# X Education – Lead Scoring Case Study

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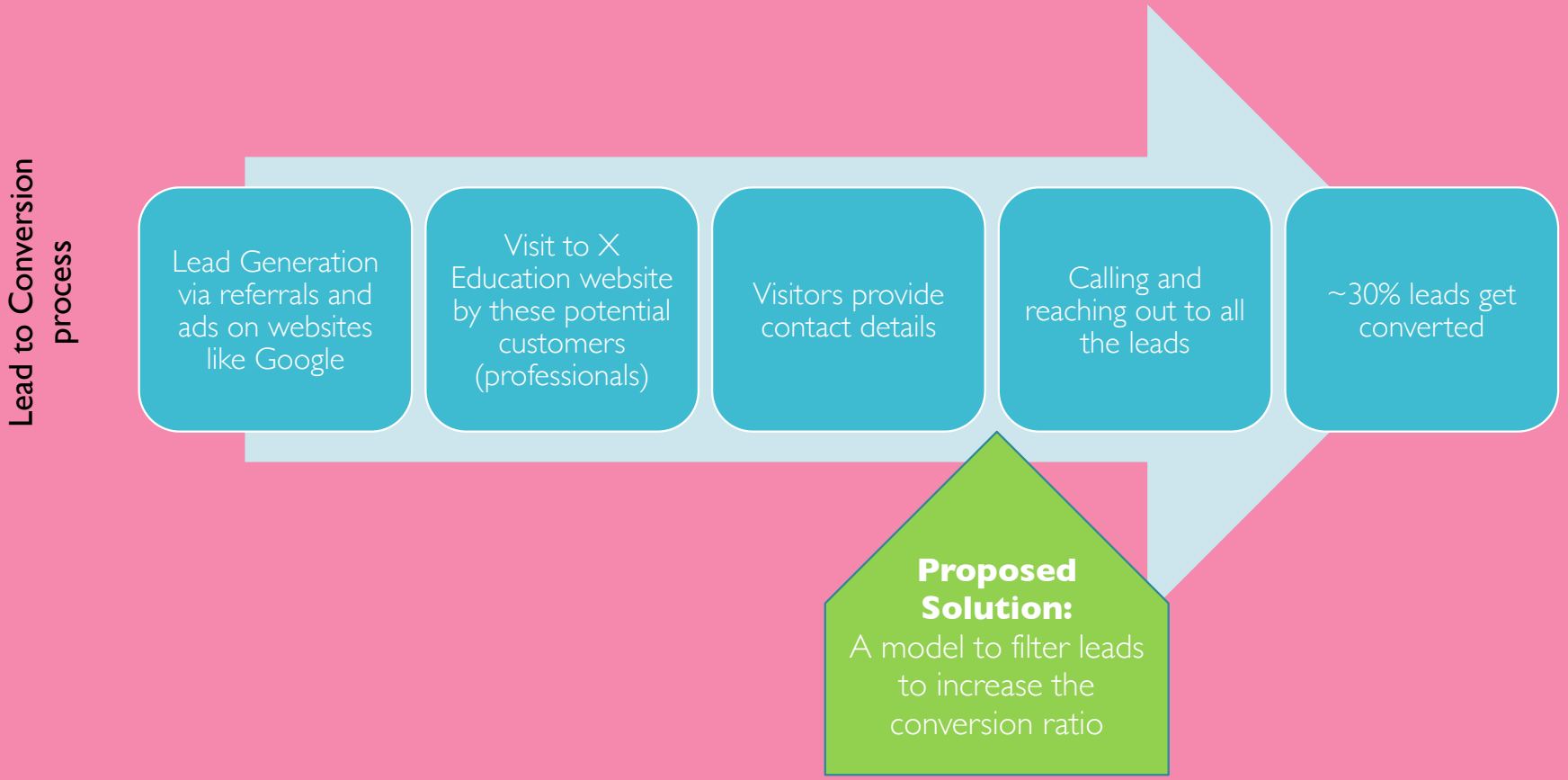
# Problem Statement: To Identify Hot Leads to Increase Conversion Rate

# Lead – Conversion Process



# Proposed Solution


### Leads Clustering

We cluster the leads into certain categories based on their tendency or probability to convert, thus, reducing the sample size but getting more efficient.

### Focus Communication

Since we would know more about this smaller set of leads, we can have an impactful conversation.

### Increase Conversion

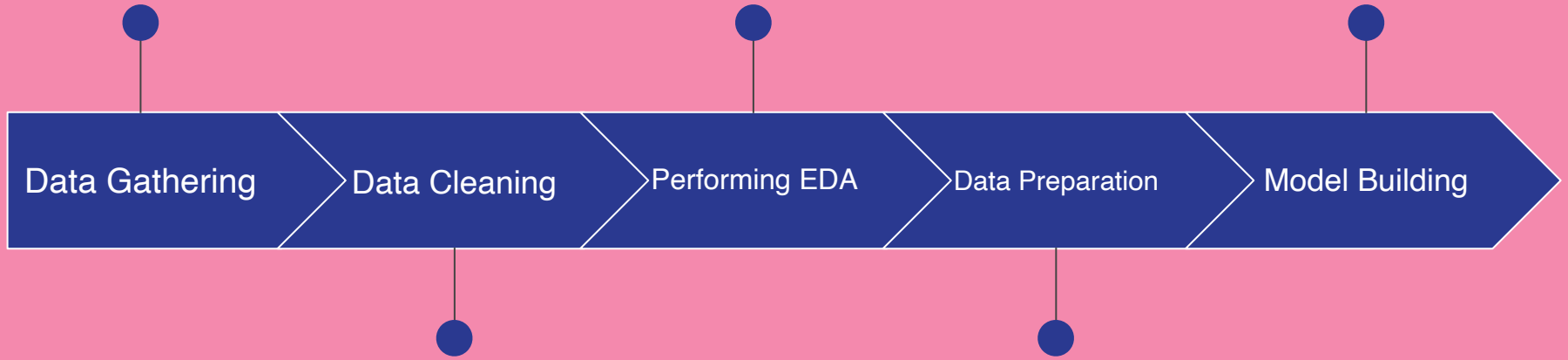
Since we focussed on hot leads, which were more probable to convert, we would have a better conversion rate.

# Implementation

Loading and Observing past data provided by the company

Univariate, bivariate, and heatmap for numerical and categorical columns

Performing pre-requisites for RFE and logistic regression



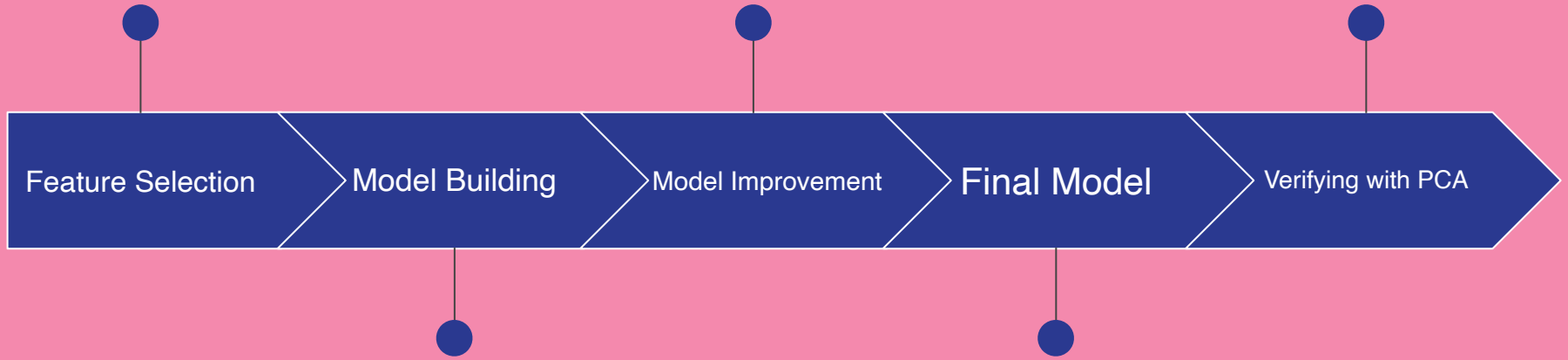

Removing duplicate values, treating null values, eliminating unnecessary column, etc.

Treating outlier, Feature Standardisation

Selection of top features using RFE

Reduction of columns and model re-building

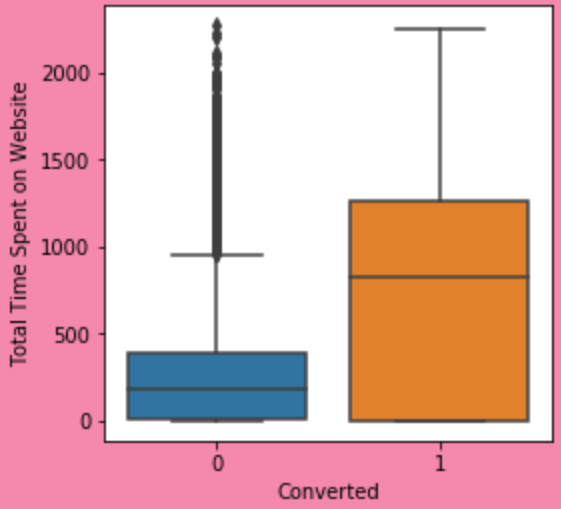
Verifying our final model accuracy with PCA

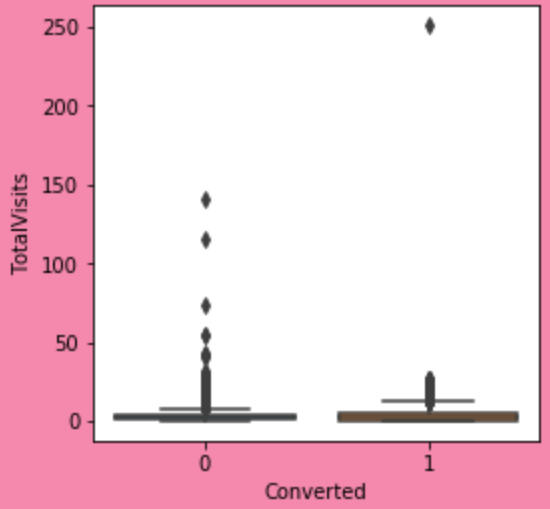


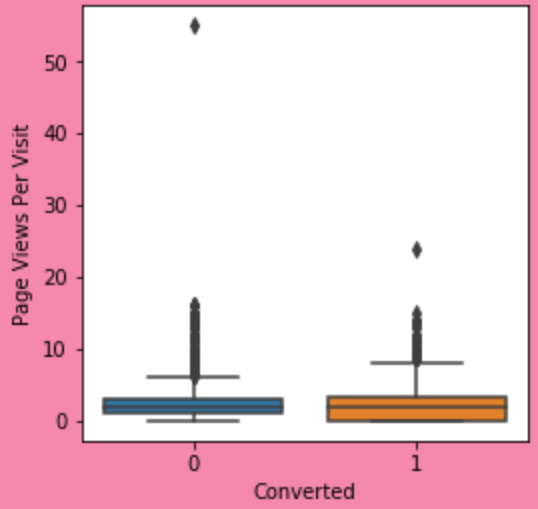

Model building using RFE for selected columns

Final model analysis and performance on test data

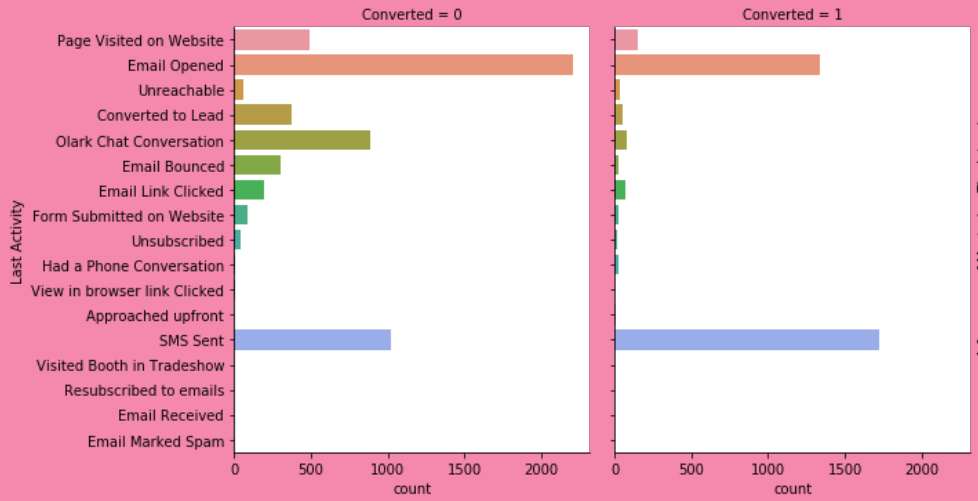
# Plots (Visualisation)

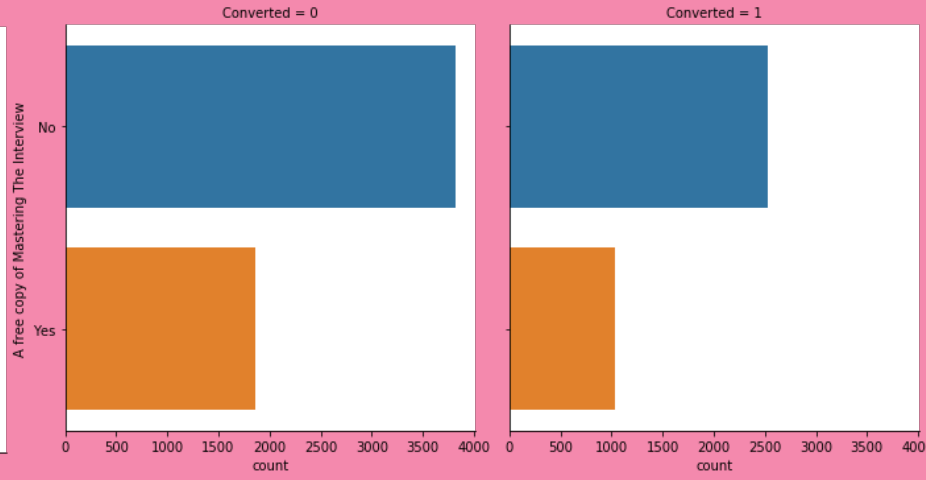


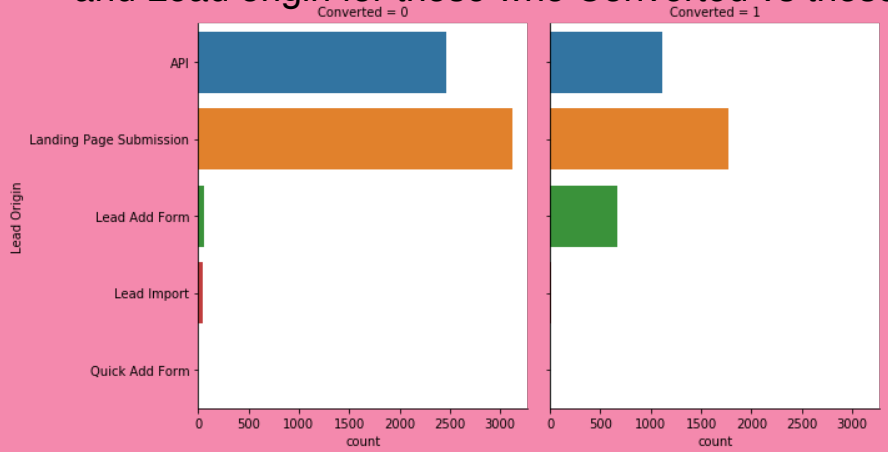



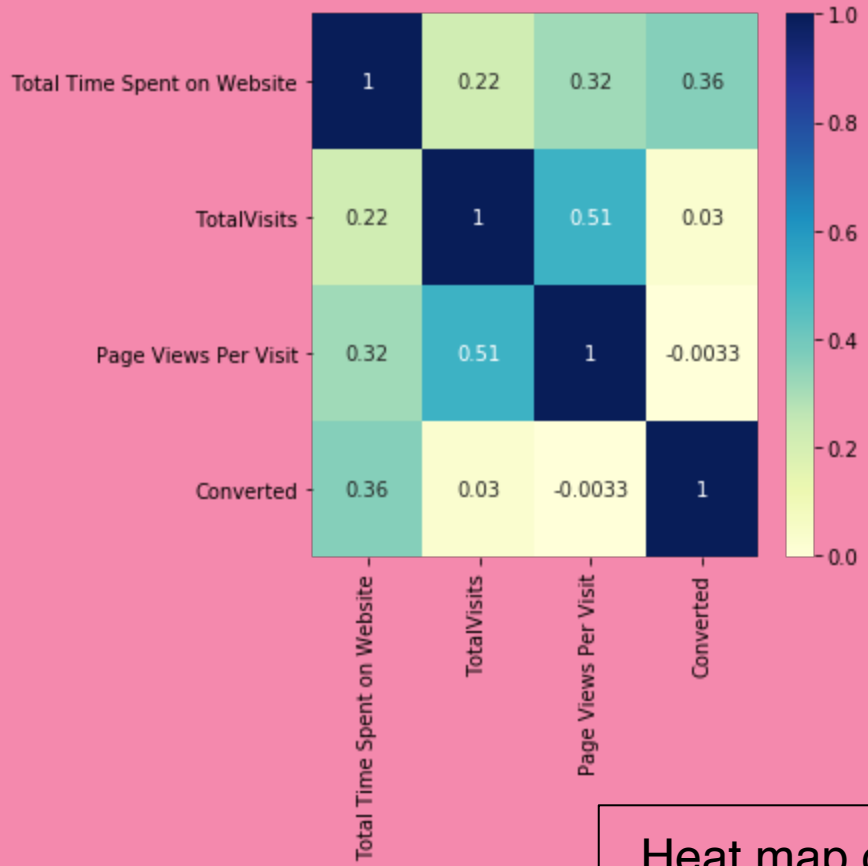

Plots depicting variation in numerical columns with converted



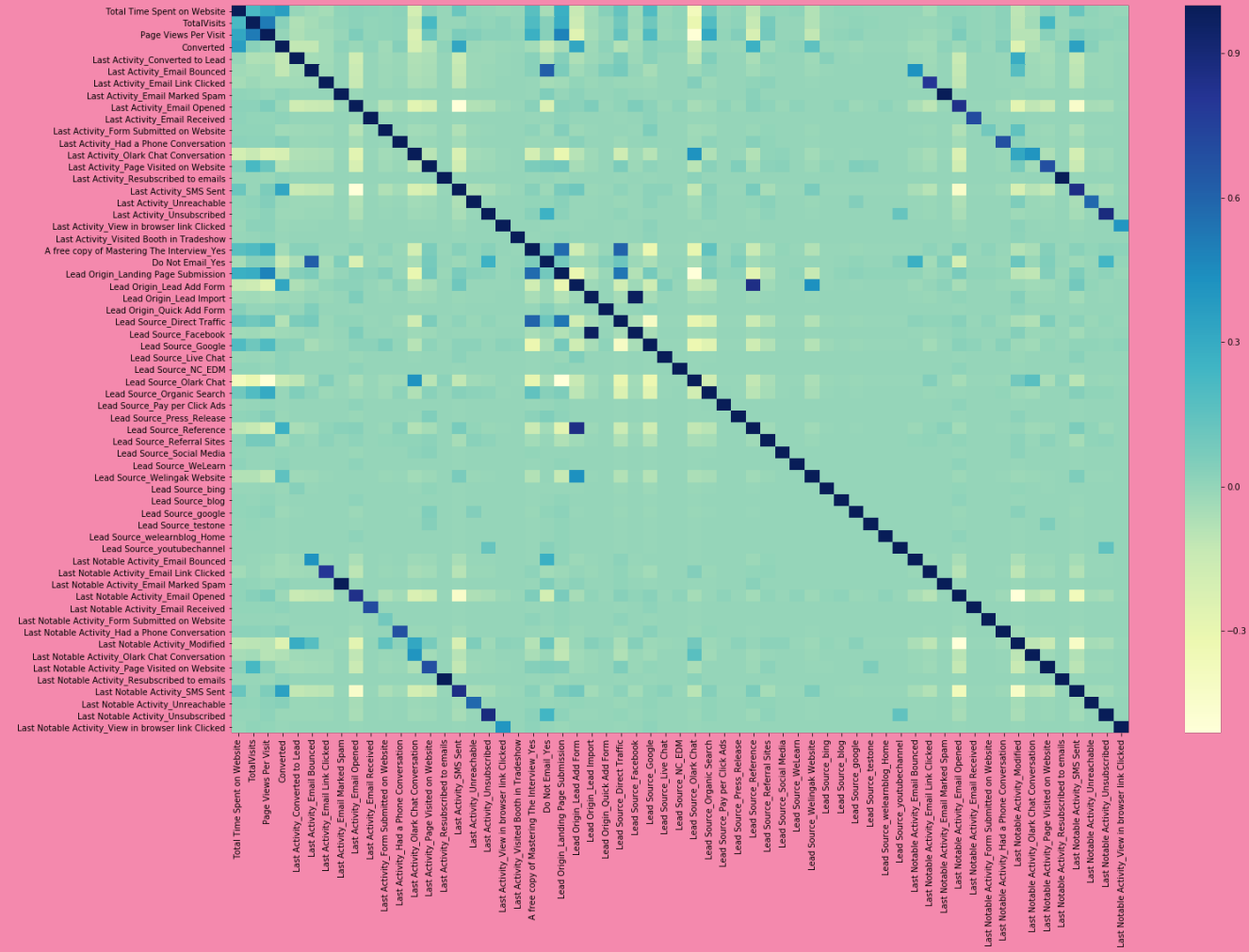




Plots depicting variation in Last Activity, Mastering the interview and Lead origin for those who Converted vs those who didn't

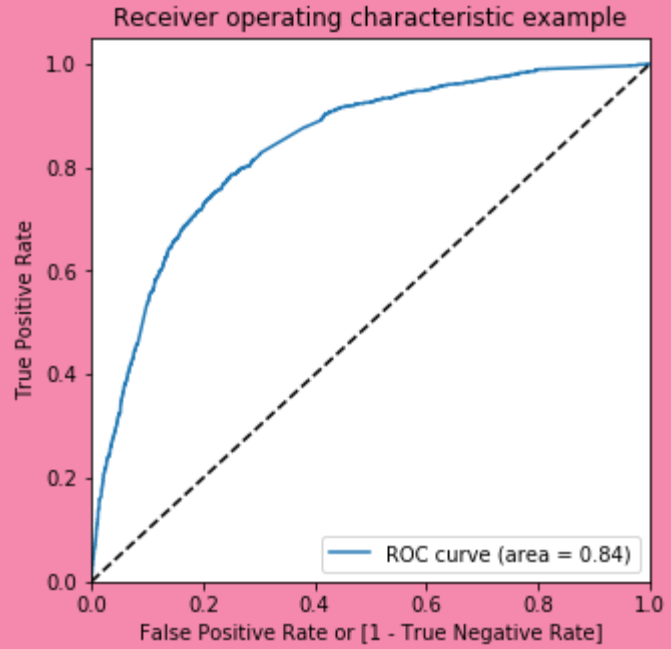


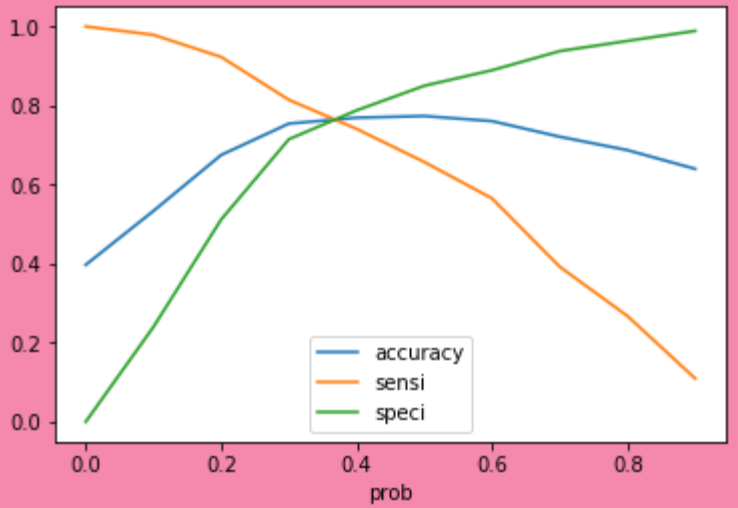


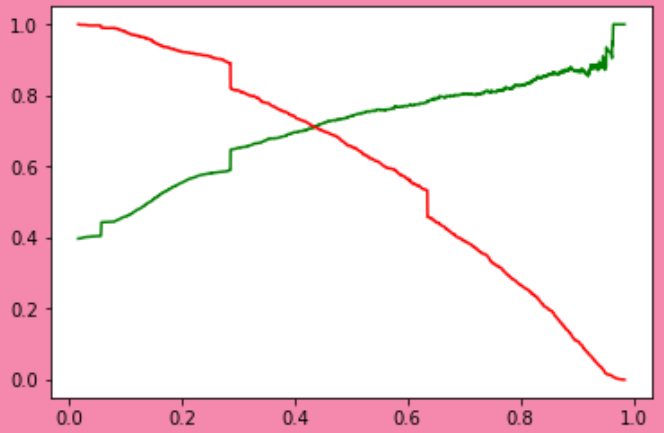

Heat map of all selected numerical columns



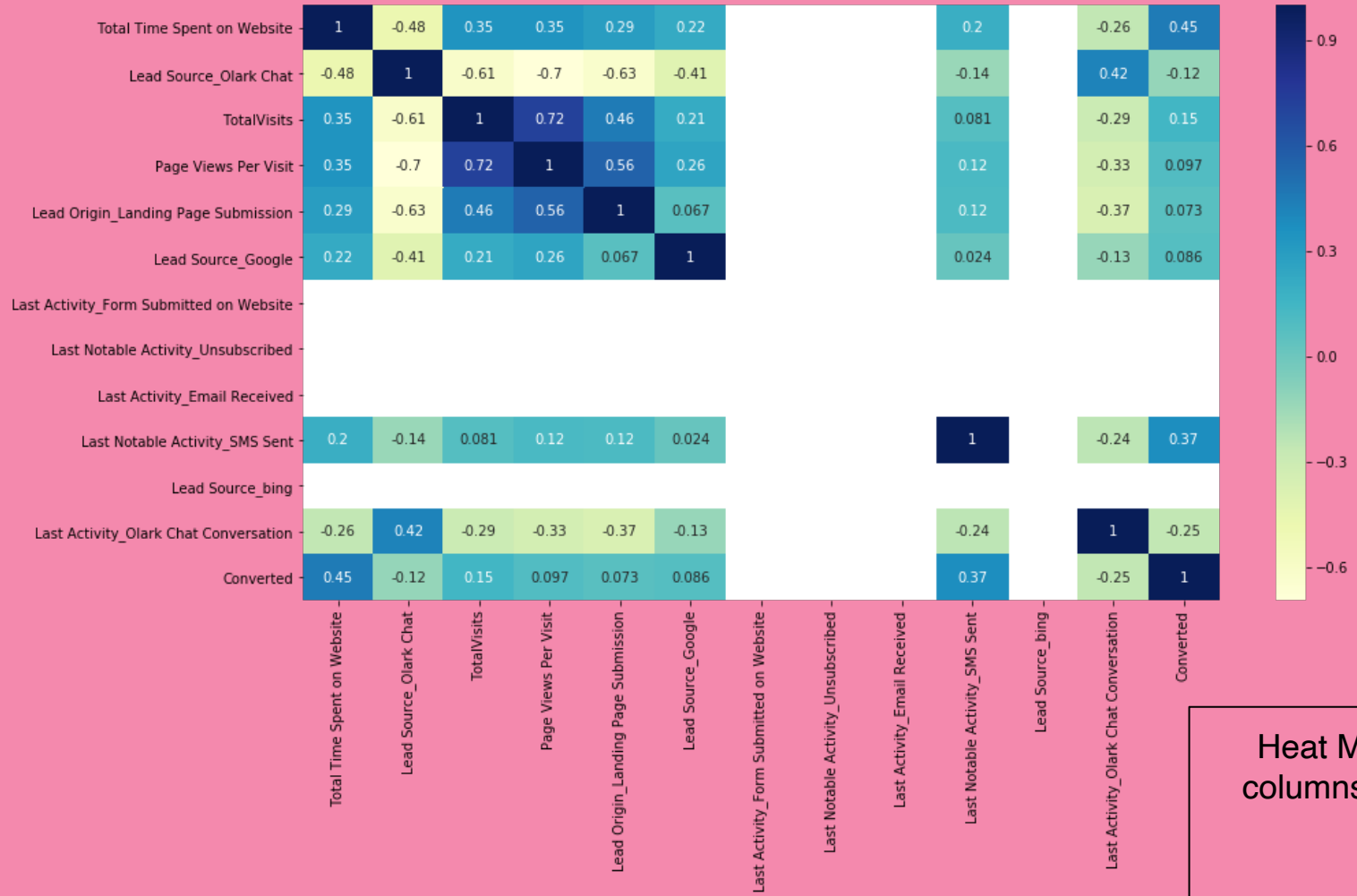

Heat map for all selected columns (numerical columns




**Linear Regression Final Model Parameters**
**Area under ROC = 0.84**
**Intermediate cut-off = 0.35**
**Final cut-off = 0.42**




Heat Map of all selected columns in our final model

# Inference / Conclusion

# Model Analysis

Performance of our Final Model

Overall accuracy on Test set: 0.81

Sensitivity of our logistic regression model: 0.82

Specificity of our logistic regression model: 0.82

# Inferences from Model

## Business Insights Derived from our Model

Top 3 variables in our model that contribute towards lead conversion are:

- Total Time Spent on Website
- TotalVisits
- Lead Origin

# Inferences from Model

Business Insights Derived from our Model

Top 3 variables in my model, that should be focused are:

- Last Activity_SMS Sent (positive impact)
- Last Activity_Olark Chat Conversation (negative impact)
- Lead Source_Olark Chat (negative impacting)