Direct Mailing Marketing Predictive Analysis

Team 4JH: Jiayin Liu, Jack Ye, Jing Li, Jacqueline Huang, Han Lu

01. BUSINESS OBJECTIVE

Generating $1.5 million revenues
within 3 months

02. DATA EXPLORATION

Feature Engineering

03. MODELING

Logistic Regression

04. RECOMMENDATIONS

Test marketing strategy
+
Leverage transaction data

Business Background

FEB

1st wave

30,000 people randomly selected

MAR

2nd wave

another 30,000 people randomly selected

RESPONSE

- 2,994 **(4.99%)** out of the 60,000 customer replied
- **$900** generated / response

Business Objective

$1.5M Revenue

$1.5 million / $900 = 1,667 Responders

>10% Response Rate

1,667 / 4.99% = 33,400 Mails

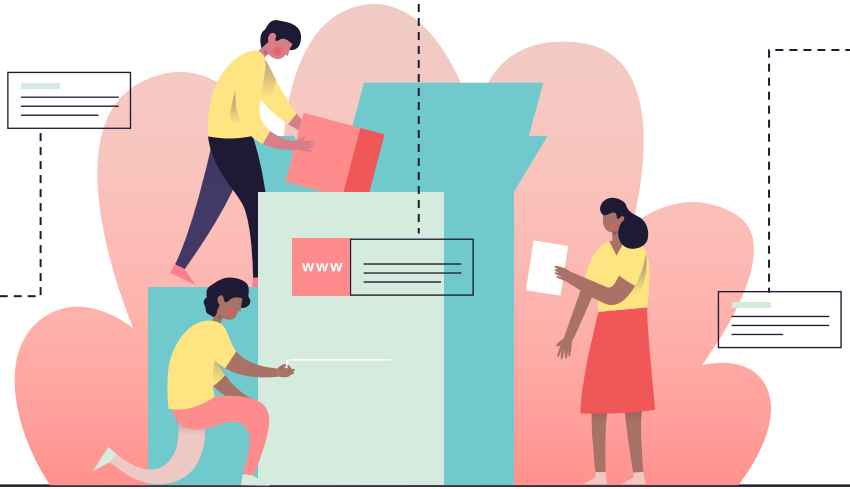
Achievements by **Predictive Model**

Direct Mailings

5,022 vs. 33,400

Cost saved by

76%



Response Rate

improved from

4.99% to 33%

Data Characteristics

Customers Basic Info

Sex, Age, Occupation, Education, Income level

Geographic Data

Customer Geographic Data (encrypted)

Mailings Data

Response, Sent out date

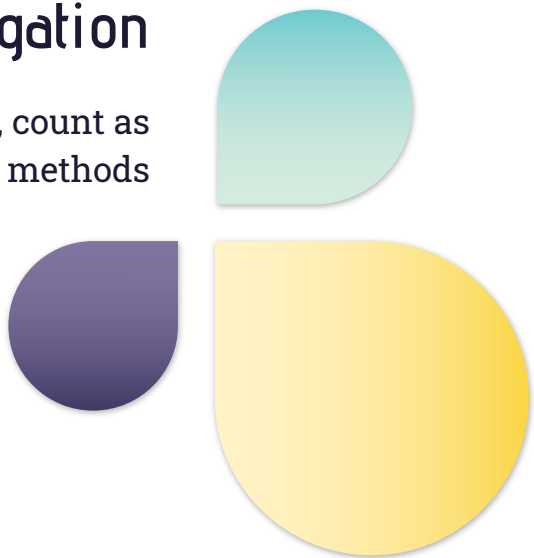
Transactions

Amounts, Date, Customer ID

Feature Engineering

Aggregation

Used sum, count as aggregation methods



Period Filtering

Used the data that within three month prior to mailings

Preprocessing

One-hot encoding, Normalization, Imputing

Modeling

Models Selection

Return probability

Unbalanced Data

Add weight variable

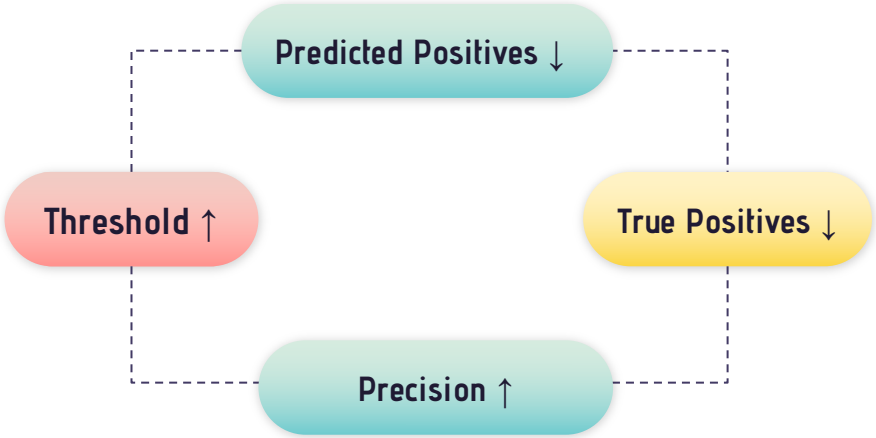
Threshold Selection

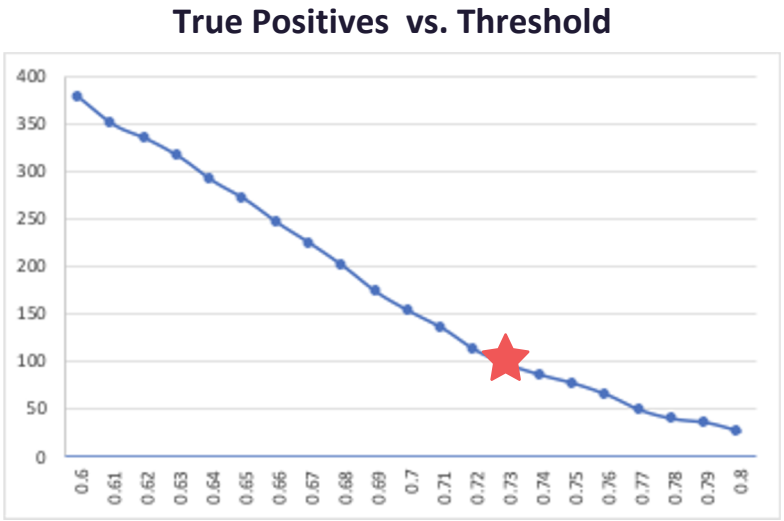
Control true positives

Threshold Selection

Goal: True Positives >= 1,667

- Targeted Dataset: 1,667 TPs/ 300,000 =0.56% customers
- Test Dataset: 0.56% of 18,000 customers = 100 TPs





Model Results

0.58 without transactions data

AUC

Improved from 5%

Response rate

33,400 to 5,022 mailings sent

The cost saved

Recommendations

Test the strategy

Leverage transaction data

THANKS!

Jiayin Liu, Jack Ye, Jing Li, Jacqueline Huang, Han Lu