Machine Learning for Lead Management

A case of an online education company

Yusi Chen
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Project Introduction

How to boost the conversion rate with Predictive Lead Scoring

Industry:
Online professional education

Dataset:
10,000 entries, 37 columns

Goal:
Leads conversion 30%→80%

Method:
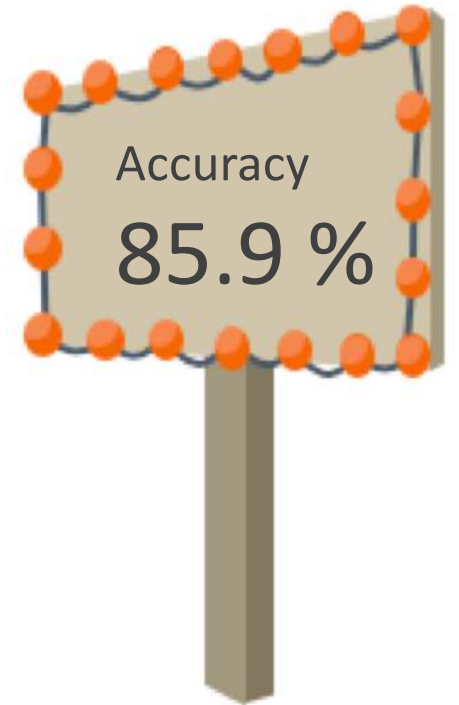Using machine learning algorithms to predict conversion outcome

Algorithms ?

Accuracy
85.9 %

69 potential variables

Model tested:
- Logistic Regression
- K-Nearest Neighbours
- Decision Tree
- Support Vector Machine (SVM)

Tremendous data cleaning and model improving

Algorithms

Build models to predict conversion outcome of future leads

Index	Lead Number	Conversion Real Value	Conversion Predict
9	660616	No	No
14	660553	No	No
15	660547	Yes	Yes
18	660522	Yes	Yes
20	660479	No	No
22	660471	Yes	Yes
23	660461	No	No
33	660339	No	No
38	660255	No	No
39	660255	Yes	Yes

Yes / No

Algorithms

Build models to predict conversion probability of future leads

Index	Lead Number	Conversion Real Value	Conversion Predict	Leading Scoring
9	660616	No	No	0.055877
14	660553	No	No	0.067691
15	660547	Yes	Yes	0.710651
18	660522	Yes	Yes	0.725876
20	660479	No	No	0.043348
22	660471	Yes	Yes	0.771458
23	660461	No	No	0.157629
33	660339	No	No	0.385444
38	660255	No	No	0.077897
39	660255	Yes	Yes	0.792177

How likely

Algorithms

Using predictive score to build leads pipeline

Index	Lead Number	Conversion Real Value	Conversion Predict	Leading Scoring	Lead Type	
9	660616	No	No	0.055877	Cold Lead	🟡
14	660553	No	No	0.067691	Cold Lead	🟡
15	660547	Yes	Yes	0.710651	Warm Lead	🟡🟡🟡
18	660522	Yes	Yes	0.725876	Warm Lead	🟡🟡🟡
20	660479	No	No	0.043348	Cold Lead	🟡
22	660471	Yes	Yes	0.771458	Hot Lead	🟡🟡🟡🟡
23	660461	No	No	0.157629	Cold Lead	🟡
33	660339	No	No	0.385444	Mild Lead	🟡🟡
38	660255	No	No	0.077897	Cold Lead	🟡
39	660255	Yes	Yes	0.792177	Hot Lead	🟡🟡🟡🟡

Pipeline

Leads Management Strategy

Differentiating marketing campaign to trigger leads upgrading

Score	Type	Stage	To-do
1-25	Cold	Awareness	**53%** Try cold leads, clean the noises / Nurture from the beginning
26-50	Mild	Interest	**13%** Reach to mild leads / Warm up
51-75	Warm	Consideration	**9%** Secure warm leads / Fuel the fire
76-100	Hot	Decision	**25%** Guarantee hot leads / Convert in very short time
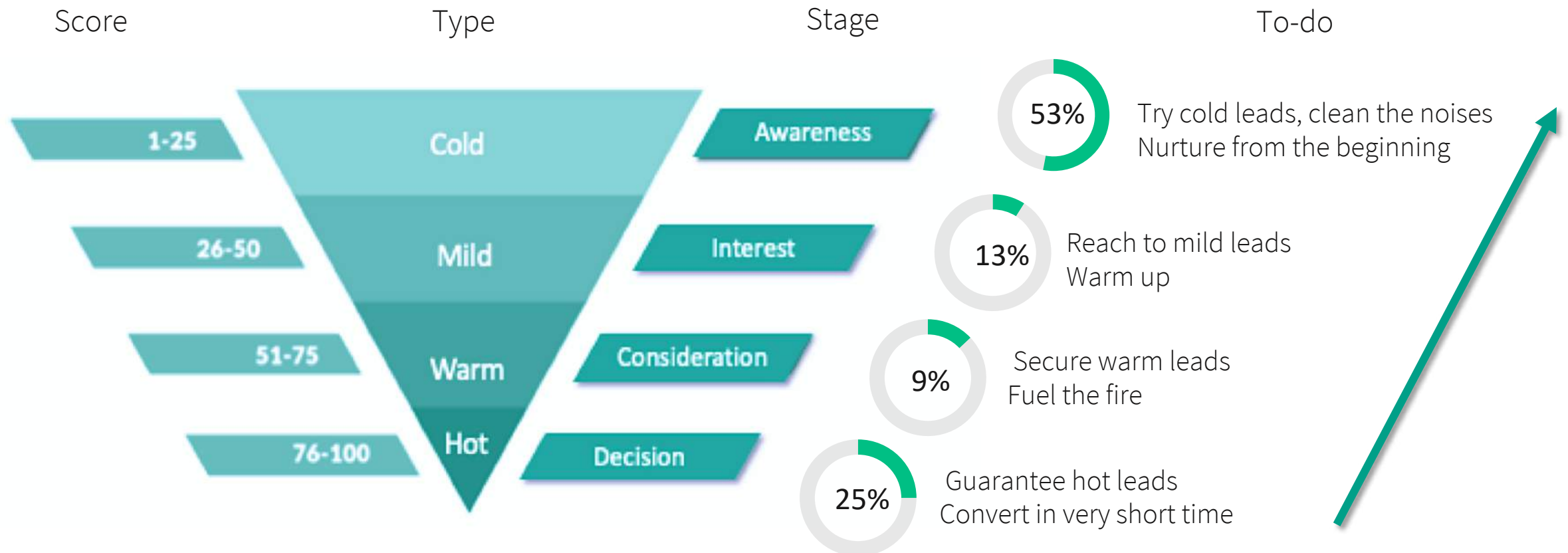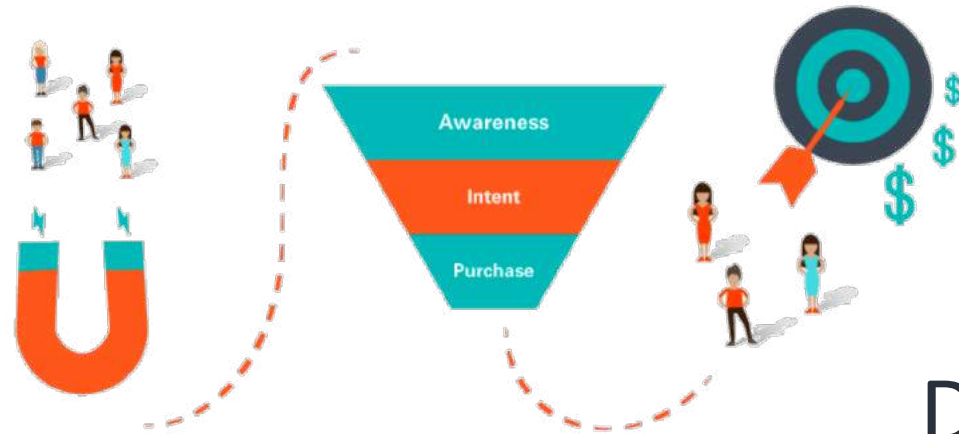
Did you do the good job ?

Customer segments
Marketing channels
Sales efforts
Data quality

Predictive Model Feature Importance Ranking

Top 20 indicators in a glance

Lead quality	Total Times Spent on Website	Lead source	Last Activity	Current Occupation
• Worst • No answer • Not Sure • Might be • Low in Relevance		• Welingkak Website • Direct Traffic • Google • Organic Search • Reference • Referral Sites	• SMS Sent • Olark Chat Conversation • Had a Phone Conversation • Converted to Lead	• Working Professional • Unemployed

Importance 90%	Importance 80%	importance 70%	Importance 60%	Importance 50 %

Top Features
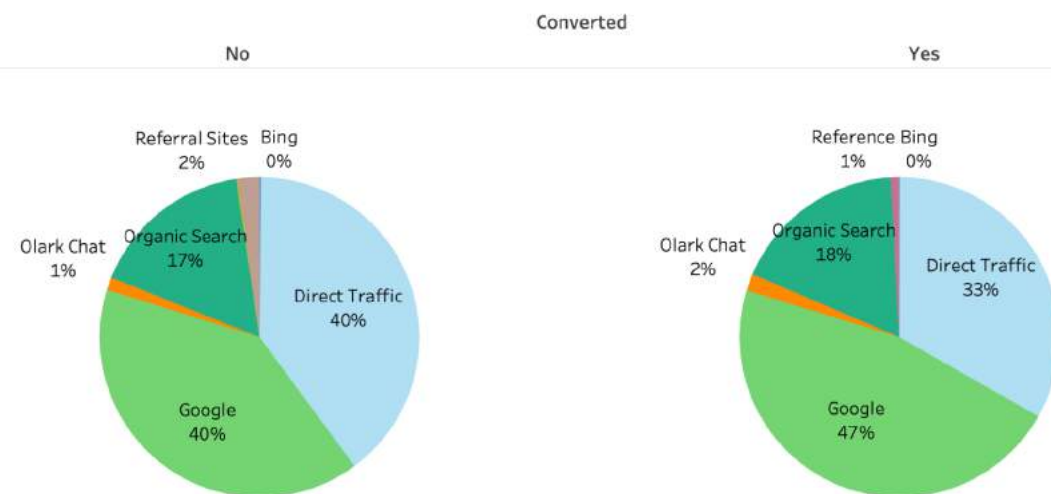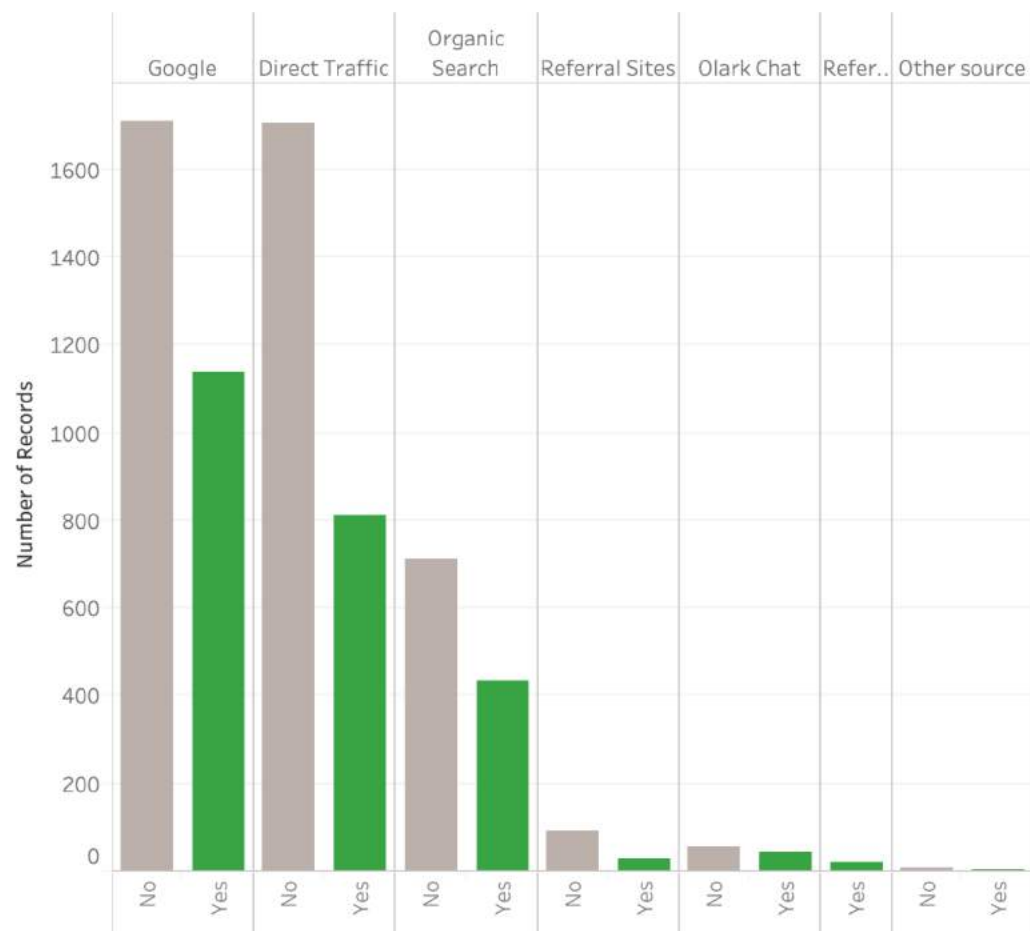
Lead Quality

Lead Quality / Converted
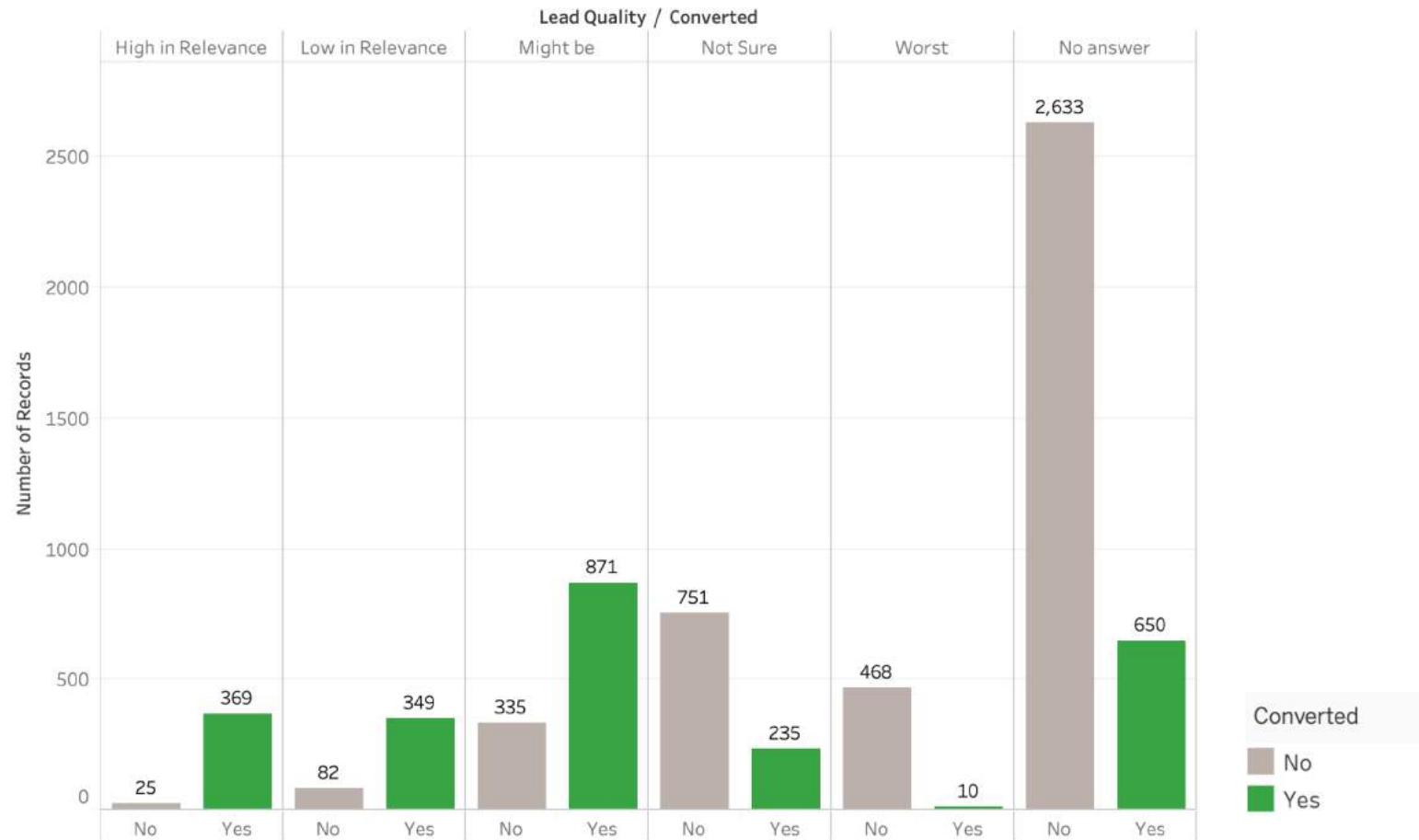
- The intuition of sales staff on the quality of leads.

- Conversion rate is highly correlated with the leads quality.

- Train sales staff to fill in the information in a more responsible manner.
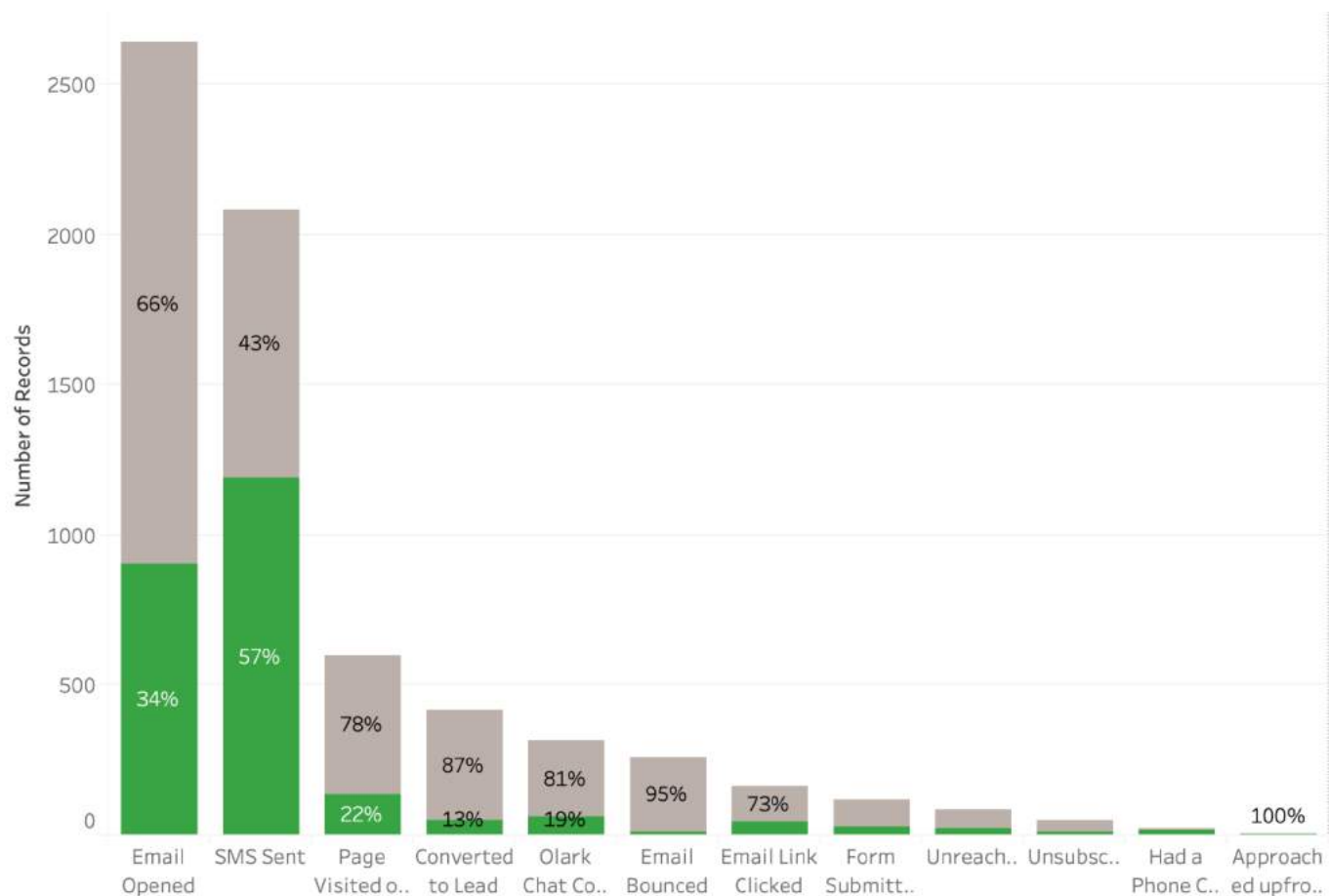
Top Features

Total Time Spent on Website

- Retaining web visitors for at least 10 minutes in 2 pages is the key to convert leads.

- Working harder on Content Marketing. Building a compelling website.

Top Features

Lead Source

- Searching Engine is the major source for generating leads and the conversion rate is ¼ .

- Consider to invest more SEO and SEA (if budget allowed)
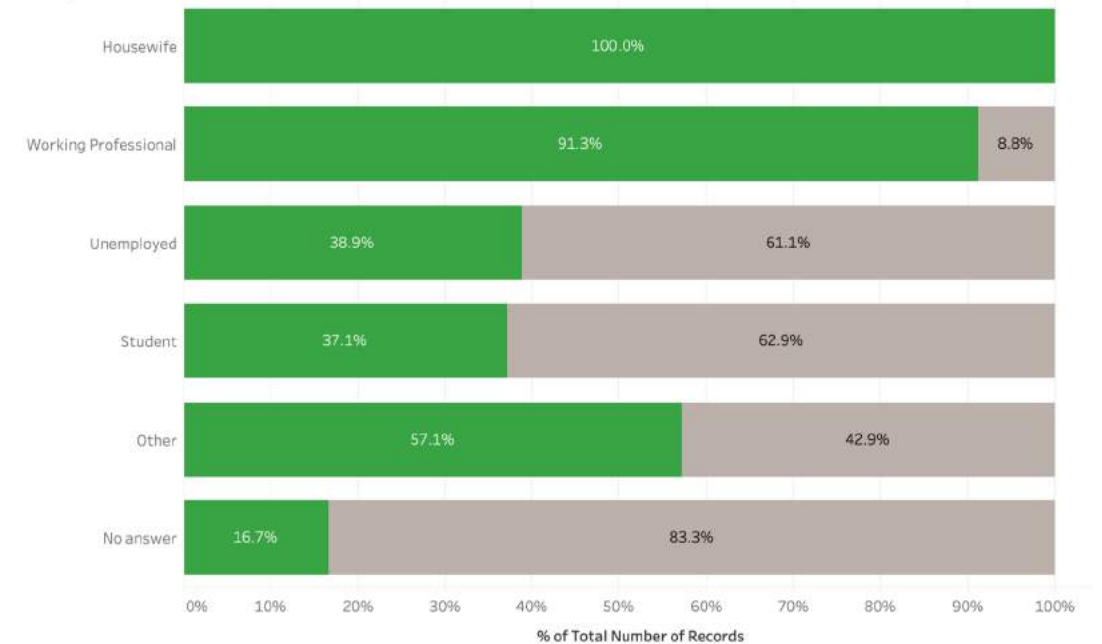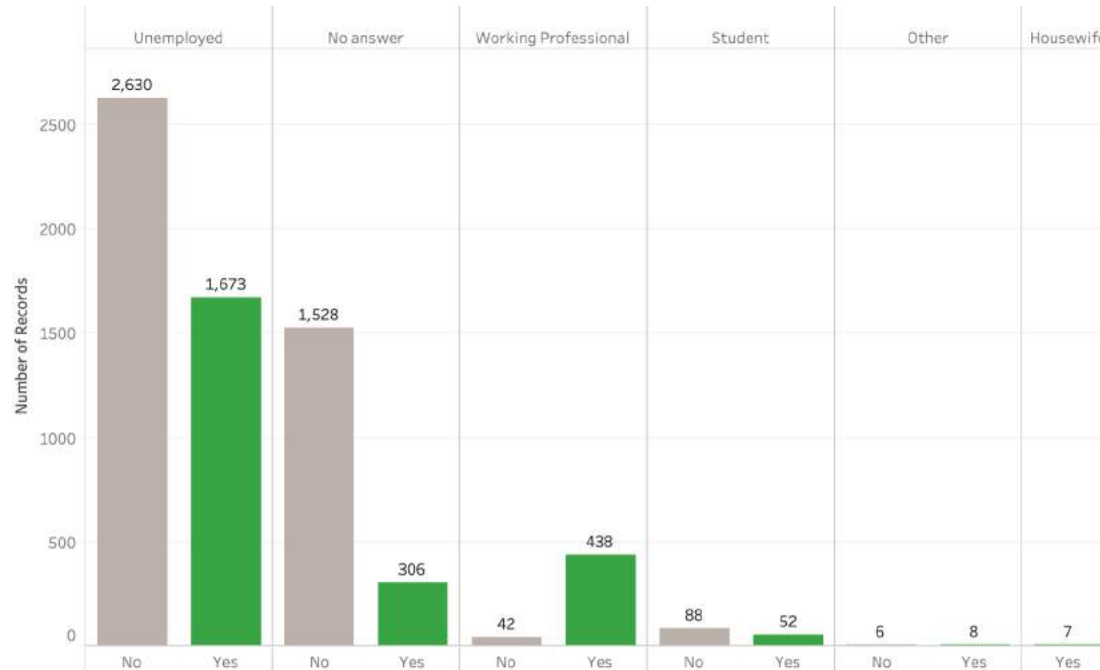
Top Features

Last Activity

- SMS and email marketing are the most effective tactics.

- Improving email opening rate

Top Features

Current Occupation

- Unemployed group of people contributed the highest number of leads
- Working professionals are more likely to buy the course, and the rate is extremely high, at 91%.
- Focus on generating more leads from working groups.

Conclusion

Strategy that you need

Lead Generating

Organic SEO
Working professional

Lead Scoring

Differentiated campaign depends on the stages in the funnel

Lead Nurturing

Email Marketing
SMS Marketing

Content is the King

Why I am the best
Web Design
Landing page
Testimony
Blog
Video

Data Strategy

A company-wide solution;
Forward-thinking investment

Empowering businesses through data analytics

Keep in Contact

www.linkedin.com/in/yusichen

yusi0928@gmail.com