# Customer Propensity Model

Account Opening Propensity

Executive Summary:

- Increase Account Opens with Lower cost
- Coverage : 70% Coverage. 70 out of 100 available Account opening customer in market is captured by our model.
- Cost (30%) ~ 4.22 calls lead to 1 Account Open conversion.

Customer Acount Open Propensity Model
Success Rate (Coverage)

Model Failse to Identify
29.6%

Sucessfully Identified
70.4%
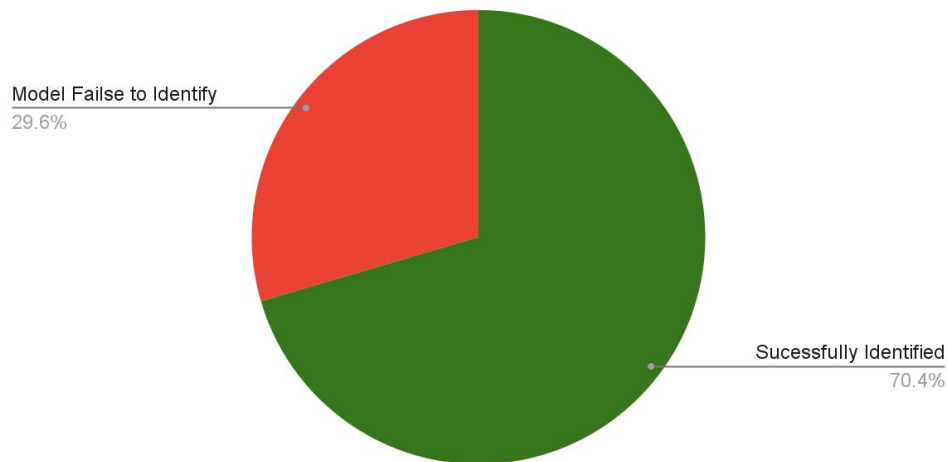
Methodology
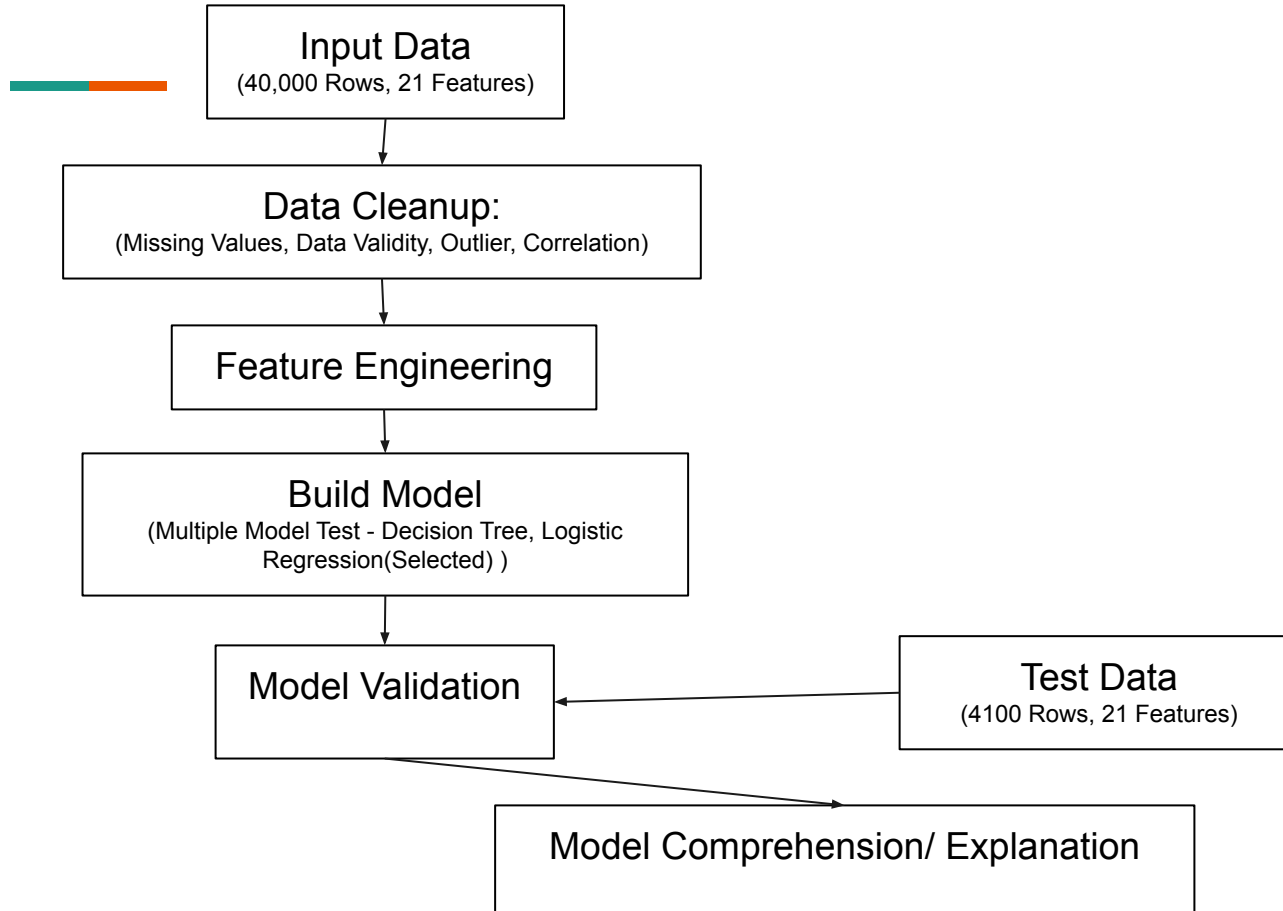
Sample LR Model

[For Explanation purpose only]

Sample LR Model :

- Bank account = -2.10 + 1.77*pcontacted + 0.98*March + 0.28* Age_35_45 + 0.16*education_4y + 1.35*nr_employed

Sample Person :

- A person was previously contacted (pcontacted=1)
- Current month is March (March=1)
- Person's age is between 35-45 (Age35_45=1)
- Person's education is 4 years (Education_4y=1),
- No of employee: 0.5(Scaled no of employeed)

Sample Person Prediction: 76% probability of opening Account

- Bank account = -2.10 + 1.77*1 + 0.98*1 - 0.28*1 - 0.16*1 - 0.01*0.5 = 0.2
- P/(1-P) = probability of occurence/(1-probability of occurrence) = exp(0.2) =1.22
- P = 0.76 = 76% (i.e The person has 76% probability of Opening an account)

PS - Our Full Model : 1.767 * pcontacted + 0.9821 * month_mar + 0.8267 * education_illiterate + 0.4731 * contact + 0.4146 * month_jun + 0.3511 * day_of_week_wed + 0.3303 * month_jul + 0.3245 * month_dec + 0.3194 * job_student + 0.2748 * day_of_week_thu + 0.2613 * day_of_week_tue + 0.233 * job_retired + 0.2211 * day_of_week_fri + 0.2004 * month_apr + 0.1677 * age_seniors + 0.157 * job_admin_ + 0.1397 * job_unemployed + 0.1221 * job_technician + 0.1085 * job_entrepreneur + 0.1062 * job_self_employed + 0.1054 * job_management + 0.0401 * job_housemaid + 0.0187 * cons_conf_idx + 0.0178 * job_services + 0.0136 * education_basic_6y -0.0102 * marital_married -0.0281 * month_oct -0.0356 * loan -0.0367 * housing -0.0466 * campaign -0.0581 * marital_divorced -0.0608 * education_high_school -0.0684 * education_professional_course -0.0719 * adult_55_65 -0.1349 * education_basic_9y -0.144 * education_basic_4y -0.1543 * adult_25_35 -0.1958 * month_nov -0.2364 * adult_45_55 -0.2442 * default -0.2755 * adult_35_45 -0.2922 * previous -0.3215 * month_sep -0.492 * month_may -1.349 * scl_nr_employed - 2.1131

Top 5 Most important features (+ve / -ve)

Features that predict customers' opening a bank account

Top 5 Positive Features

1. Previously contacted: People contacted in previous campaigns have 5.8 odds of opening a bank account compared to not contacted ones.
2. Months: People are more likely to open account in March(odds: 2.7), June (odds: 1.5), July(odds: 1.4), Dec compared to August(lowest rate month)
3. Contact: People contacted in cellulars have 1.6 odds of opening a bank compared to people contacted in telephone.
4. Day of week : People are more likely to open accounts in Tuesday(odds: 1.3), Wednesday(odds: 1.4), Thursday(odds: 1.3), Friday(odds: 1.2) compared to Monday.
5. Occupation: Students(odds : 1.4), retired people(odds : 1.3), or people working in admin(odds : 1.2) are more likely to open accounts compared to blue-collor workers

Top 5 Negative Features

1. Number of employees: 1 unit increase in Scaled number of employees decreases opening account propensity by 75%.(5000 scaled to 0)
2. Months: People are less likely to open account in May(odds: 0.6), Sep(odds: 0.7), and Nov(odds:0.8) compared to August.
3. Age: People of age group 35-45(odds : 0.75), 45-55(odds : 0.8), 25-35(odds : 0.85) have lower odds of opening account.
4. Default: People who have defaulted have 0.78 odds of opening account compared to
5. Education: People with basic_4y(odds : 0.9), basic_9y(odds : 0.9) have lower odds of account opening compared to university_degree.

Strategies

Based on Top 5 positive Features and Top 5 negative Features.

Strategies for Increasing Account-opens

1. Target people with multiple follow-up campaigns (Previously contacted: 5.8 odds)
2. Run more / campaigns on March(odds: 2.7), June (odds: 1.5), July(odds: 1.4), Dec(odds: 1.4) and no/ fewer on May(odds: 0.6), Aug, Sep(odds: 0.7), oct(0.97) Nov(odds:0.8)
3. Run campaigns, in accordance to the number of employee- quarterly metric. If metric shows decrease, reduce campaigns.
4. Target people with cellulars(1.6 odds) over telephone(landline)
5. Target people of younger age(15-25). Other age groups have lower odds compared to youth(15-25) i.e 35-45(odds : 0.75), 45-55(odds : 0.8), 25-35(odds : 0.85)
6. Target Students(odds : 1.4), retired people(odds : 1.3), or people working in admin(odds : 1.2) compared to blue-collor workers.
7. Target campaign on Tuesday(odds: 1.3), Wednesday(odds: 1.4), Thursday(odds: 1.3), Friday(odds: 1.2) and less on Monday.
8. Target defaulted users less (0.78 odds)

Strategies For Diversity / WorkForce Management:

WorkLoad Smoothing: Let's assume that the bank wants people to open bank accounts uniformly throughout the year so that it can effectively manage work pressure for its staffs. To do so, it can increase its marketing communication in Nov, Sep, May.

Diversity / Niche Bank Creation : WIth regards to occupation, if bank wants to create a niche, it may want to focus more on students and retire people. If diversification is a priority, a reverse focus on (reference category) is appropriate.

Important! : Strategies are exclusive of Future Account Balance Potential.