Lead Scoring Case Study

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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.

❖ Final Objective:

- To help them select the most promising leads.
- To build a model wherein you need to assign a lead score to each of the leads such that the customers with higher lead score have a higher conversion chance and the customers with lower lead score have a lower conversion chance.

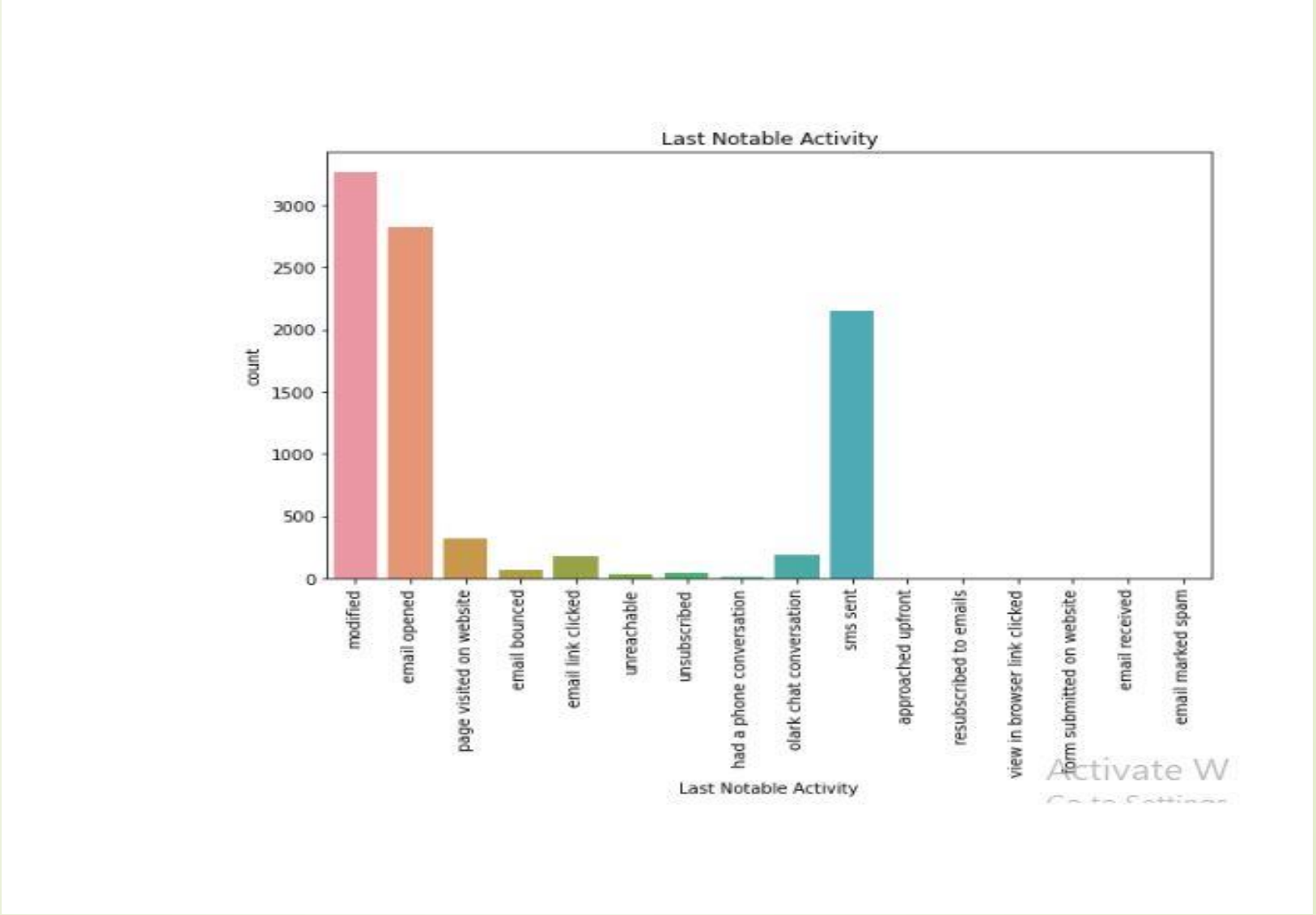
Methodology

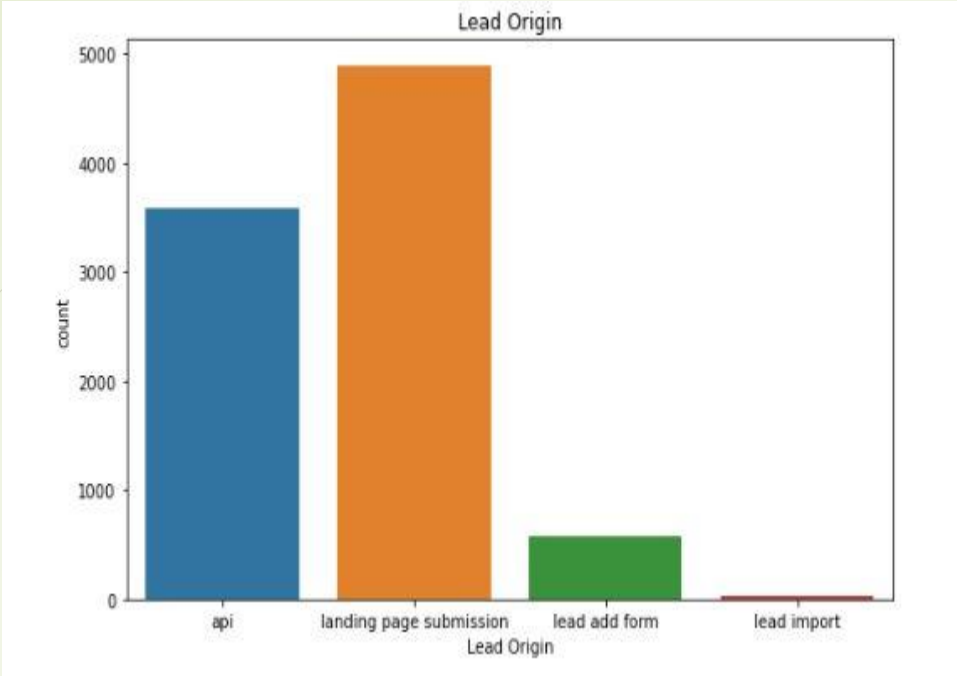
- **Data Cleaning**
  - Check the duplicate values.
  - Check the missing values and handle these values by replacement or removing them.
  - Drop the columns, if they have large amount of missing values and not important in the analysis.
  - Check the outliers.

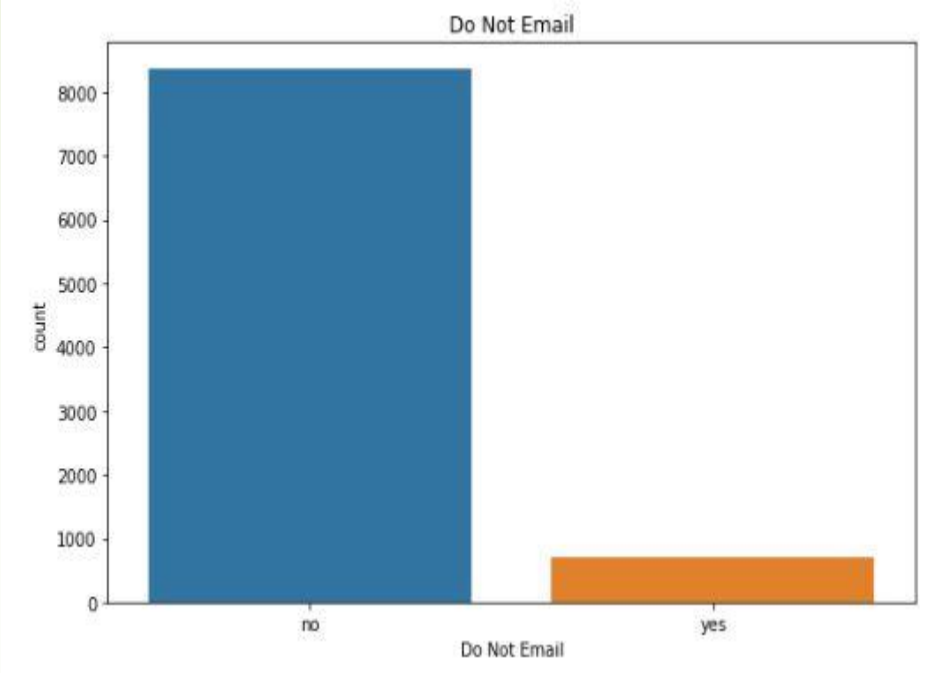
- **Exploratory Data Analysis**
  - Univariate and Bivariate analysis of the categorical and numerical variables.
  - Dummy Variables and encoding of data.
  - Find the pattern between variables

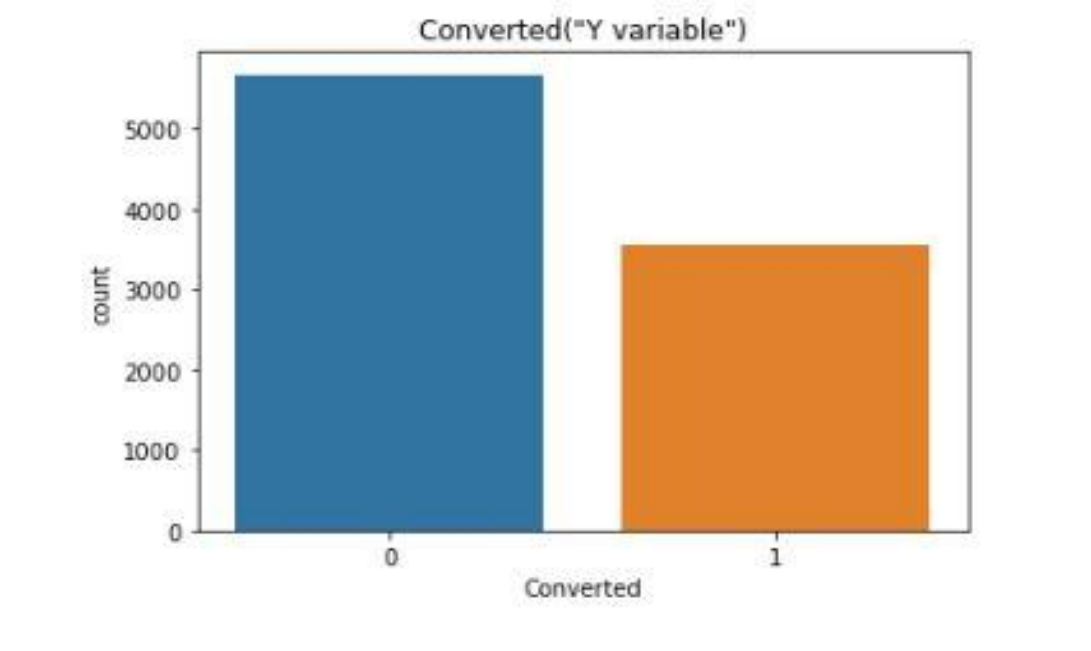
- Feature Scaling & Dummy Variables and encoding of the data.
- Classification technique: logistic regression used for the model making and prediction.
- Validation of the model.
- Model presentation.
- Conclusions and recommendations.

EDA

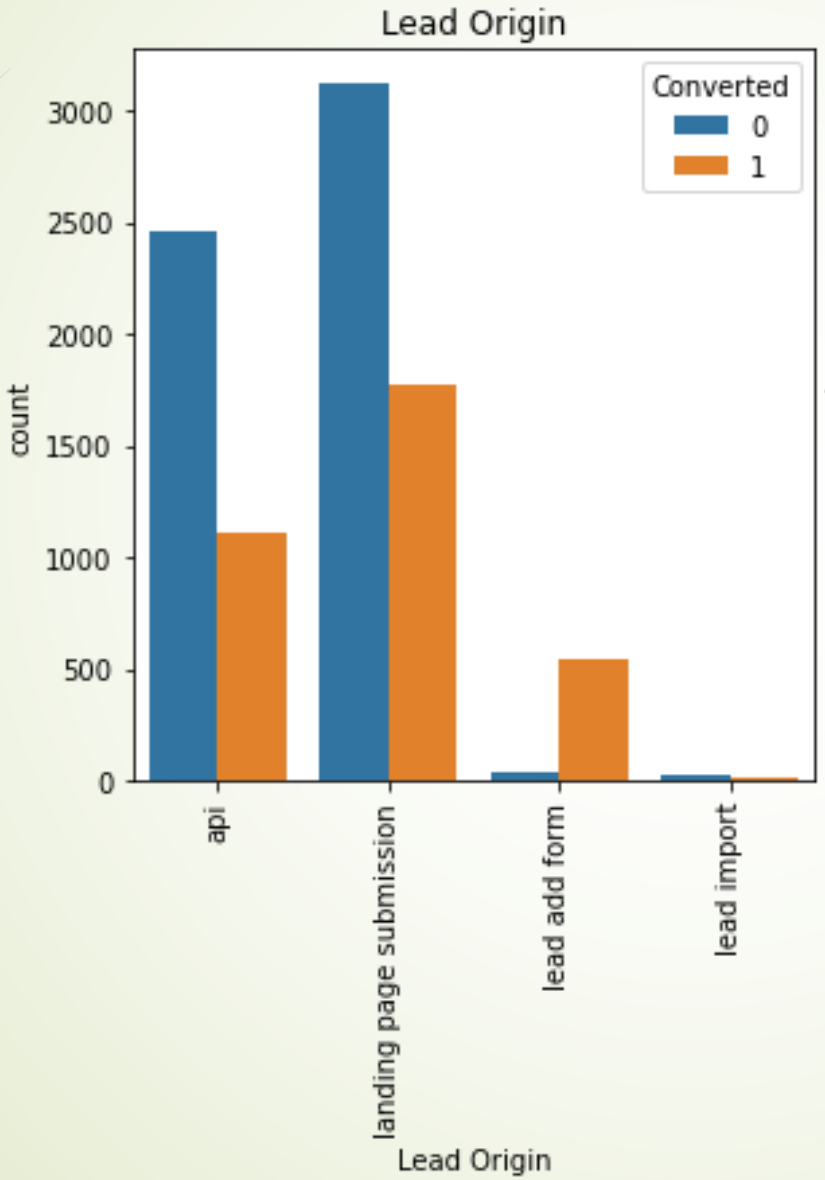

Last Notable Activity
count
3000
2500
2000
1500
1000
500
0
modified
email opened
page visited on website
email bounced
email link clicked
unreachable
unsubscribed
had a phone conversation
olark chat conversation
sms sent
approached upfront
resubscribed to emails
view in browser link clicked
form submitted on website
email received
email marked spam
Last Notable Activity

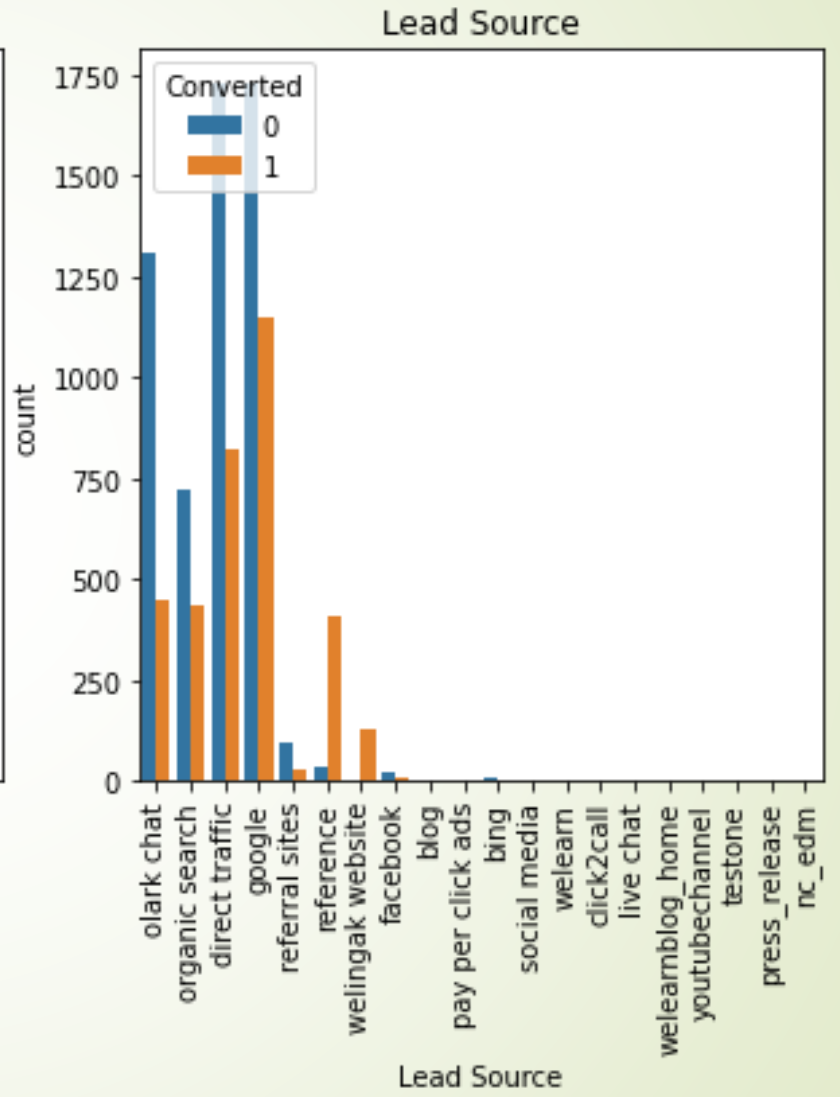

Lead Origin
count
5000
4000
3000
2000
1000
0
api
landing page submission
lead add form
lead import
Lead Origin

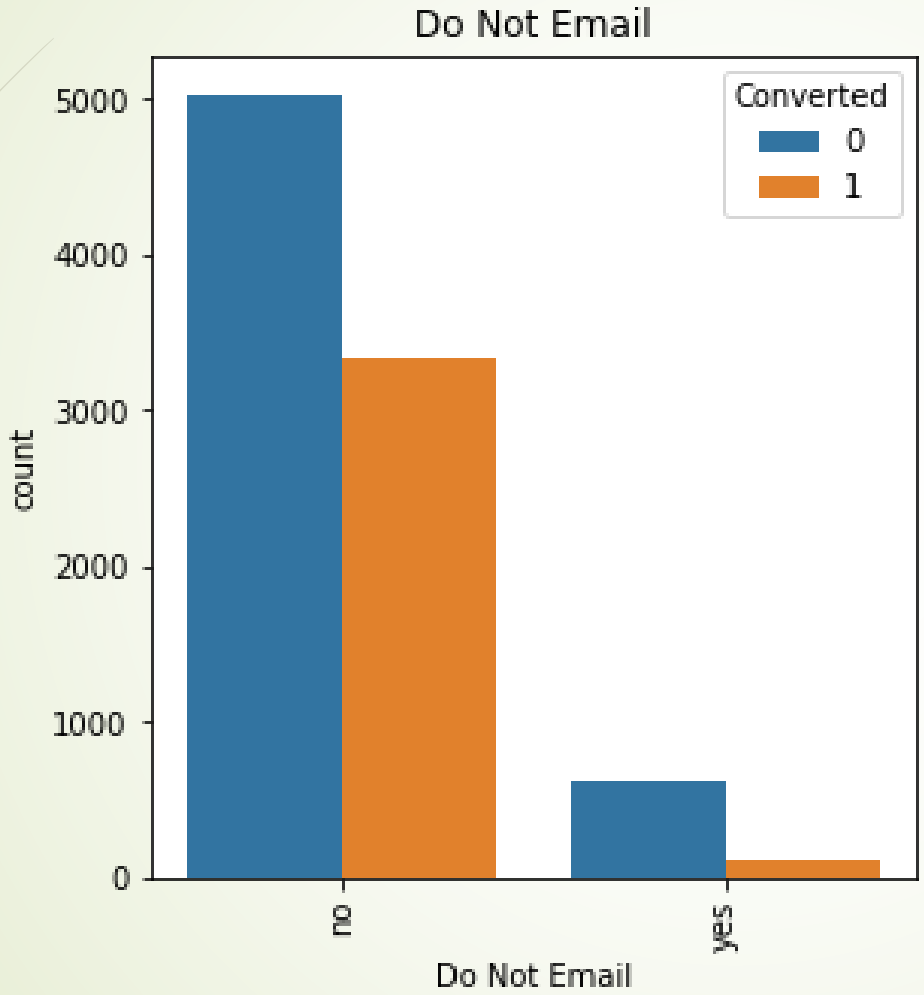

Do Not Email
count
8000
7000
6000
5000
4000
3000
2000
1000
0
no
yes
Do Not Email

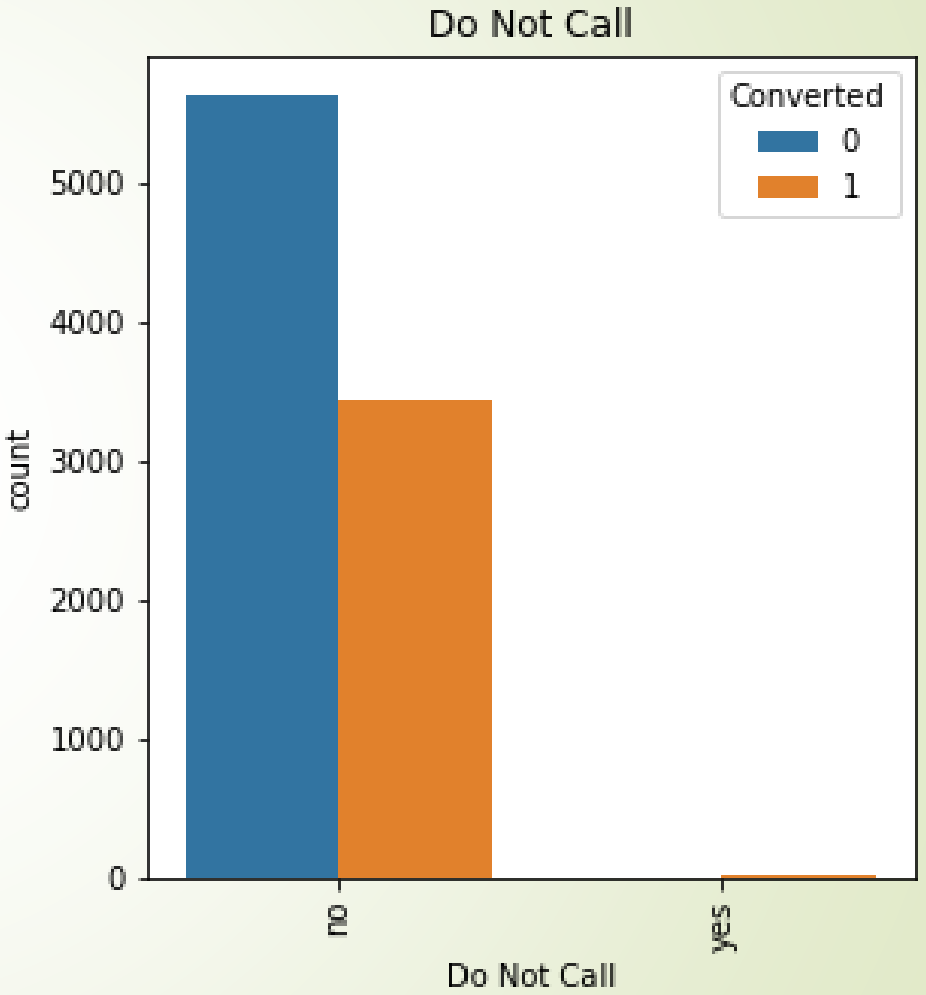

Converted("Y variable")
count
5000
4000
3000
2000
1000
0
0
1
Converted

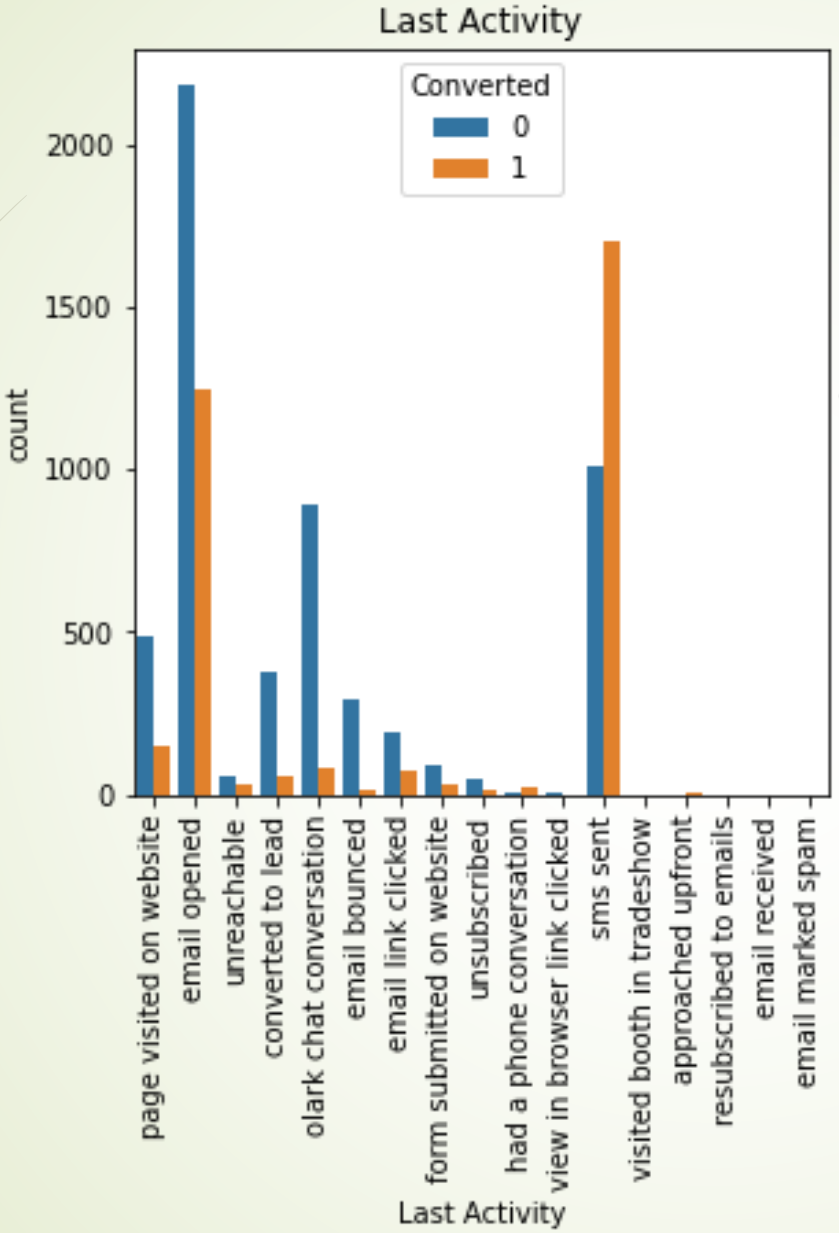
Categorical Variable Relation

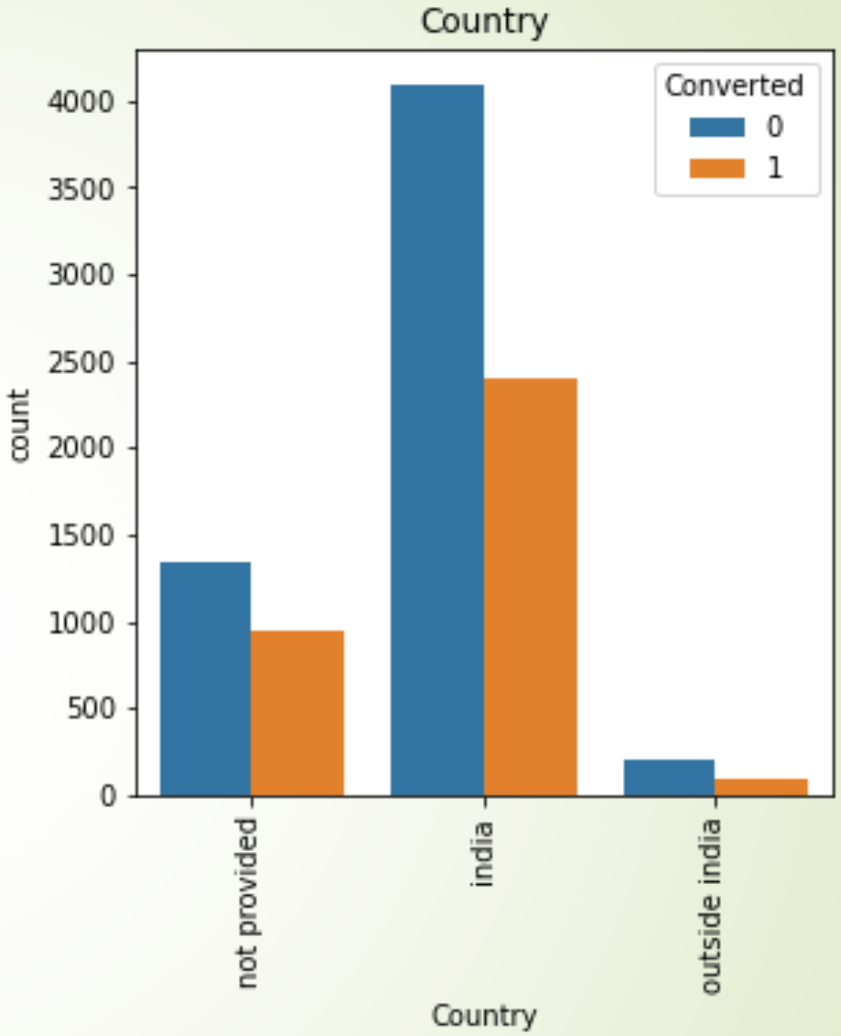





Do Not Email
Converted
0
1
5000
4000
3000
2000
1000
0
count
no
yes
Do Not Email


Do Not Call
Converted
0
1
5000
4000
3000
2000
1000
0
count
no
yes
Do Not Call

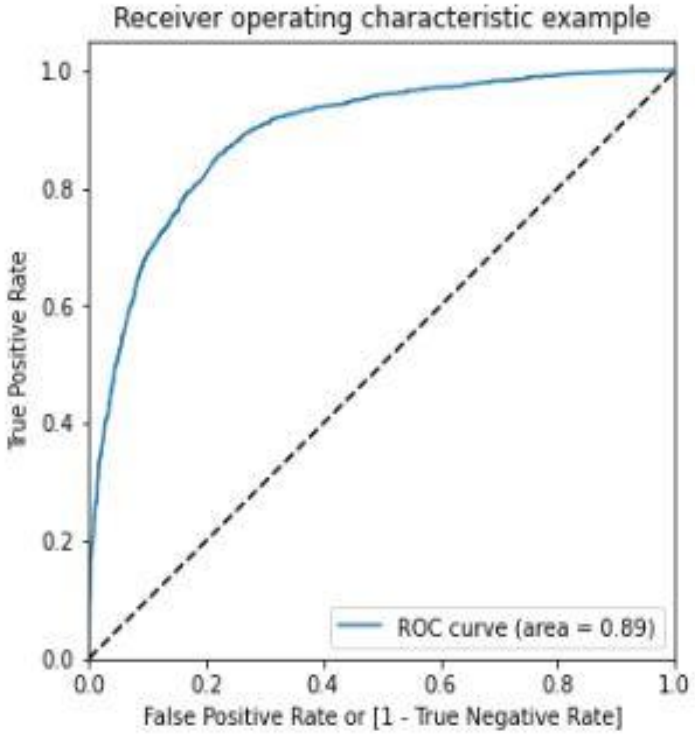

Last Activity
Converted
0
1
count
2000
1500
1000
500
0
page visited on website
email opened
unreachable
converted to lead
olark chat conversation
email bounced
email link clicked
form submitted on website
unsubscribed
had a phone conversation
view in browser link clicked
sms sent
visited booth in tradeshow
approached upfront
resubscribed to emails
email received
email marked spam
Last Activity

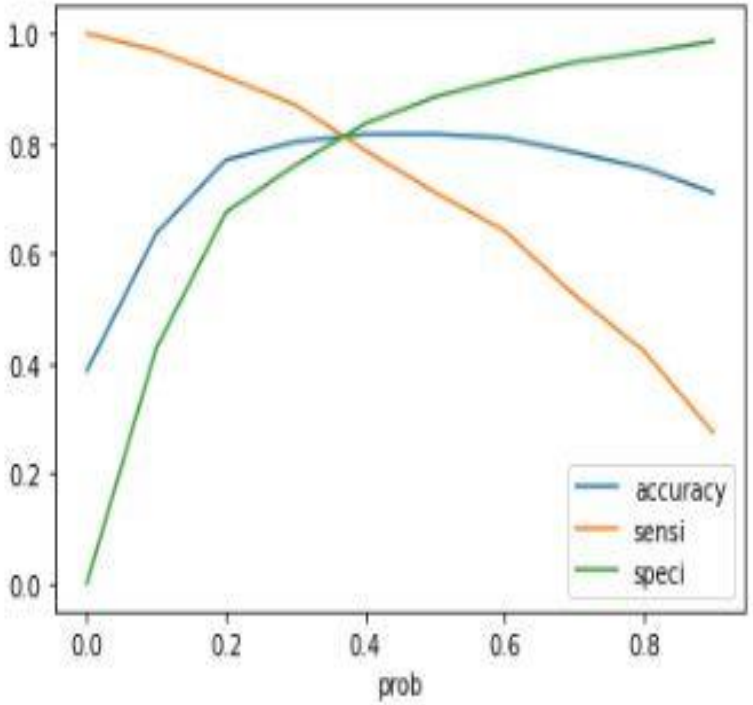

Country
Converted
0
1
count
4000
3500
3000
2500
2000
1500
1000
500
0
not provided
india
outside india
Country

Model Evaluation

- 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 76%

ROC Curve


Receiver operating characteristic example
True Positive Rate
False Positive Rate or [1 - True Negative Rate]
ROC curve (area = 0.89)
0.0
0.2
0.4
0.6
0.8
1.0


accuracy
sensi
speci
prob
0.0
0.2
0.4
0.6
0.8
1.0

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:

Google, Direct traffic, Organic search, Welingak site

4. When the last activity was:

SMS, 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.