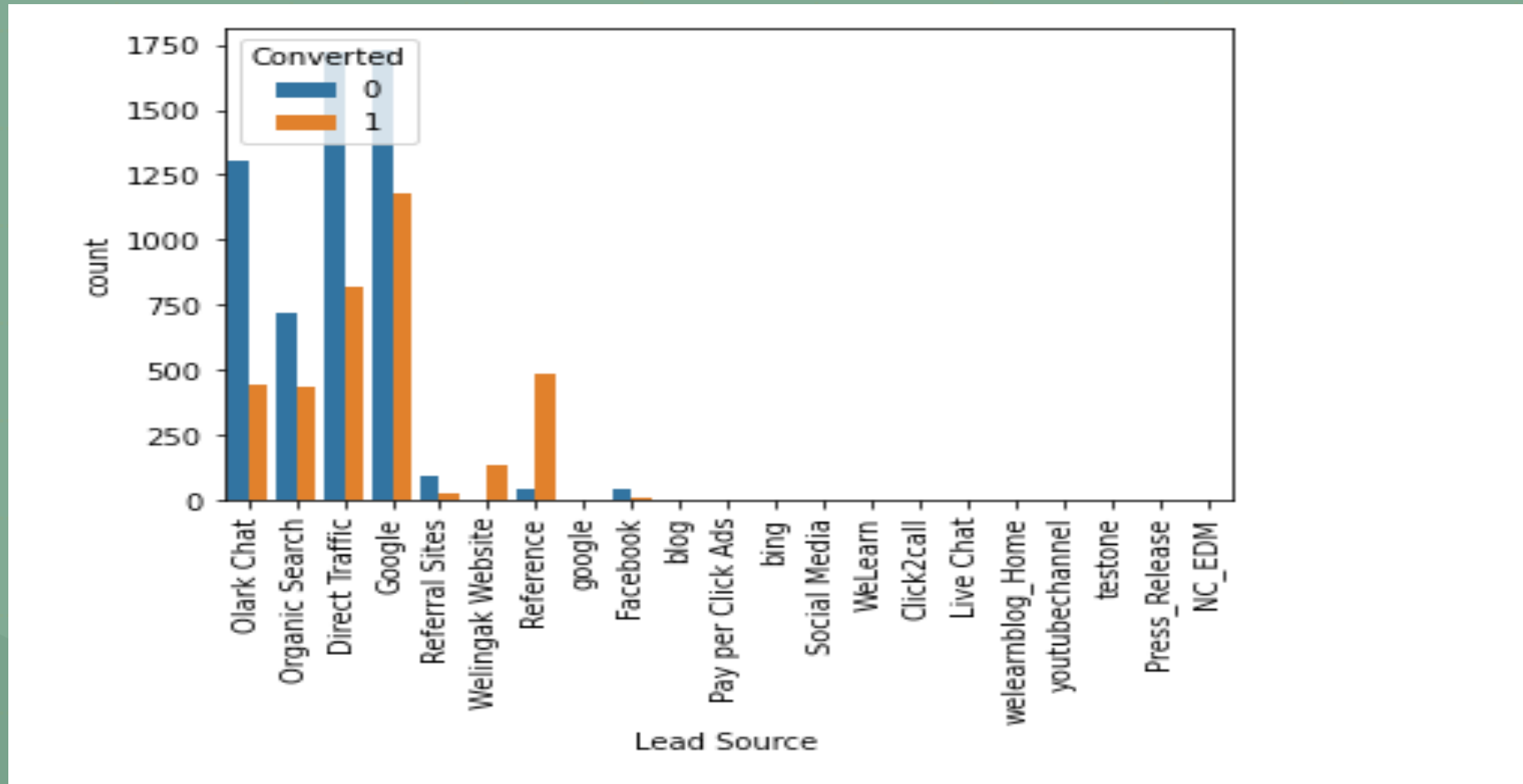
- Total number of rows= 37, Total number of columns=9240.
- Single value features like "Magazine", "Receive More updates about our courses", "update me on supply".
- Chain Content", "Get updates on DM Content", "I agree to pay the amount through cheque" etc. have been dropped.
- Removing the "Prospect ID" and "Lead Number" which is not necessary for the analysis.
- After checking for the value counts for some of the object type variables, we find some of the features which has no enough variance, which we have dropped, the features are: "Do Not Call", "What matters most to you in choosing course", "Search", "Newspaper Article", "X Education Forums", "Newspaper", "Digital Advertisement" etc.
- Dropping the columns having more than 35% as missing value such as 'How did you hear about X Education' and 'Lead Profile'.

EDA

- Conversion count based on lead origin



Conversion count based on lead source



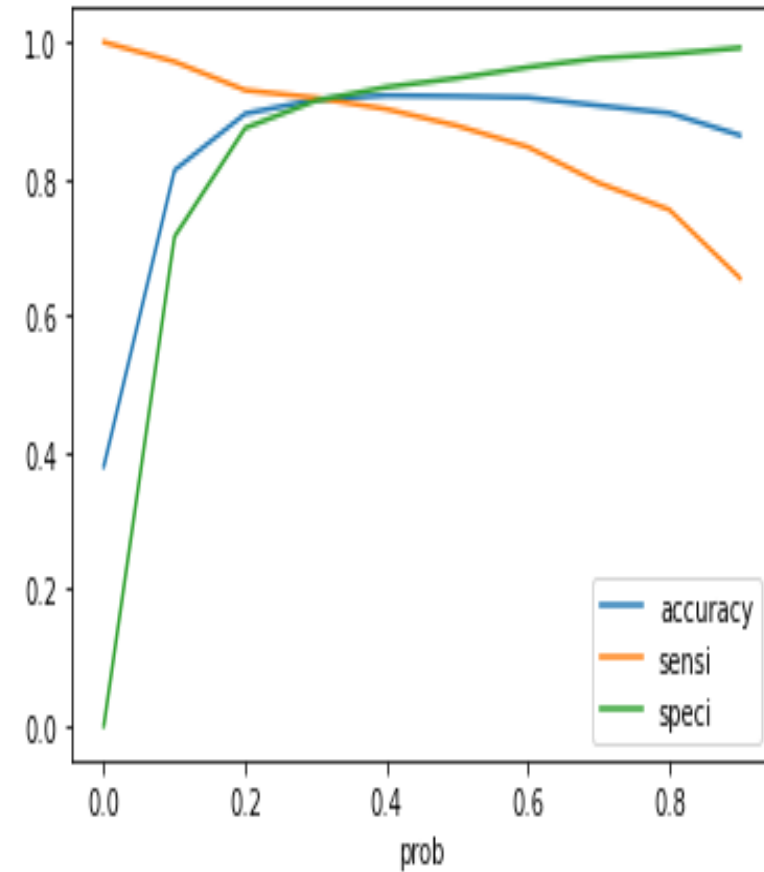
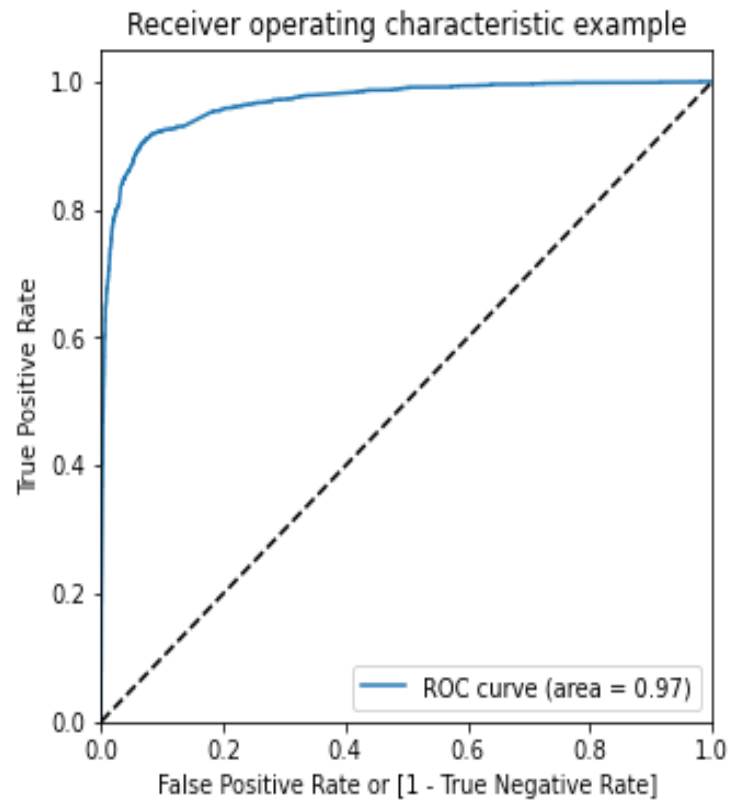
Data Conversion

- Numerical variables are normalized.
- Dummy variables are created for object type variables
- Total rows of analysis : 8792
- Total columns of analysis : 43

Model Building

- Setting the data into training and testing set.
- The first basic step for regression is performing a train test split we have chosen a chosen 70:30 ratio
- Use RFE for Feature Selection
- Running RFE with 15 variables as output.
- Predictions on test dataset

ROC Curve



Finding optimal cutoff point

- Optimal cutoff probability is that probability where we get balanced sensitivity and specificity .
- From the second graph it is visible that the optimal cutoff is 0.35.

conclusion

- It was found that the variables that mattered the most in the potential buyers are (In descending order) :
- The total time spend on the Website.
- Total number of visits.
- When the lead source was:
 - a. Google
 - b. Direct traffic
 - c. Organic search
 - d. Welingak website
- When the last activity was:
 - a. SMS
 - b. Olark chat conversation
- When the lead origin is Lead add format.
- 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.