

# Lead Scoring Case Study using logistic regression

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# 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. They have process of form filling on their website after which the company that individual as a lead.
- ❖ 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, this means 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

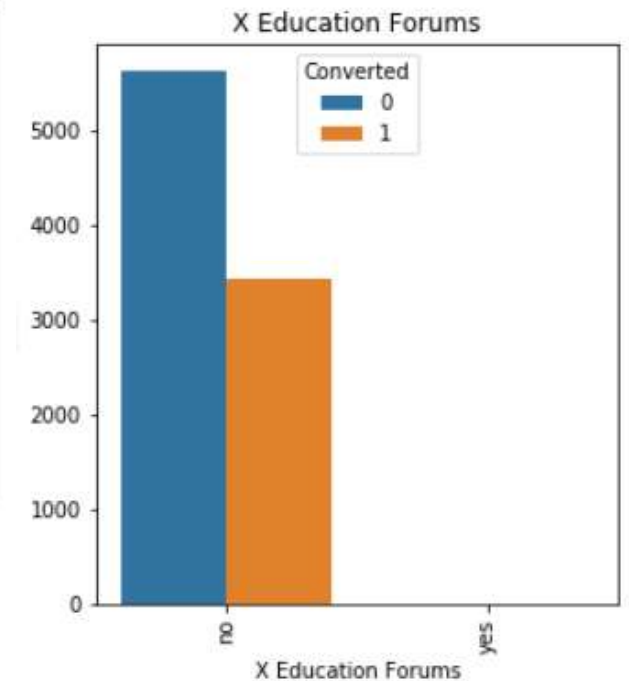
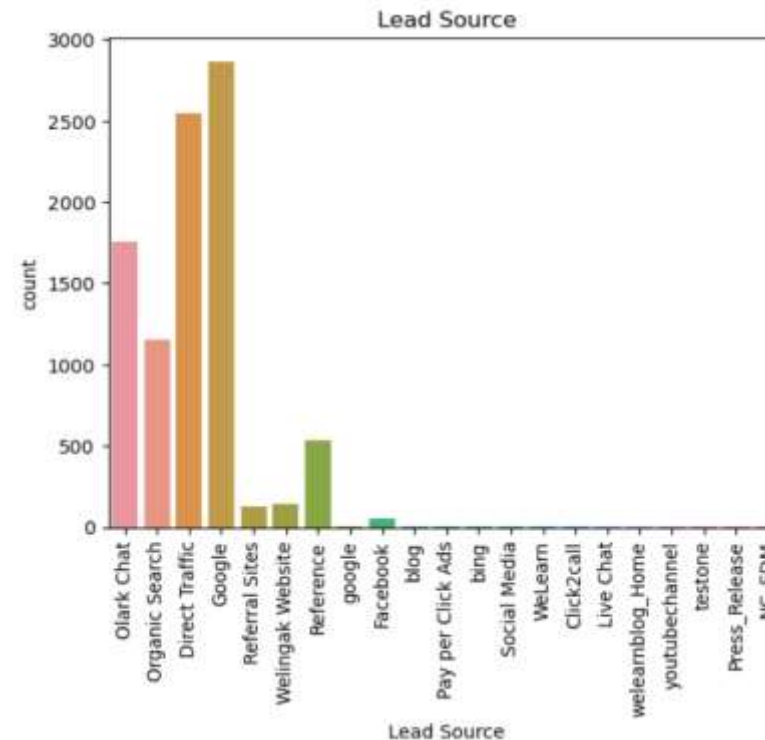
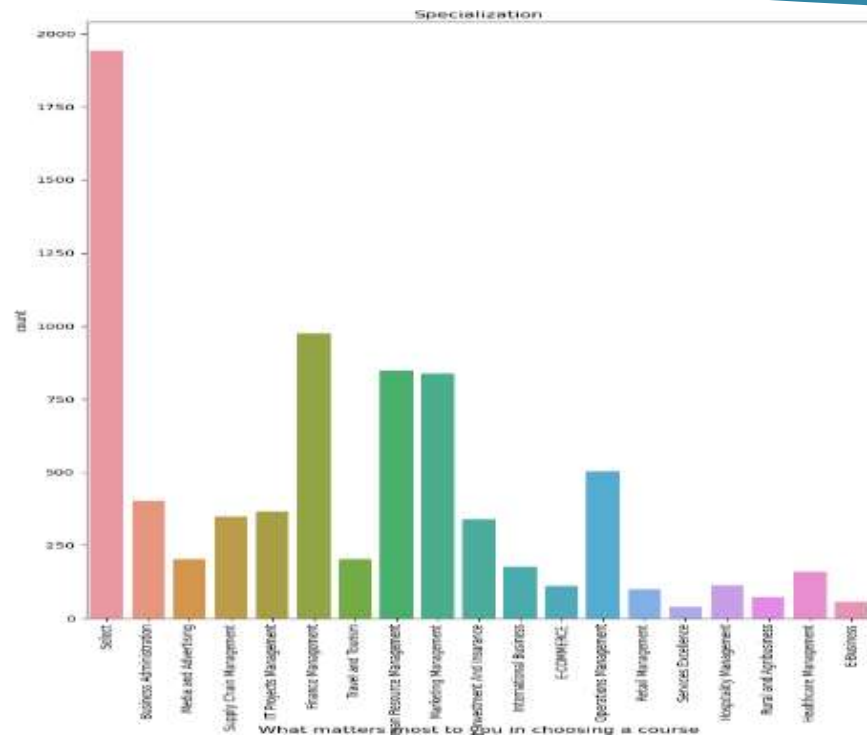
- ❖ Lead X wants us to build a model to give every lead a lead score between 0 -100 . So that they can identify the Hot leads and increase their conversion rate as well.
- ❖ The CEO want to achieve a lead conversion rate of 80%.
- ❖ They want the model to be able to handle future constraints as well like Peak time actions required, how to utilize full man power and after achieving target what should be the approaches

# Problem Approach

- ❖ Importing the data and inspecting the data frame
- ❖ Data preparation
- ❖ EDA
- ❖ Dummy variable creation
- ❖ Test-Train split
- ❖ Feature scaling
- ❖ Correlations
- ❖ Model Building (RFE Rsquared VIF and p-values)
- ❖ Model Evaluation
- ❖ Making predictions on test set

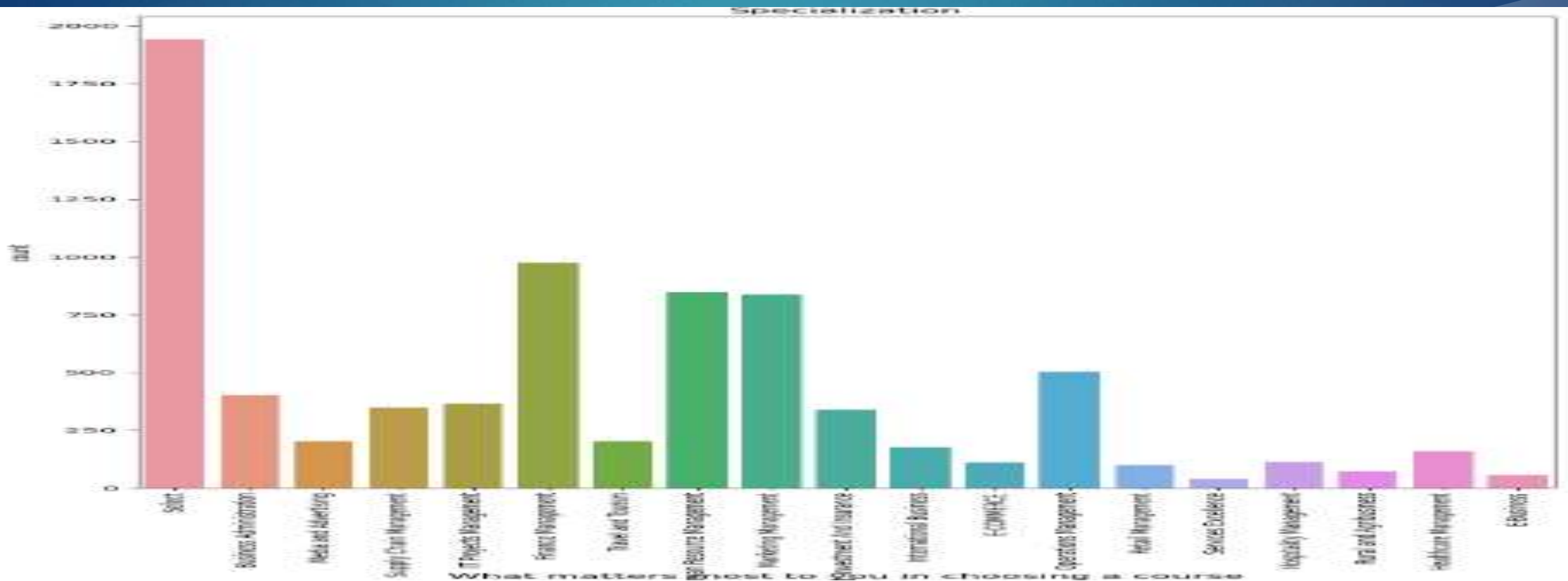
# EDA –Data Cleaning

There are a few columns in which there is a level called 'Select' which is taking care



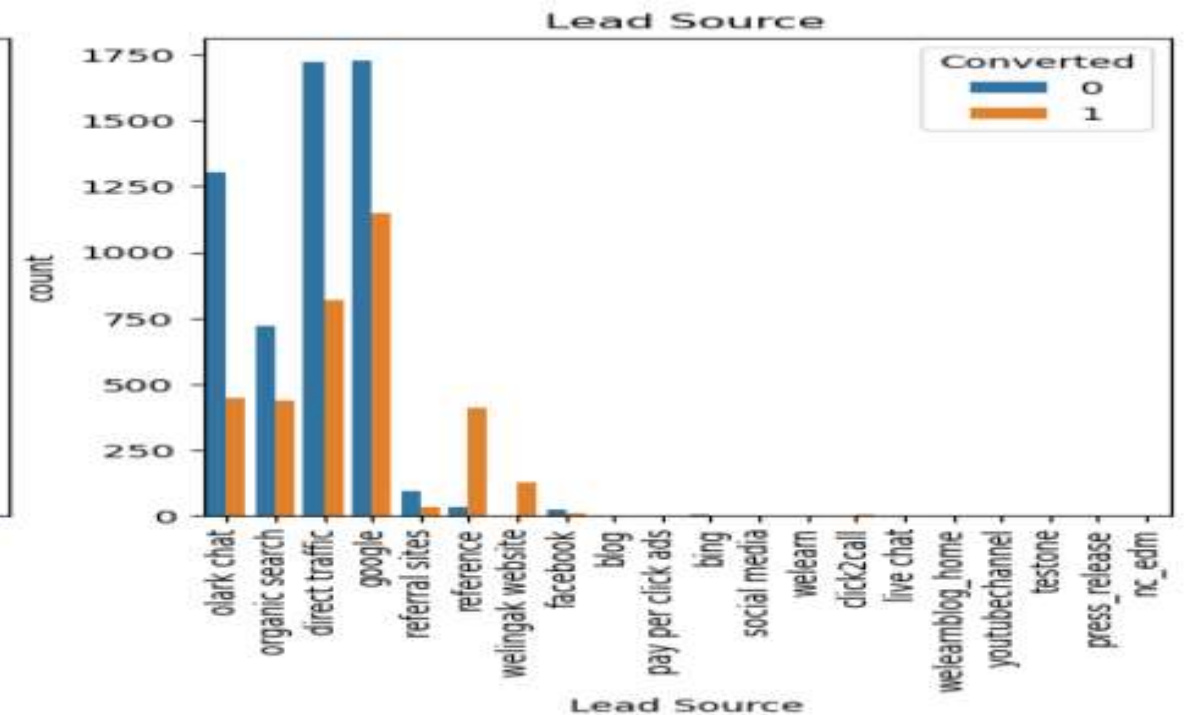
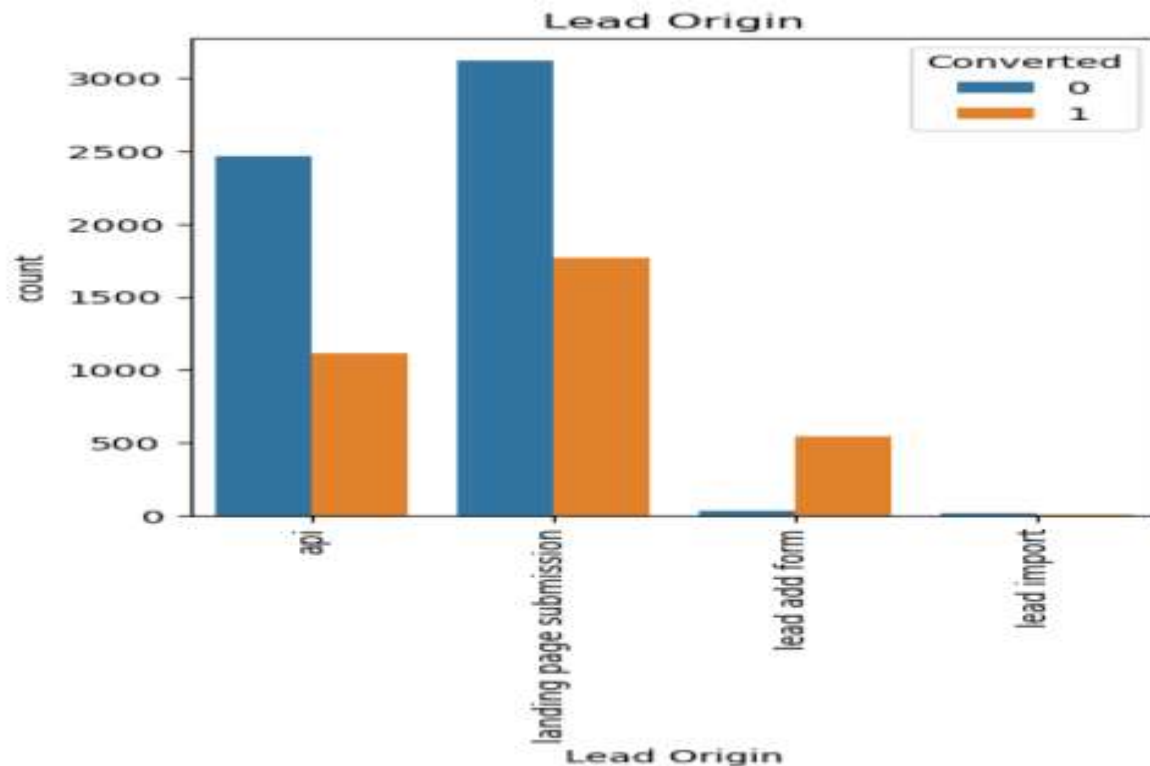
# Specialization

Leads from HR, Finance & Marketing management specializations are high probability to convert



# Lead Source & Lead origin

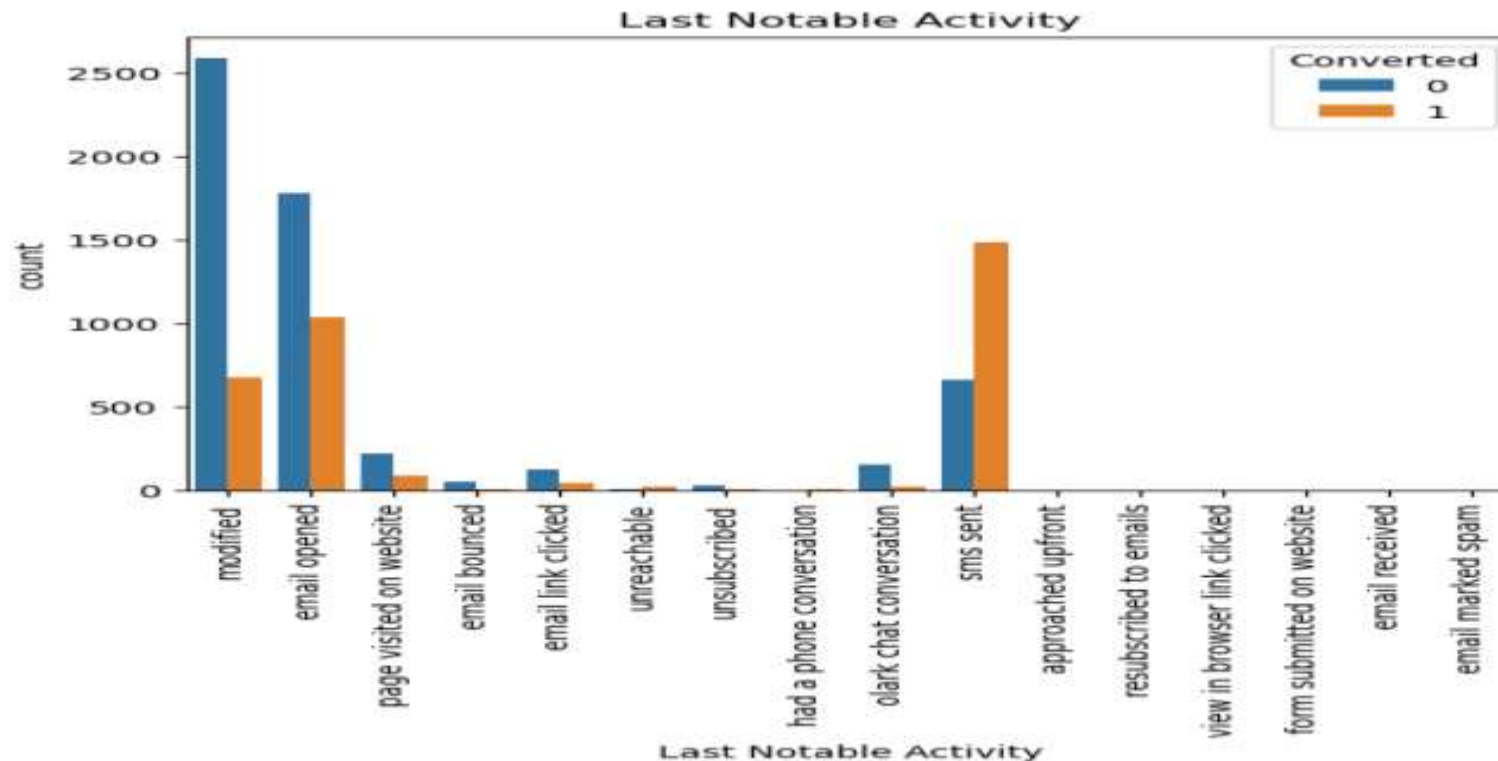
In lead source the leads through google & direct traffic high probability to convert  
Whereas in Lead origin most number of leads are landing on submission





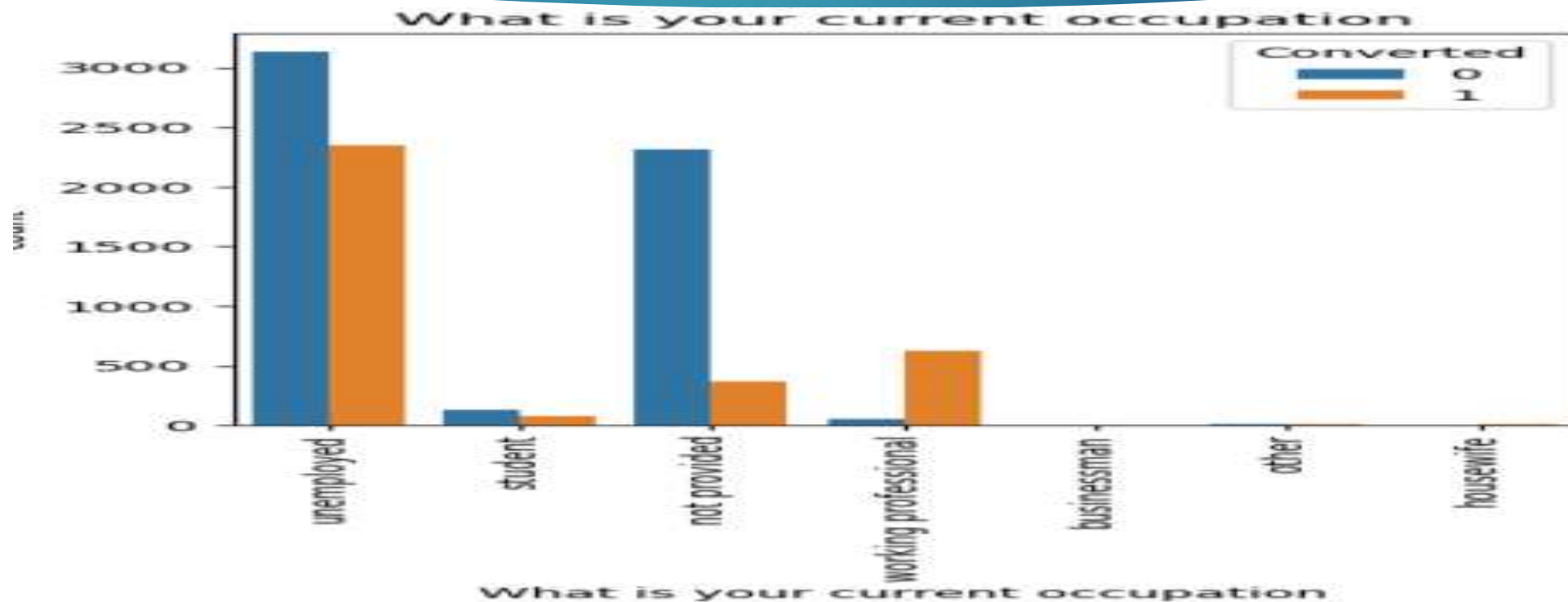
# Last lead Activity

Leads which are opening email have high probability to convert, Same as Sending SMS will also benefit



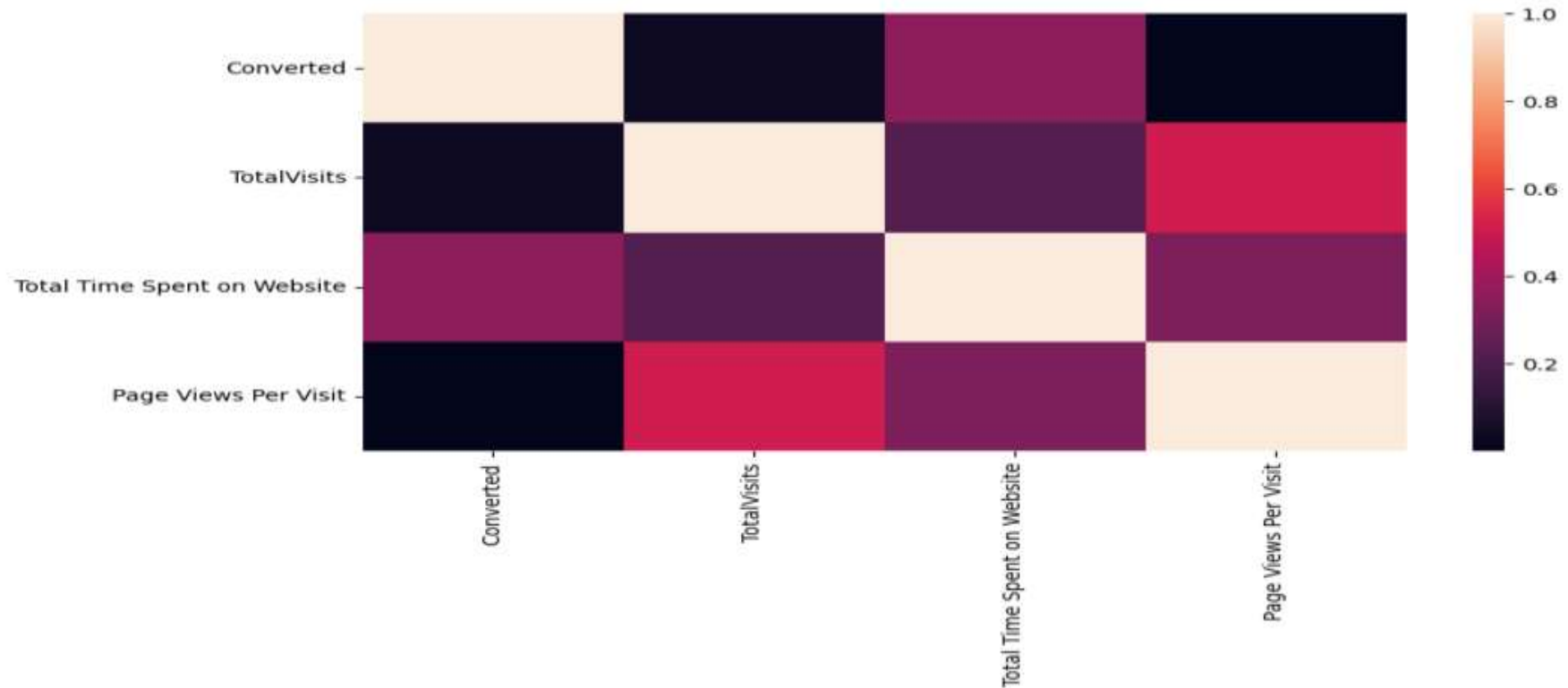
# Last What is Your Occupation

Leads which are Unemployed are more interested to join the course than others



# Correlation

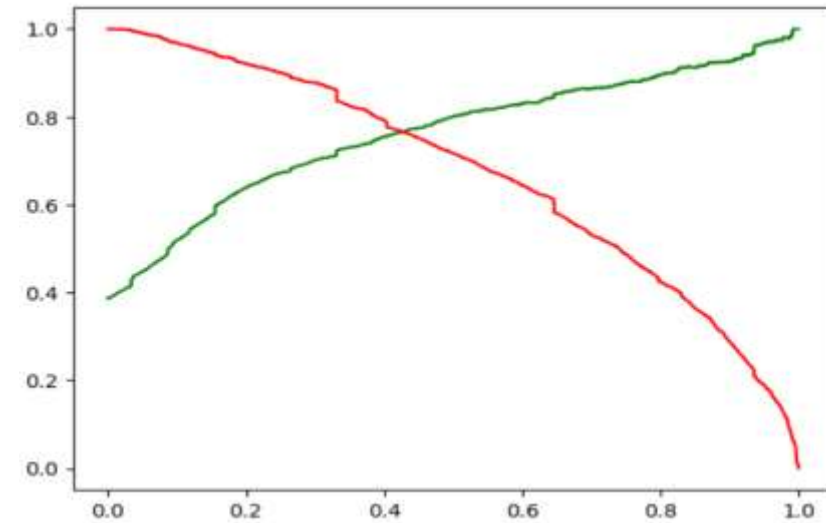
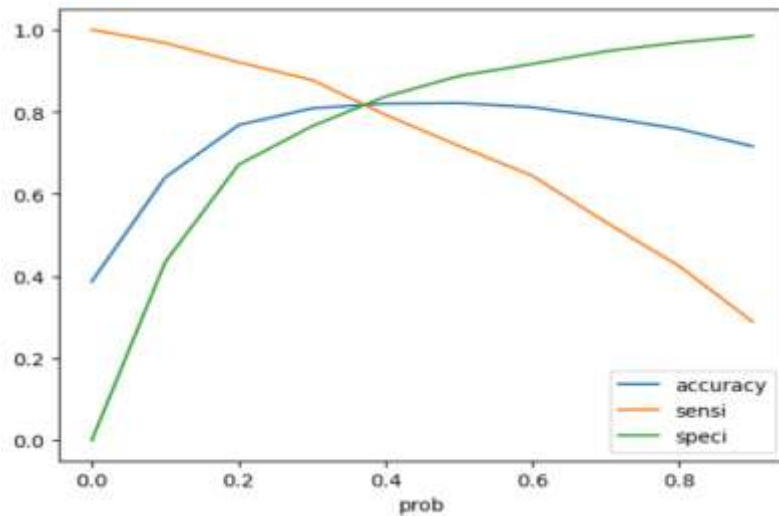
There is no correlation between the variables



# Model Evaluation

## ROC curve

**0.42 is the tradeoff between Precision and Recall** - Thus we can safely choose to consider any Prospect Lead with Conversion Probability higher than 42 % to be a hot Lead



# Observations

## Train Data:

- ❖ Accuracy : 80%
- ❖ Sensitivity : 77%
- ❖ Specificity : 80%

## Test Data:

- ❖ Accuracy : 80%
- ❖ Sensitivity : 77%
- ❖ Specificity : 80%

## Final Features list:

- ❖ Lead Source\_Olark Chat
- ❖ Specialization\_Others
- ❖ Lead Origin\_Lead Add Form
- ❖ Lead Source\_Welingak Website
- ❖ Total Time Spent on Website
- ❖ Lead Origin\_Landing Page Submission
- ❖ What is your current occupation\_Working Professionals
- ❖ Do Not Email

# 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.



Thank You