

Lead Score Case Study

**Submitted By :- Rajib Lochan
Pahadi**

Problem Statement

An education company named X Education sells online courses to industry professionals. On any given day, many professionals who are interested in the courses land on their website and browse for courses.

The company markets its courses on several websites and search engines like Google. Once these people land on the website, they might browse the courses or fill up a form for the course or watch some videos. When these people fill up a form providing their email address or phone number, they are classified to be a lead. Moreover, the company also gets leads through past referrals. Once these leads are acquired, employees from the sales team start making calls, writing emails, etc. Through this process, some of the leads get converted while most do not. The typical lead conversion rate at X education is around 30%.

Now, although 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 the 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.**

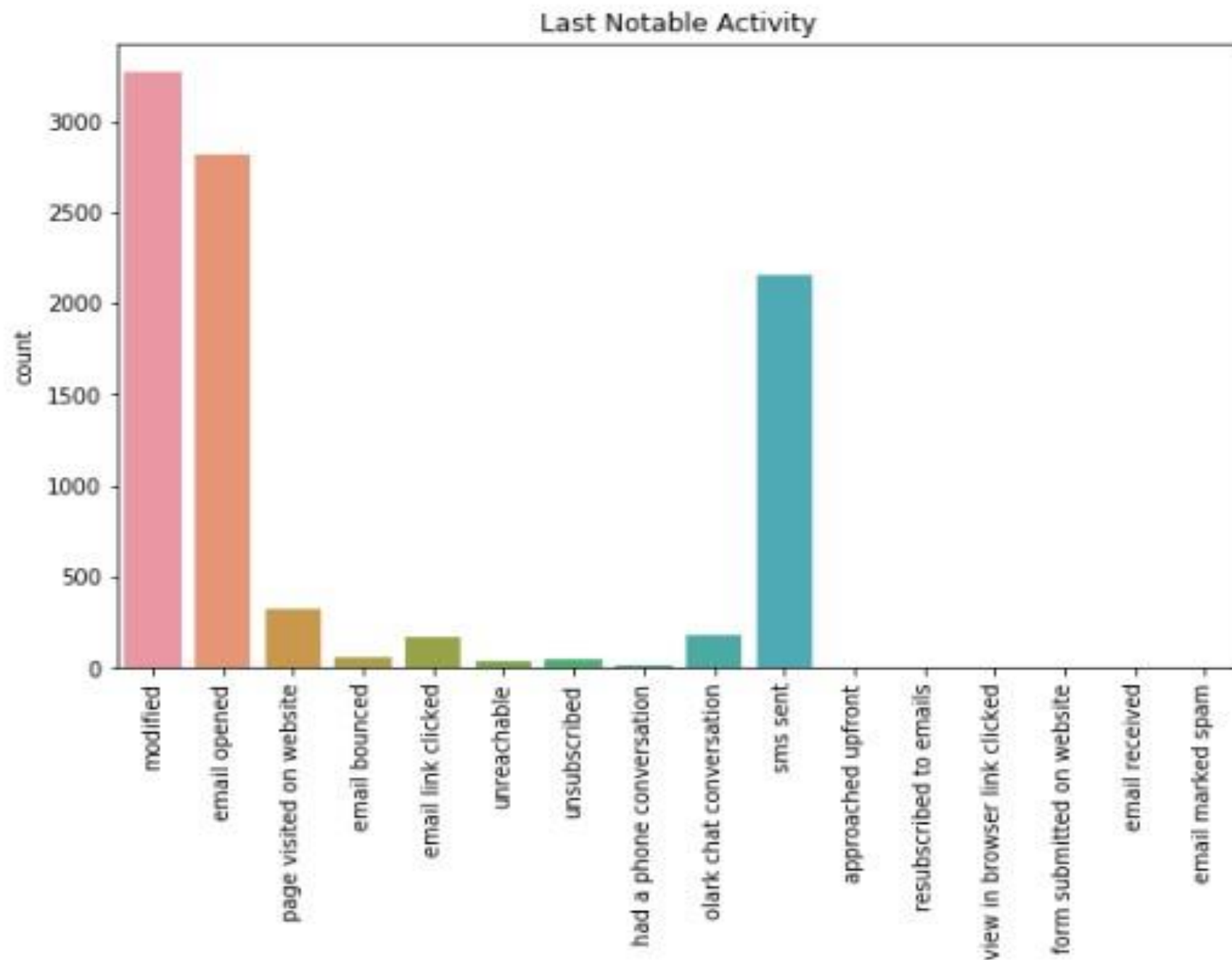
➤ **Classification technique: logistic regression used for the model making and prediction.**

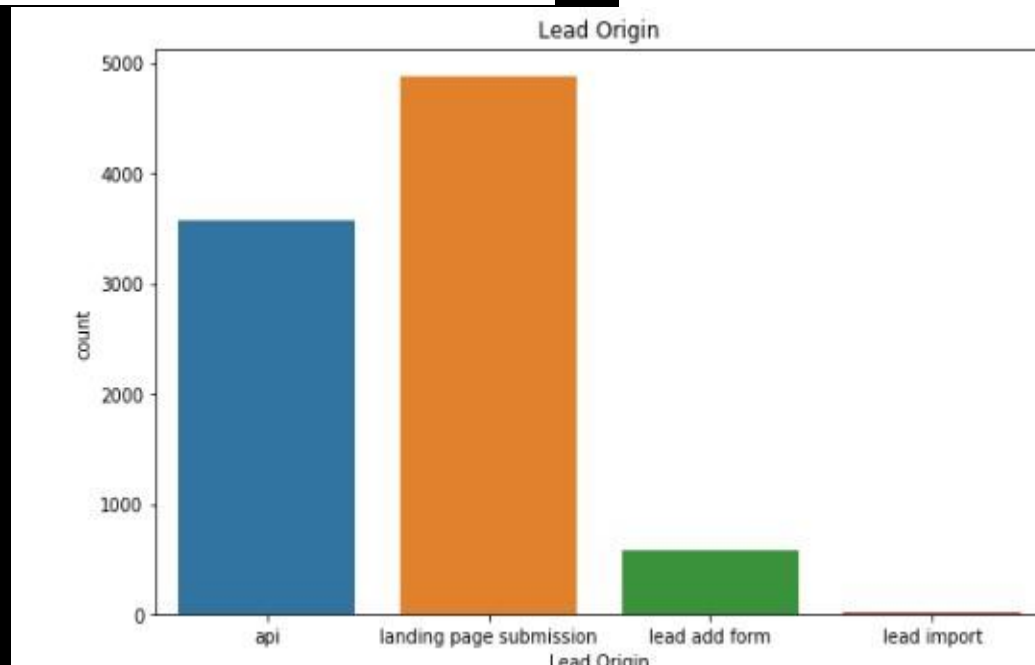
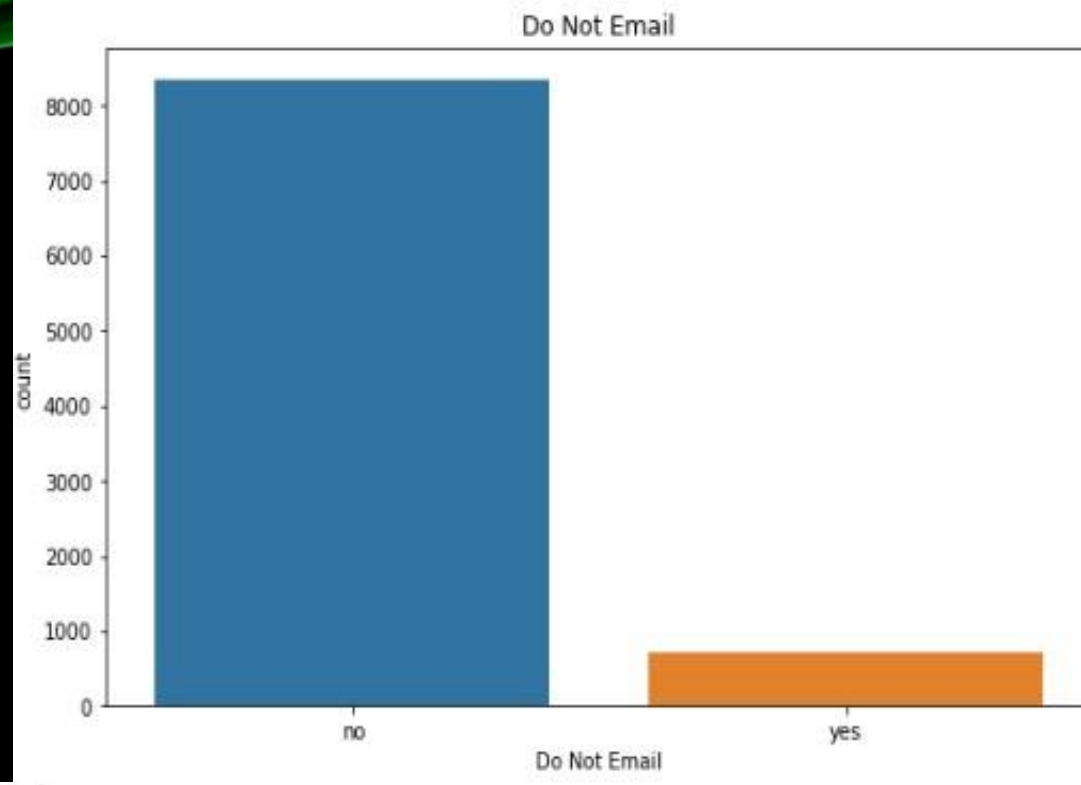
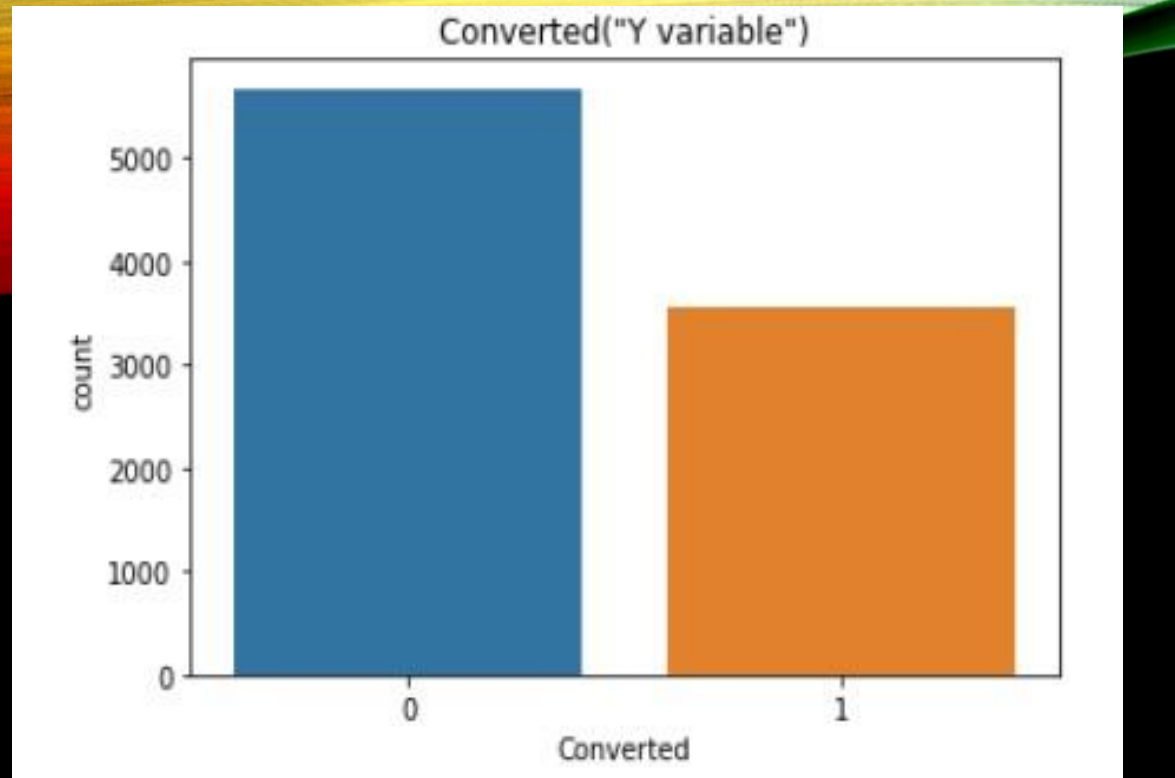
➤ **Validation of the model.**

➤ **Model presentation.**

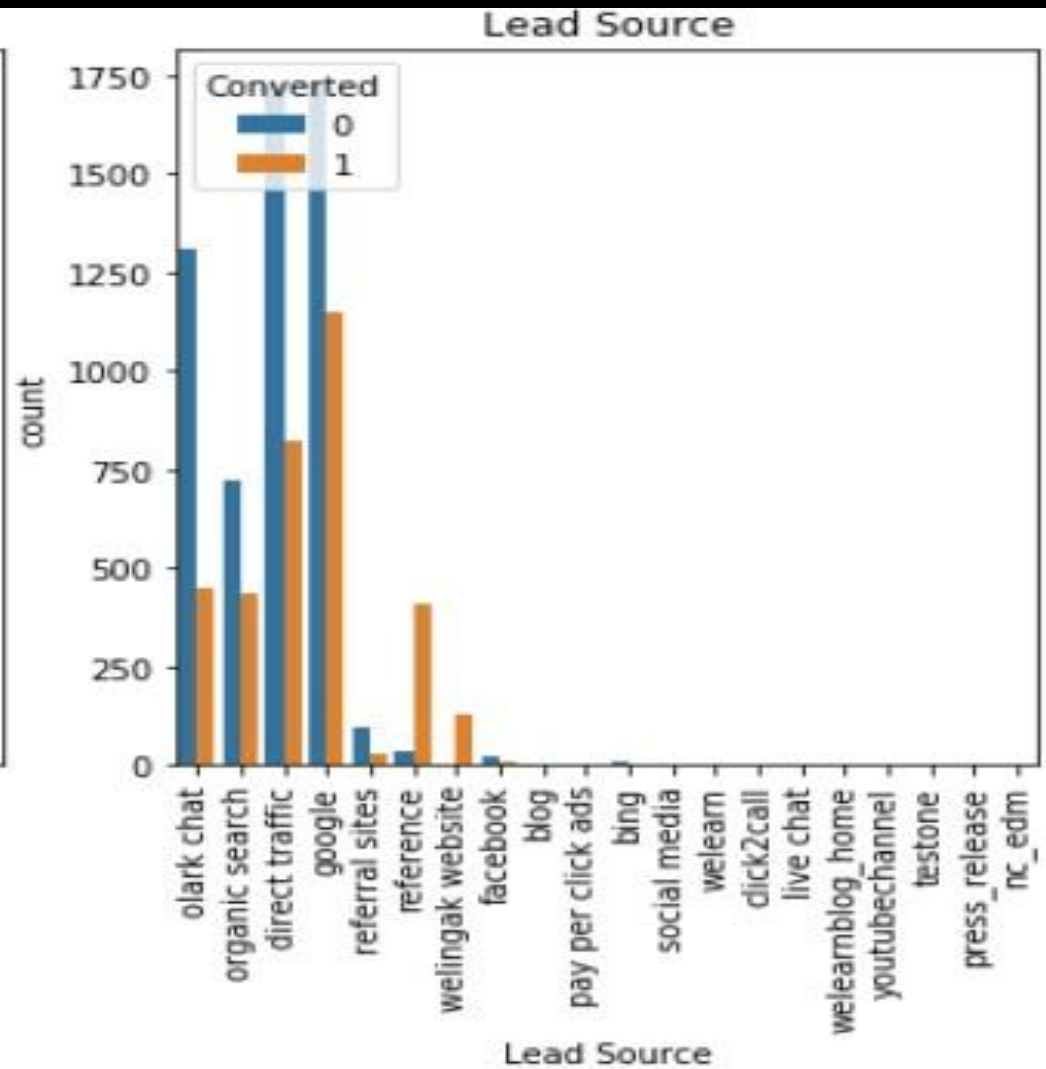
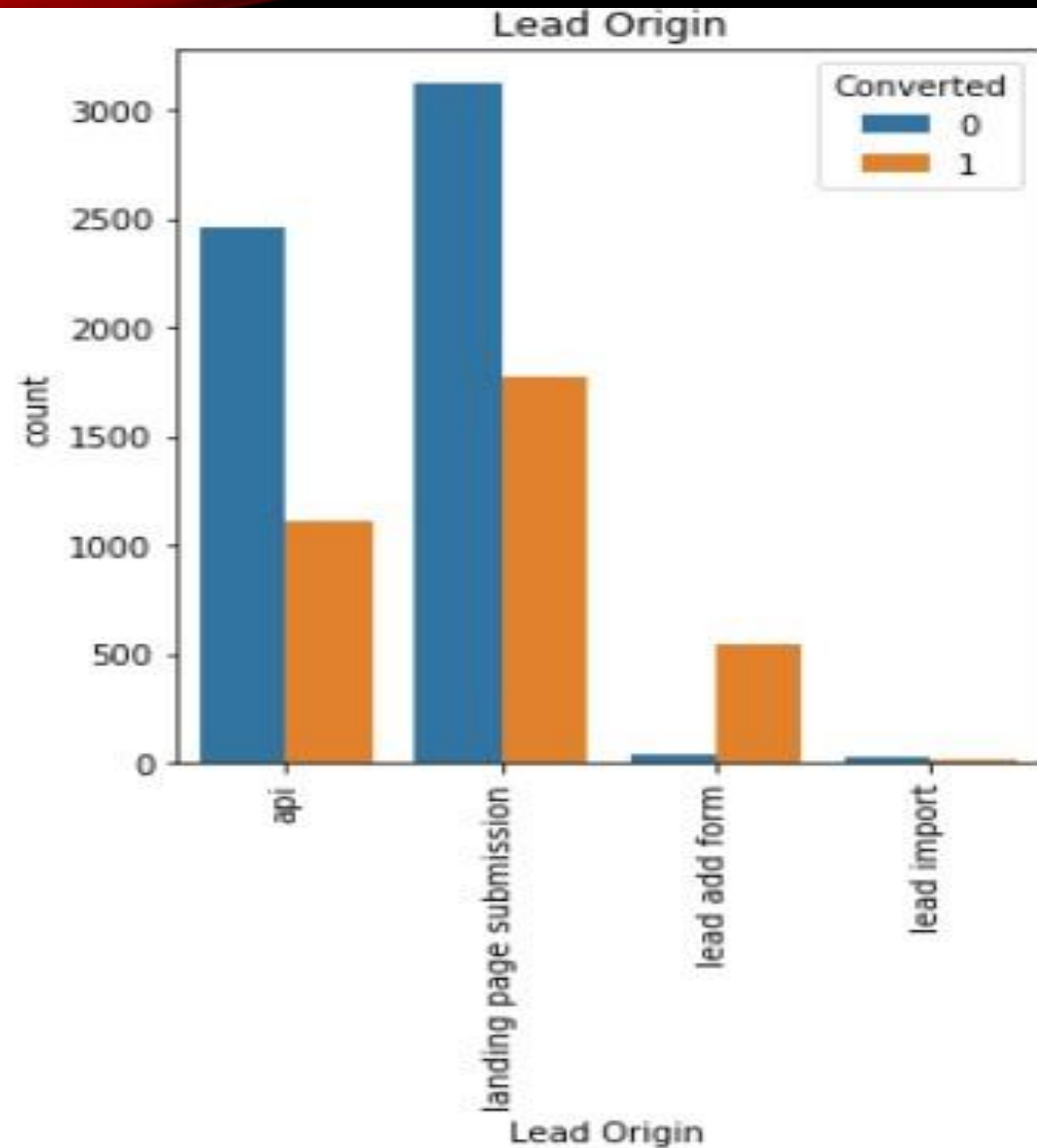
➤ **Conclusions.**

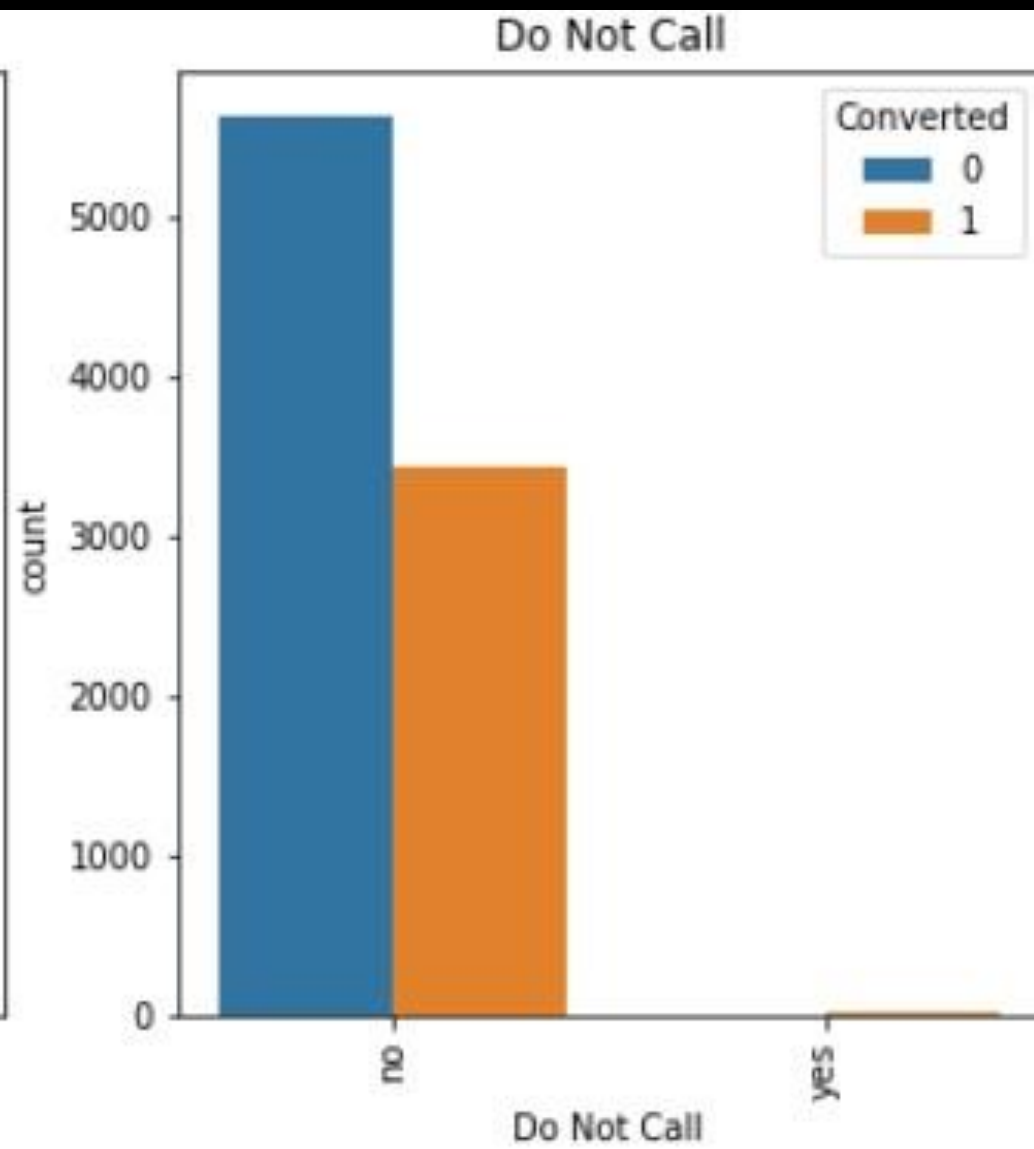
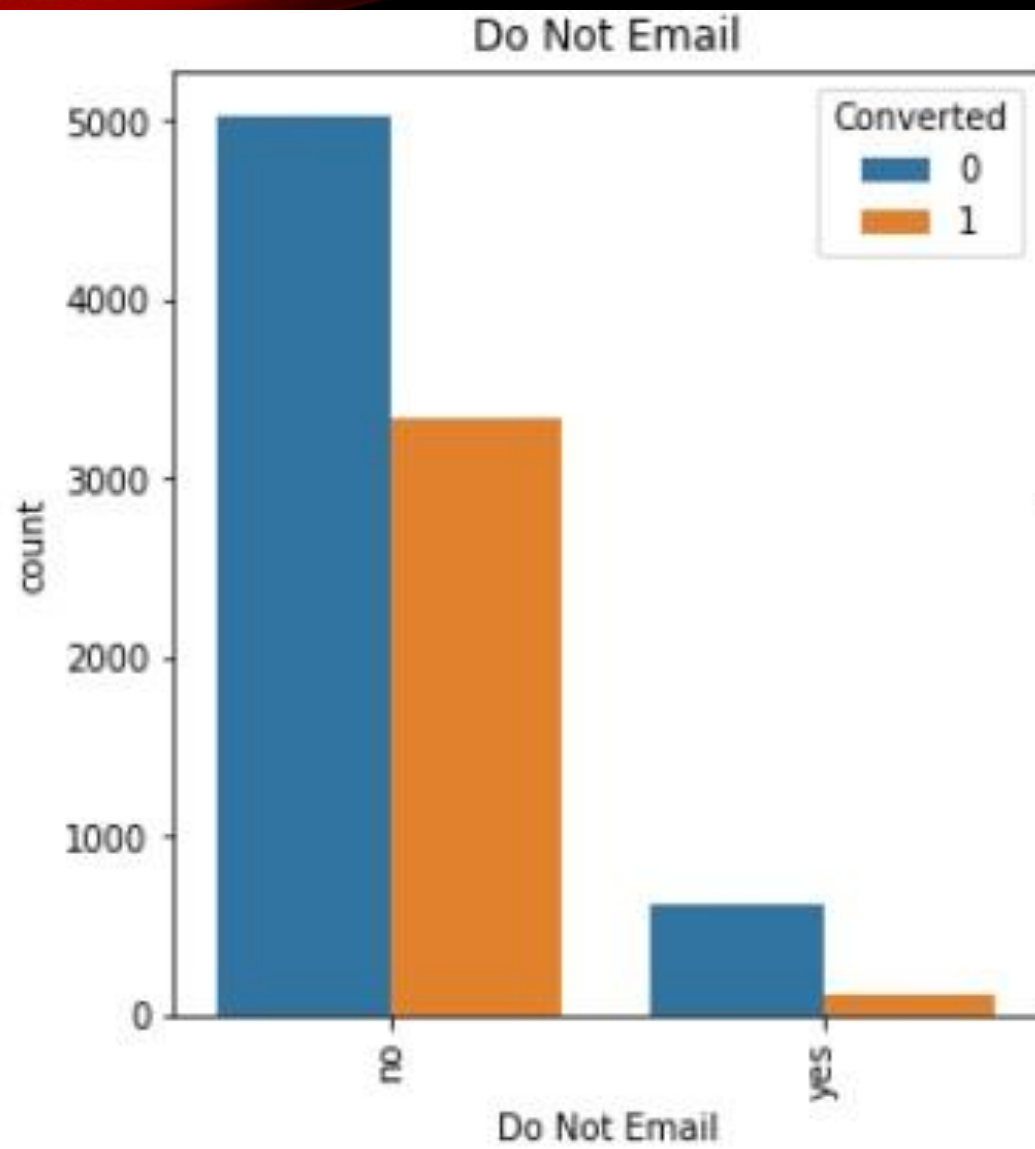
EDA:

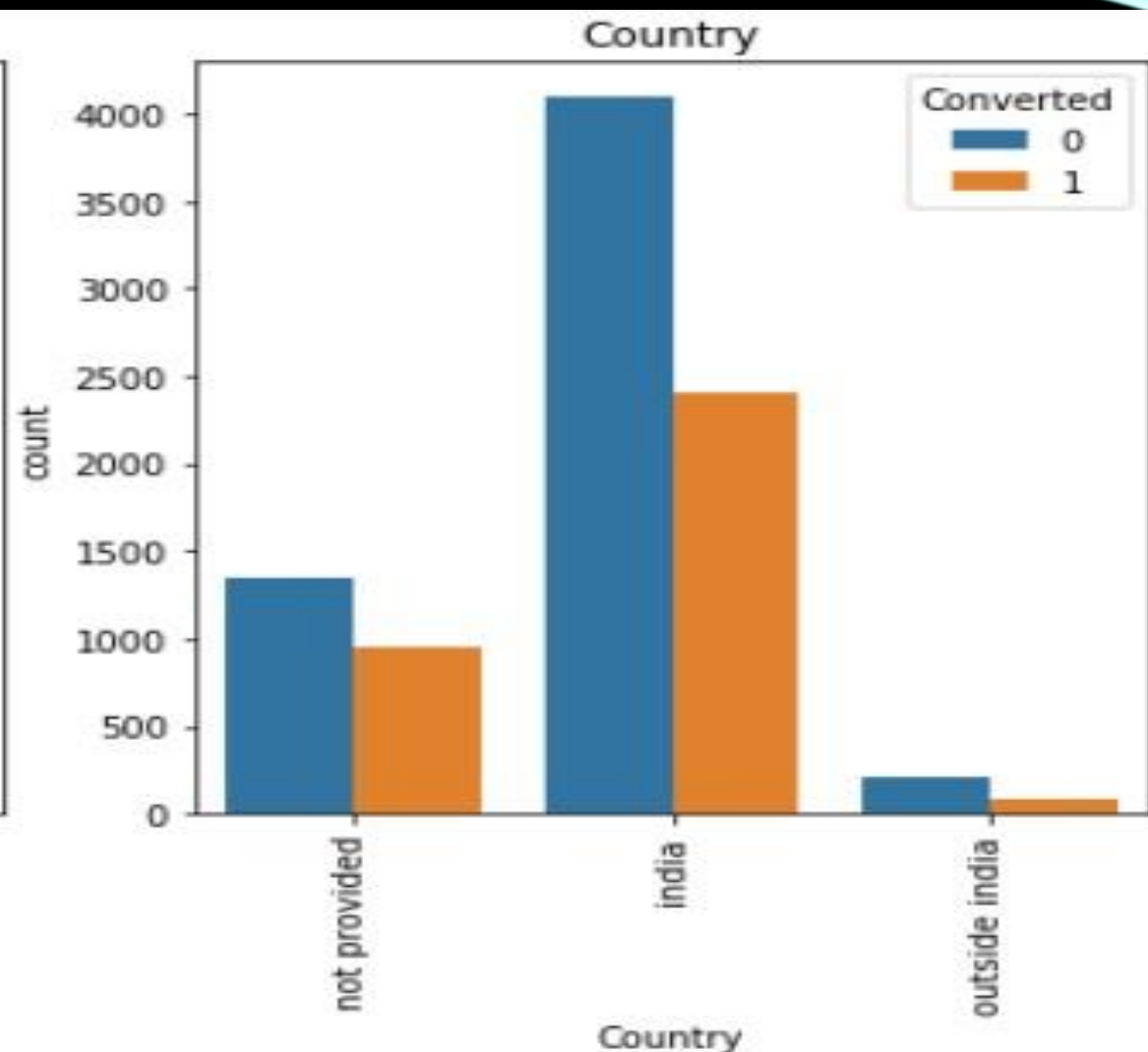
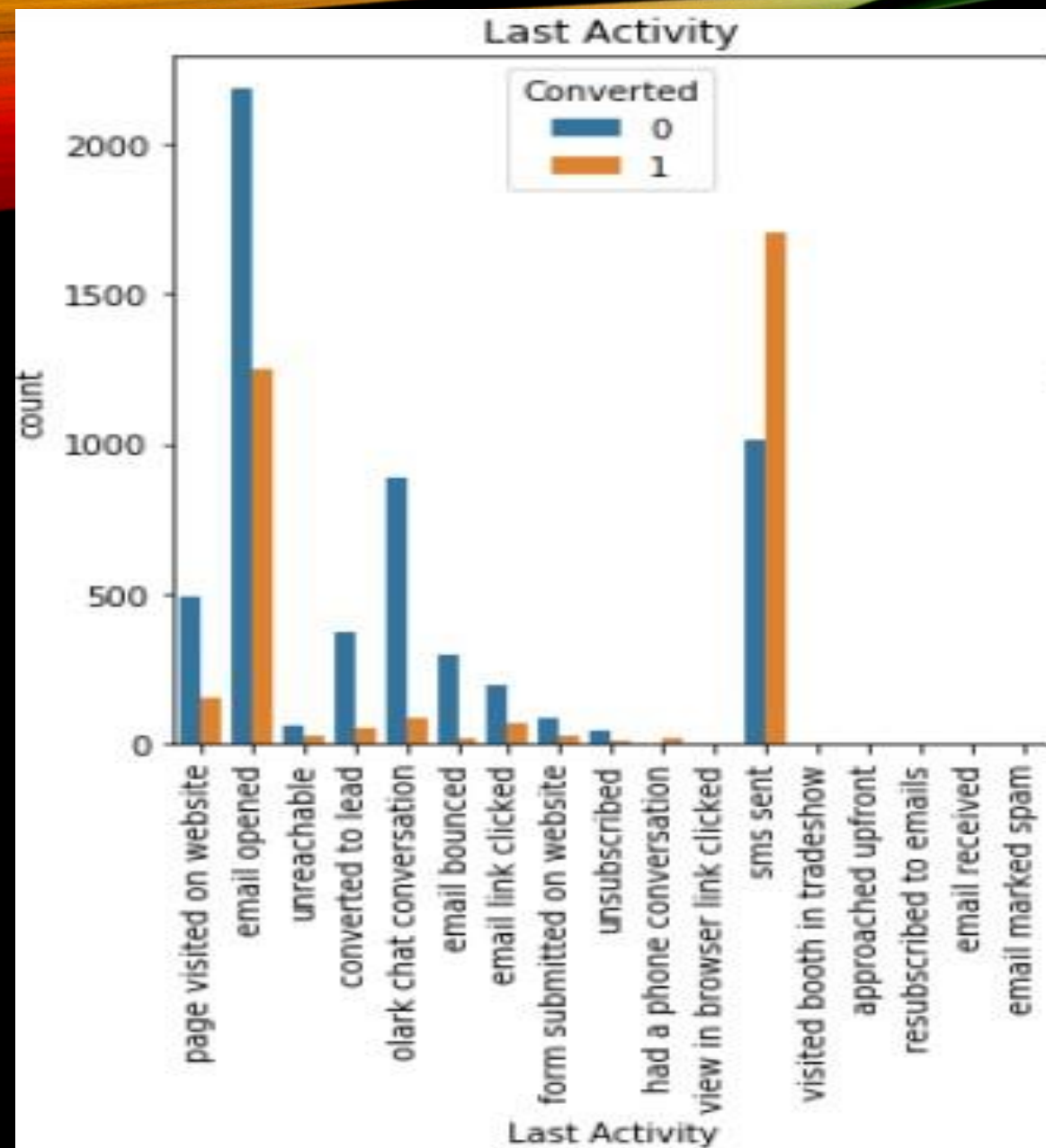




Categorical Variable Relation:



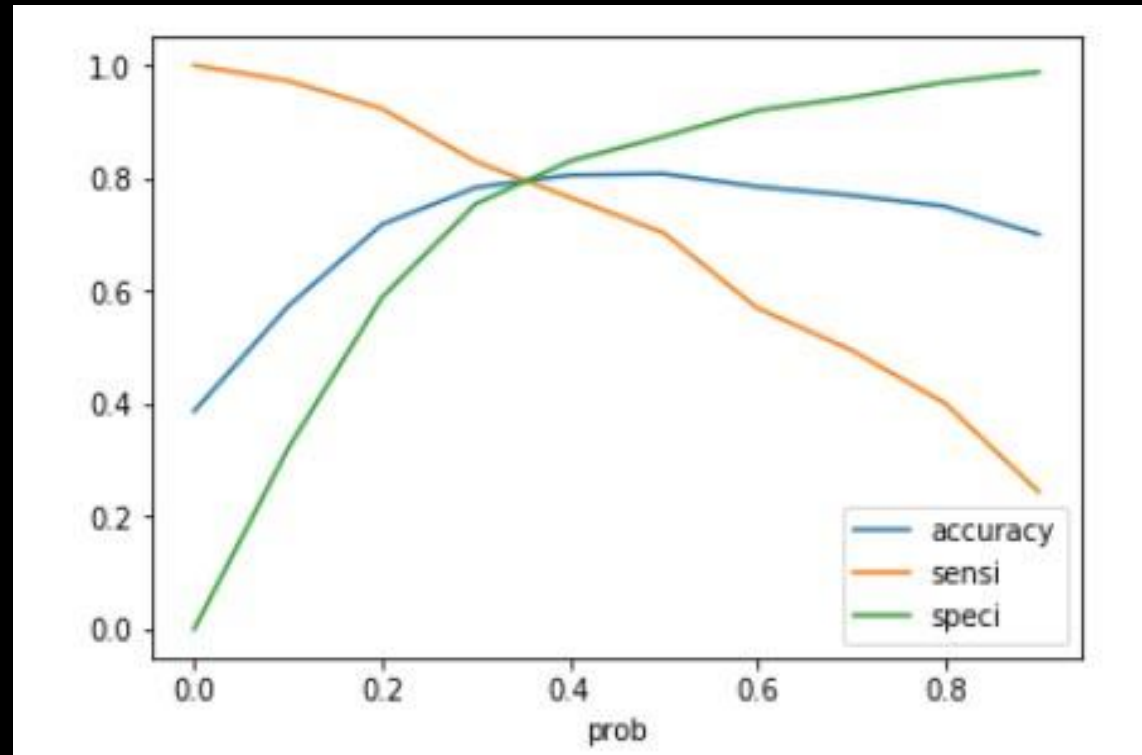
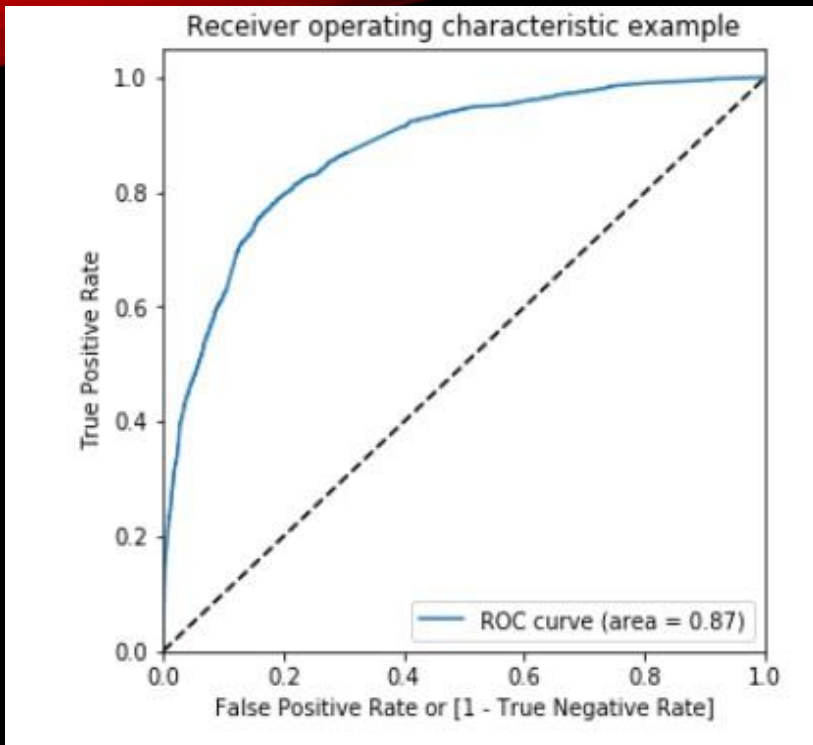




ModelBuilding:

- 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) :
- 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.

The image features the words "Thank You!" in a bold, blue, 3D sans-serif font. The letters are thick and have a slight shadow on the surface below them. The background is a smooth gradient of colors, starting with a bright rainbow (red, orange, yellow, green, blue) at the top left and transitioning into a dark grey or black at the top right. The overall composition is clean and modern.

Thank You!