

Group Members

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Lead Score Case Study

Problem Statement

- X Education sells online courses to industry professionals
- X Education gets a lot of leads , its lead conversion rate is very poor. For Example , if say , they acquire 100 leads in a day , only about 30 of them are converted .
- To make this process more efficient , the company wishes to identify the most potential leads , 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

- X education wants to know most promising leads
- For that they want to build a model which identifies the hot leads
- Deployment of the model for future use

Solution Methodology

- Domain Knowledge
- Data Understanding (data dictionary)
- EDA
 - Data Cleaning and treatment
 - Checking for duplicates
 - Missing values treatment
 - Incorrect datatypes

Solution Methodology

- Visualization
 - Univariate Analysis
 - Multivariate Analysis
 - Outlier Analysis
- Model Building
 - Creation of dummy variables
 - Test-Train split
 - Feature Scaling
 - Feature Selection Using RFE
- Model Testing and Evaluation

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’.

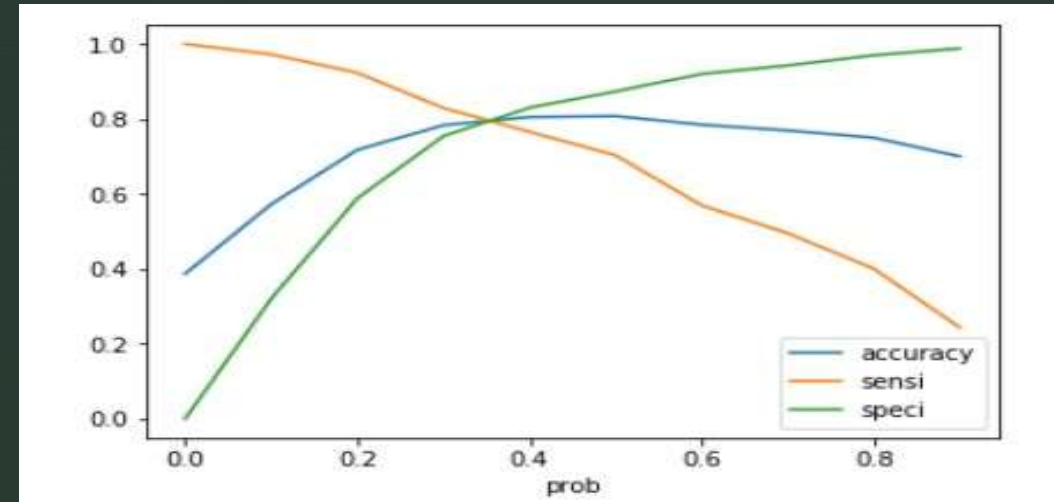
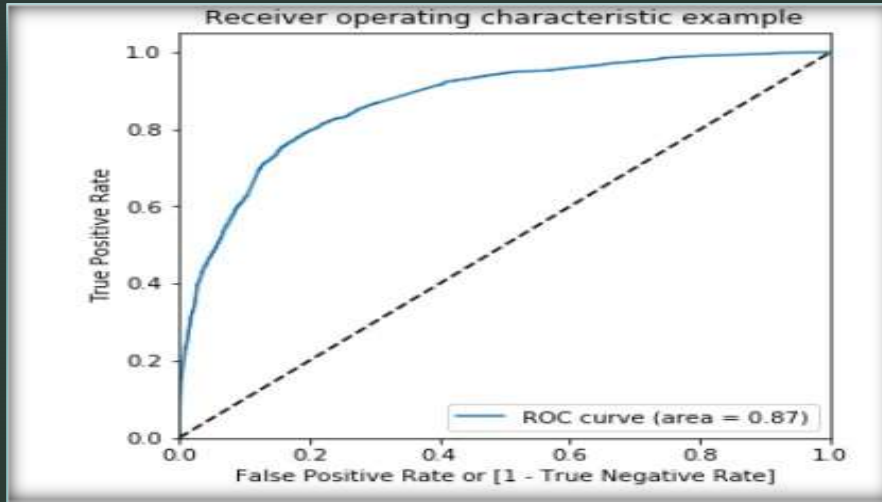
EDA

- Based On the bar Graph visualization removed some of the columns
- Columns are `Newspaper Article` , `X Education Forms` , `Magazine` , `Digital Advertisement` , `Through Recommendations` , `Get updates on DM Content` , `Update me on Supply Chain Content`
- Multivariate analysis of converted and Lead Origin
- Multivariate analysis of Do Not Email based on Converted value
- Treating outliers TotalVisits , Page Views Per Visit
- Analyzing correlation through heat map

Model Building

- Splitting the Data into Training and Testing Sets
- The first basic step for regression is performing a train-test split, we have chosen 70:30 ratio.
- Use RFE for Feature Selection
- Running RFE with 15 variables as output
- Building Model by removing the variable whose p- value is greater than 0.05 and vif value is greater than 5
- Predictions on test data set
- Overall accuracy 81%

ROC Curve



Finding Optimal Cut off Point

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

Conclusion

- 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.