LEAD SCORE CASE STUDY

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.

- Now, although X Education gets a lot of leads, its lead conversion rate is very poor.

- The company wants to increase it to 80%

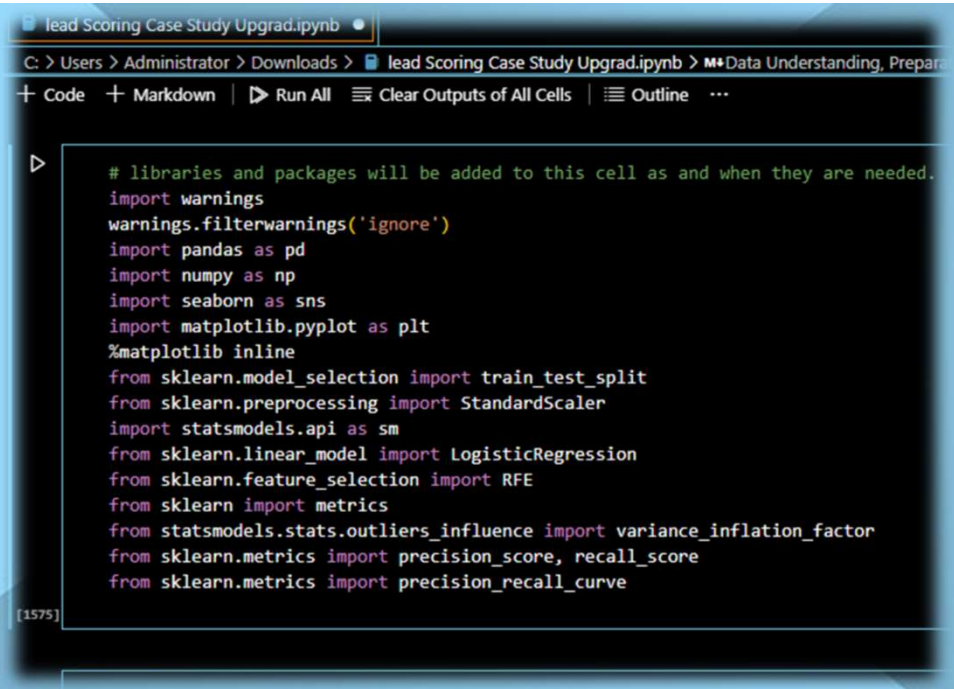
GOAL :

Build a logistic regression model to assign a lead score between 0 and 100 to each of the leads which can be used by the company to target potential leads.

A higher score would mean that the lead is hot, i.e. is most likely to convert whereas a lower score would mean that the lead is cold and will mostly not get converted.

Strategy

- Importing Data
- Cleaning and preparing the data
- EDA
- Scaling the features
- Preparing data for model building
- Assigning a lead score for each of the leads
- Testing the model on train set
- Evaluating model
- Testing the model on test set
- Measuring Accuracy of model and other metrics

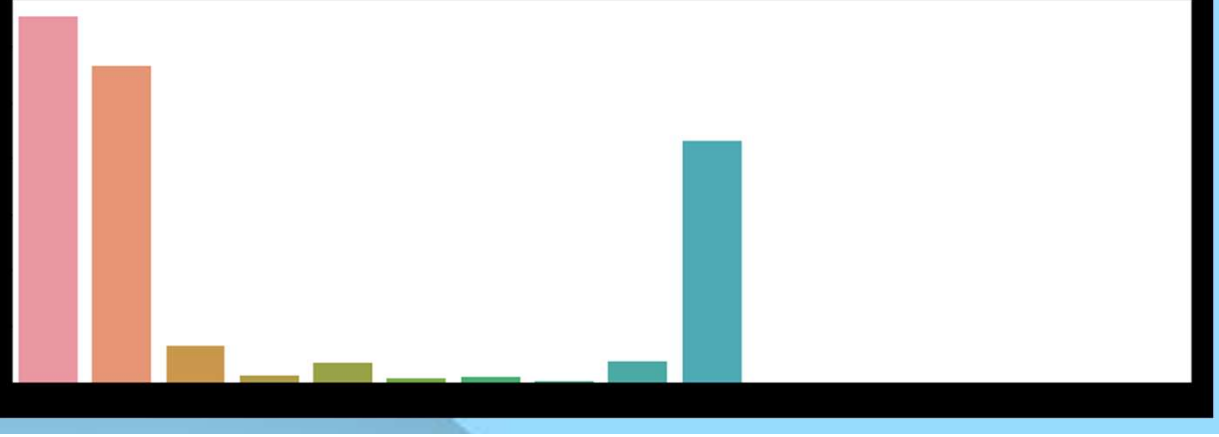


EXPLORATORY DATA ANALYSIS

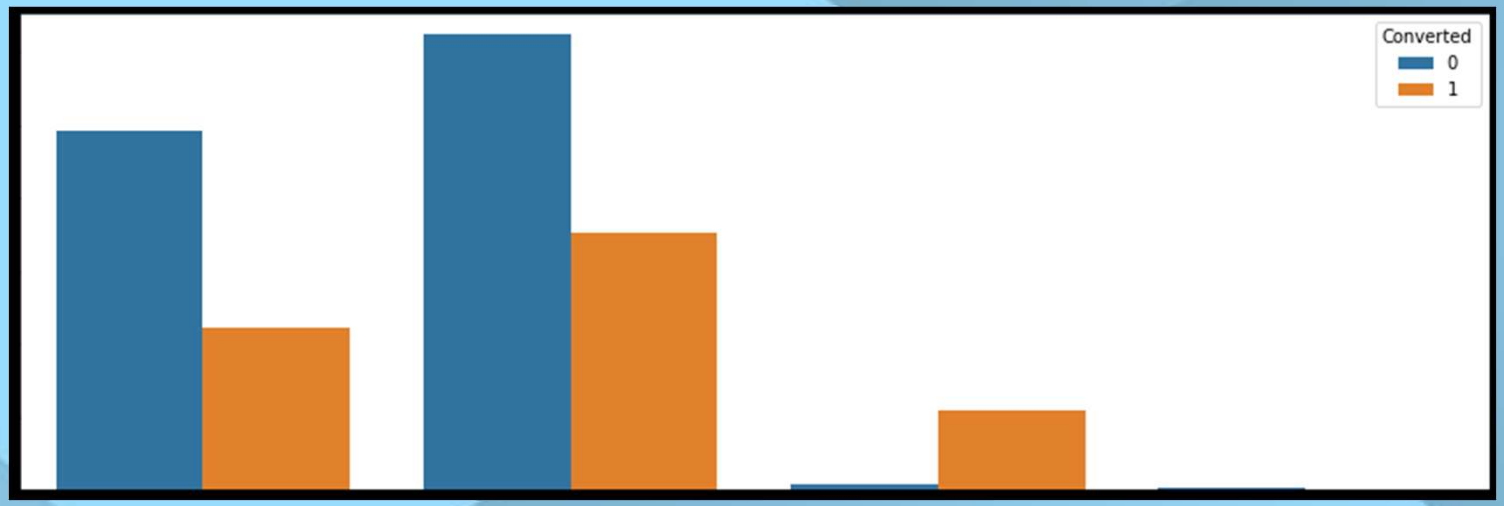
Univariate Analysis

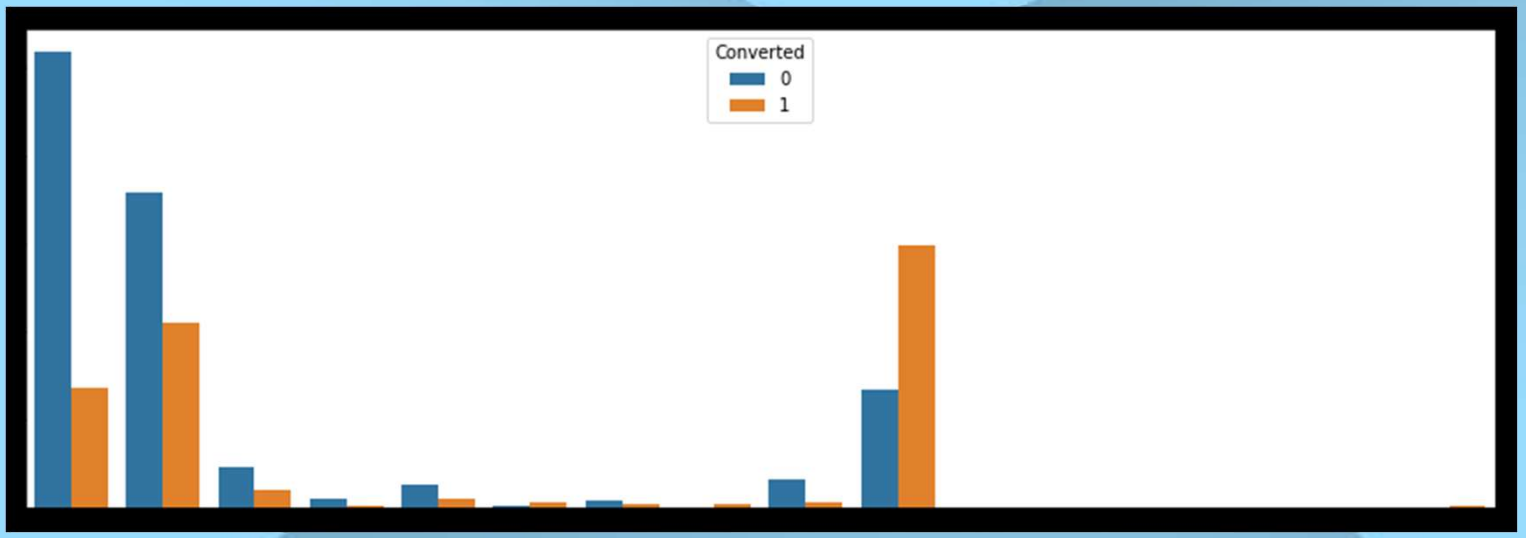
```
for column in categorical_vars.columns:
    countplot_univariate(column)
```

Google searches had high conversions as compared to other modes.

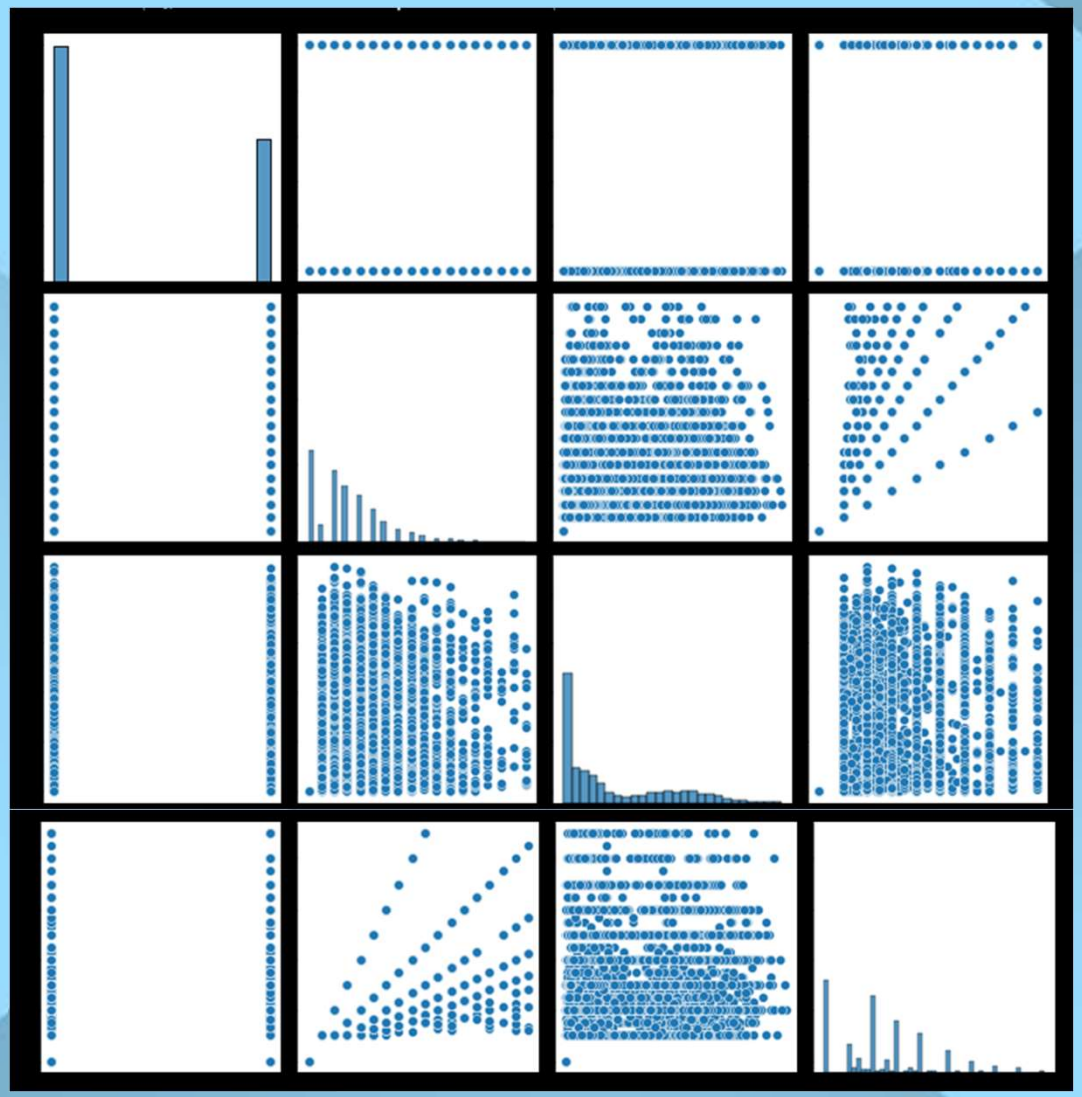


Bi – Variate Analysis

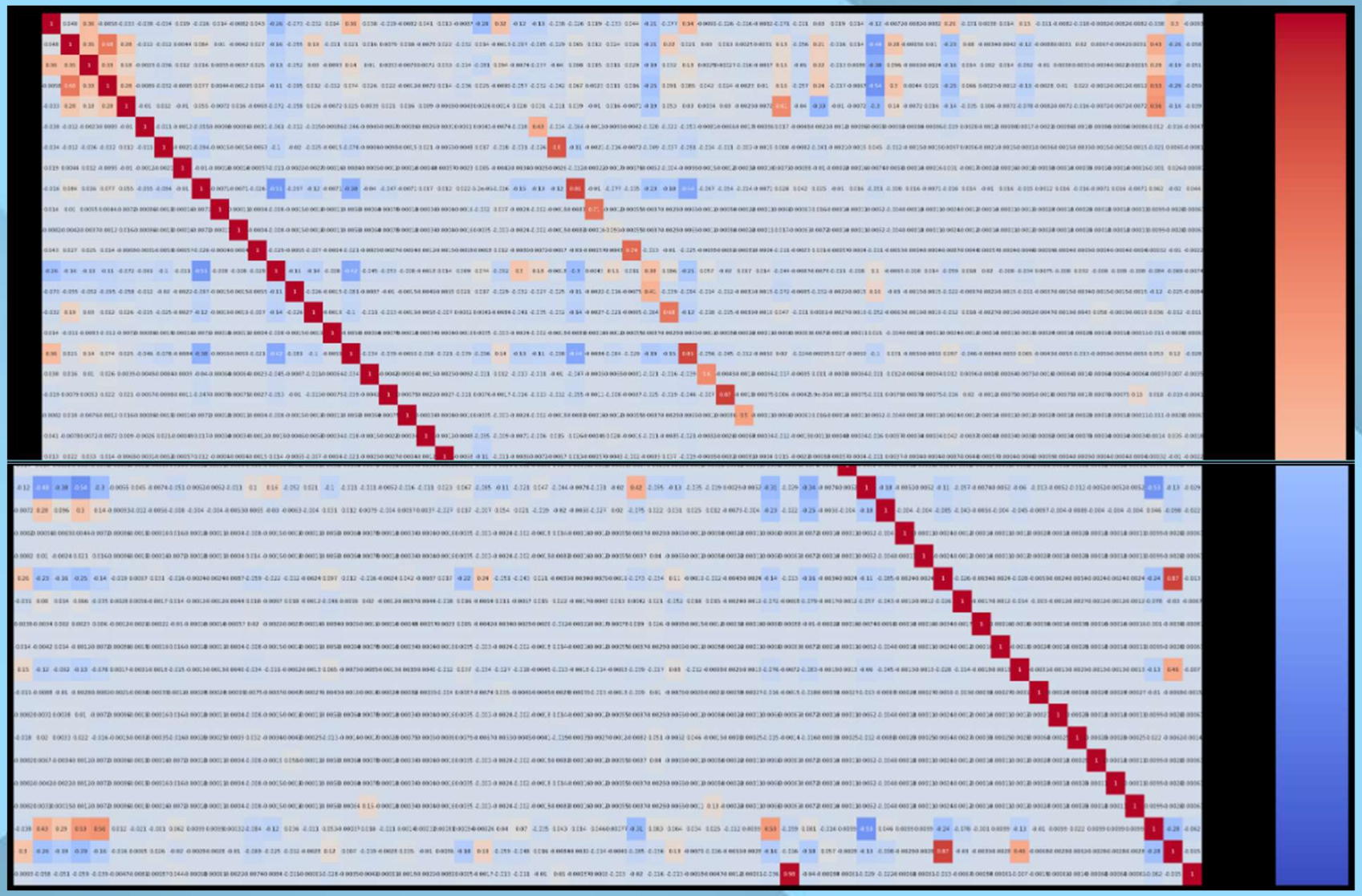




Pair plot to check the relationship between the converted and the numeric columns



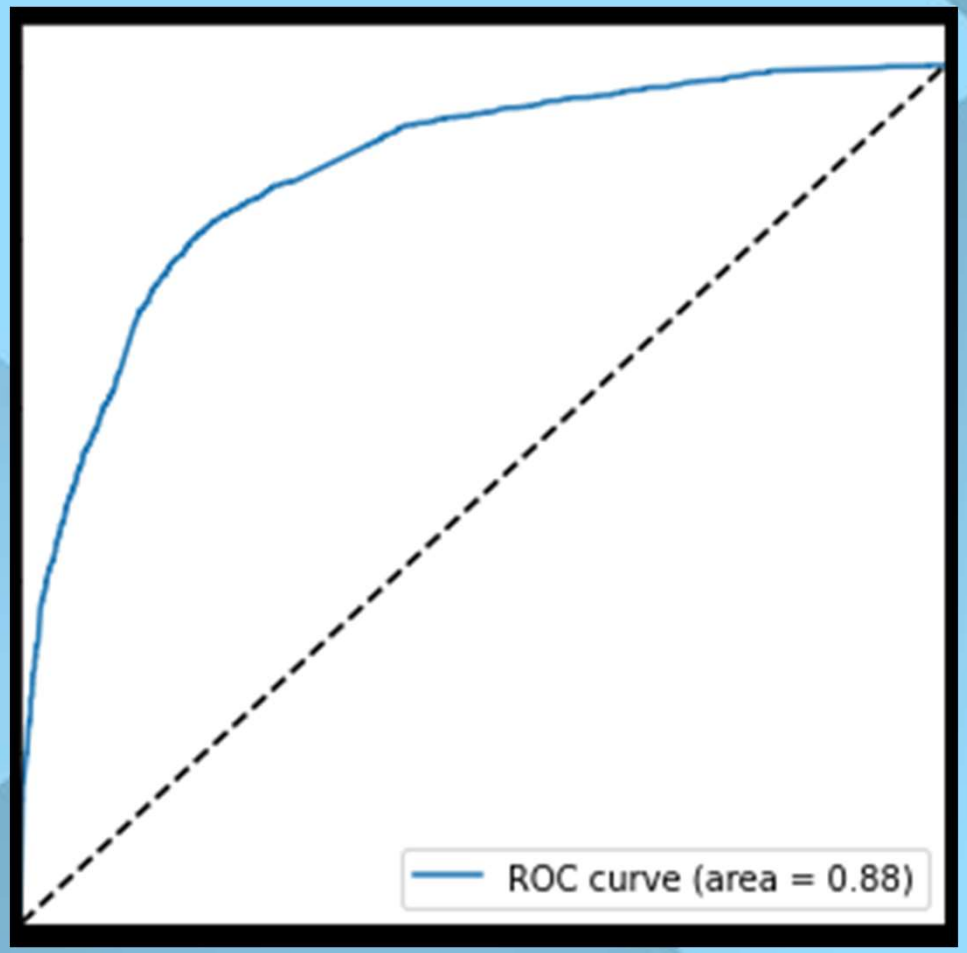
Correlation Matrix



MODEL BUILDING

- To split into train and test set
- Scale the variable
- Building first model
- Using RFE
- Building next model
- Eliminating variable based on high p-values
- Checking VIF
- Predicting accuracy
- Evaluating accuracy
- Predicting by using test set
- Precision and recall analysis

Plotting the ROC curve

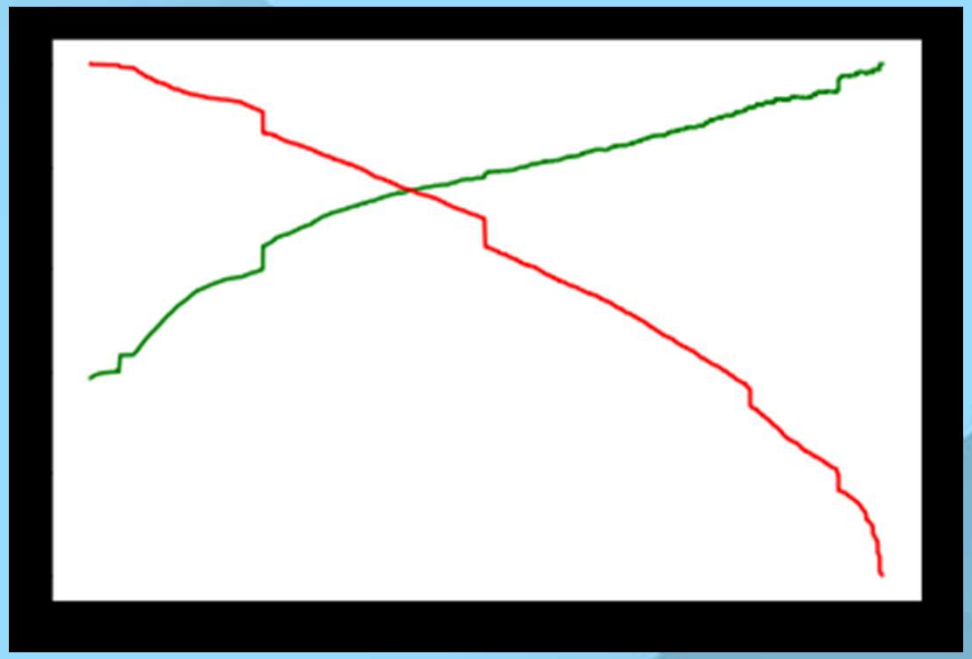


FINAL OBSERVATIONS

```
# Checking the parameters and their value to the model
result.params.sort_values(ascending=False)
```

```
Lead Source_Welingak Website                          6.439660
Lead Source_Reference                                 4.199732
Last Notable Activity_Had a Phone Conversation        2.439575
Last Notable Activity_Unreachable                     1.969361
Lead Origin_Lead Import                               1.444759
Lead Source_Olark Chat                                1.372520
Last Activity_SMS Sent                                1.225233
Total Time Spent on Website                           1.170855
Last Activity_Had a Phone Conversation                1.049196
What is your current occupation_Working Professional  0.988228
const                                                 0.266553
What is your current occupation_Student              -1.478473
Last Activity_Olark Chat Conversation                -1.683645
Last Activity_Email Bounced                          -1.697975
What is your current occupation_Unemployed           -1.801652
dtype: float64
```

Model Evaluation test



- **72.5% Precision**
- **76.5% Recall**
- **80.6% Accuracy**
- **76.5% Sensitivity**
- **83.1% Specificity**

Model Evaluation Train

```
accuracy = 80.9%
sensitivity = 70.1%
specificity = 87.5%
```

Conclusion

Logistic Regression :

- ❑The threshold has been selected from Accuracy, sensitivity, specificity and precision, recall curves
- ❑The model shows high close to 80% accuracy
- ❑Overall this model is accurate.

EDA :

- ❖People who spend more than the average time are promising leads hence approaching them can be helpful in conversions.
- ❖Landing page submissions can help out more leads
- ❖Reference lead can be good source for higher conversions.