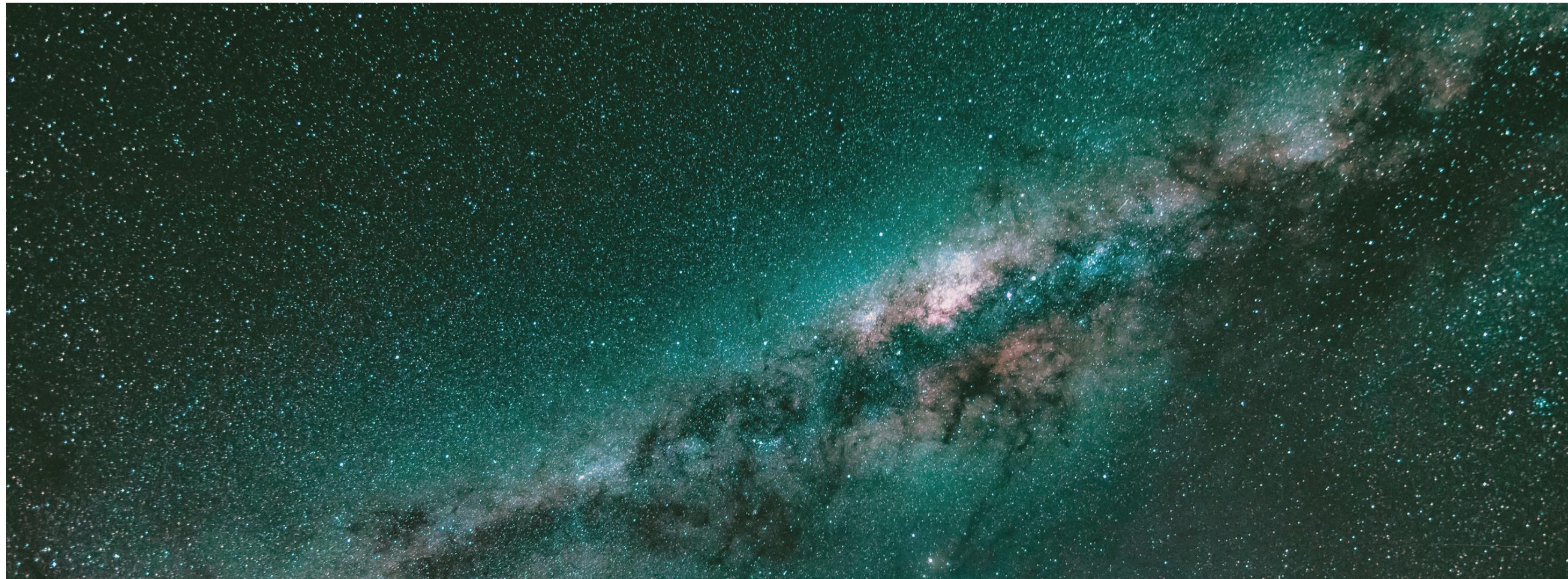


# **FNBO DATATHON 2023**

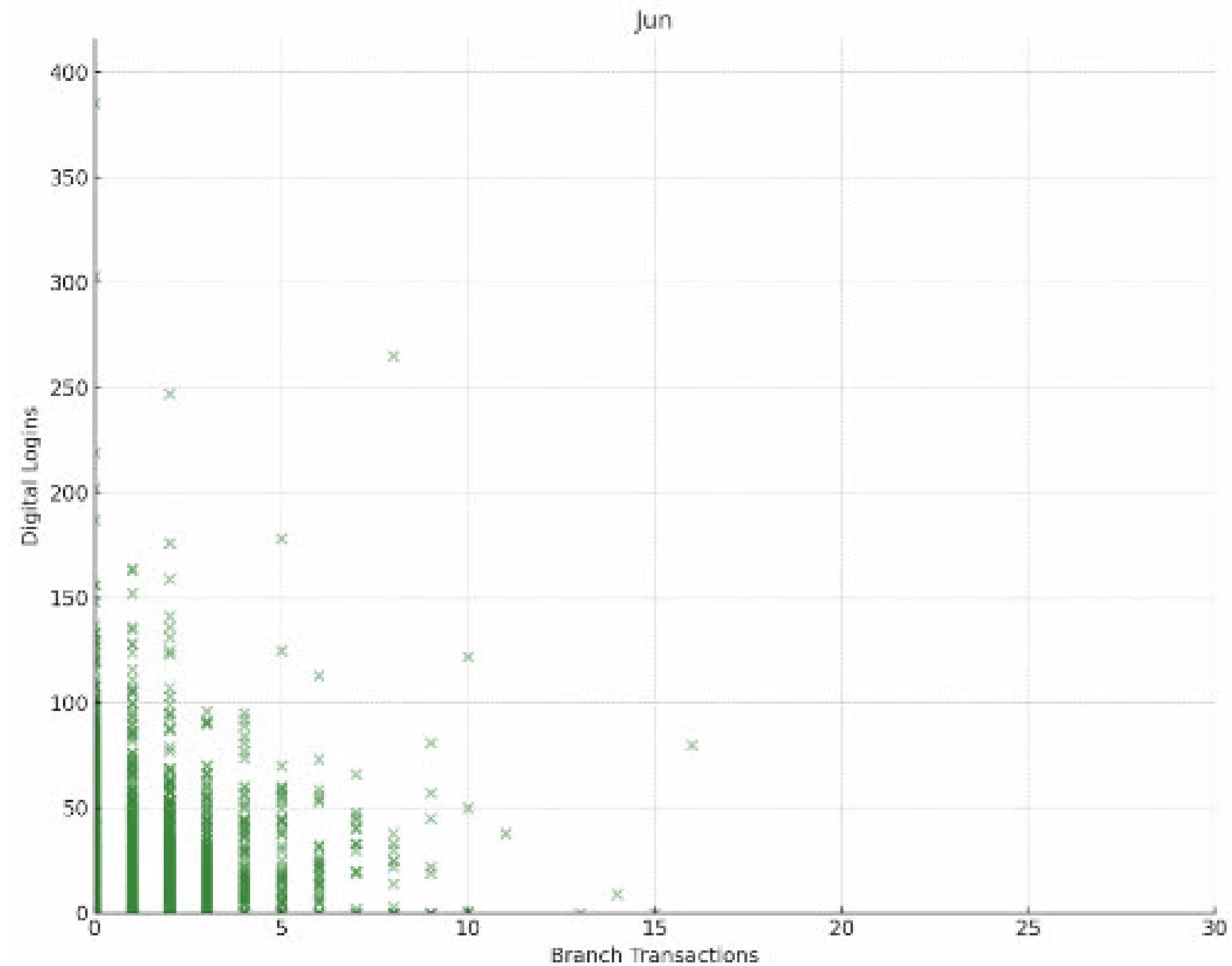
## **ANALYTIC PROGRESSION**

Riddhimoy Ghosh, Marc Wade, Nick Patt

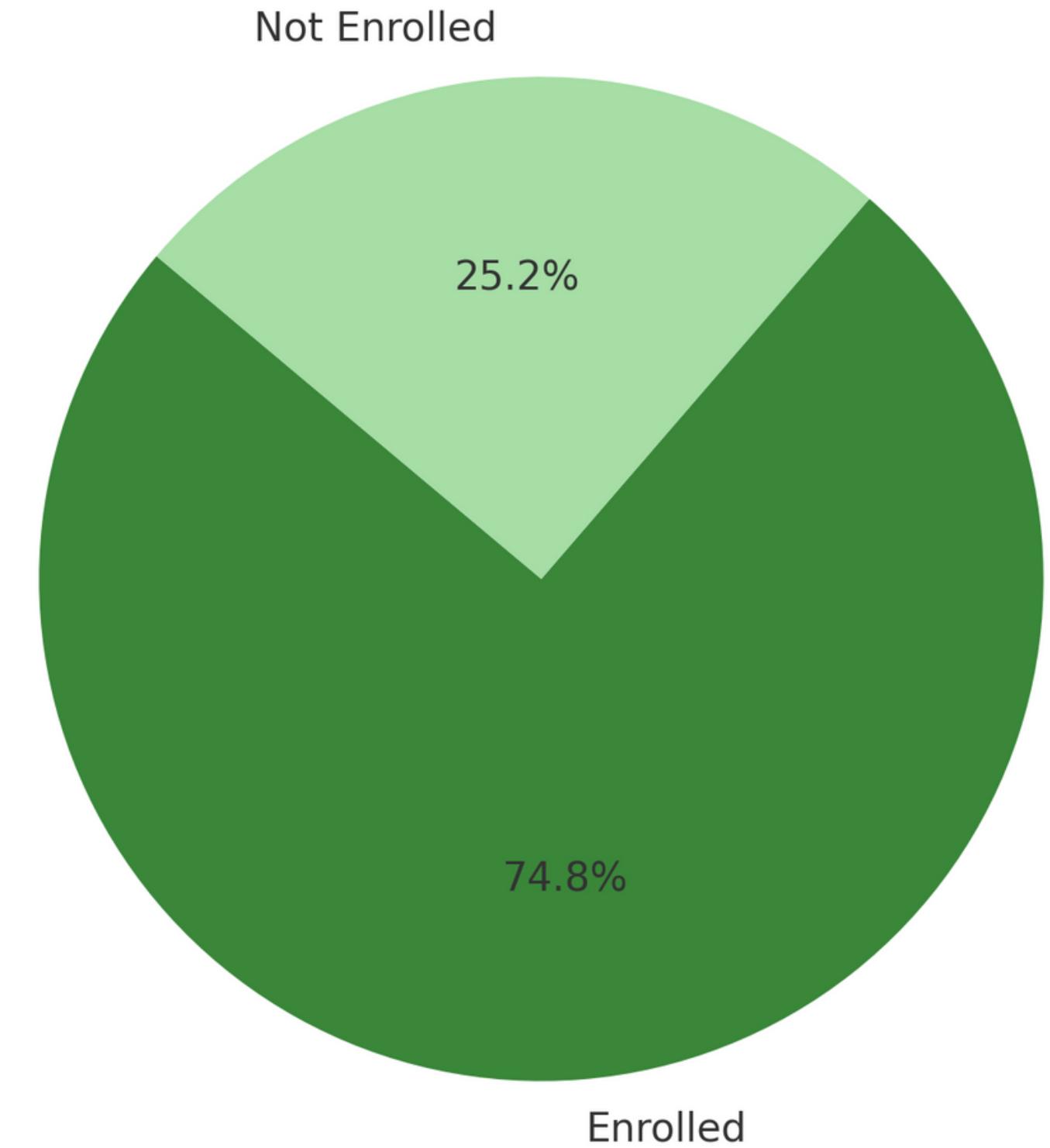


Mentor: Aya Morgan

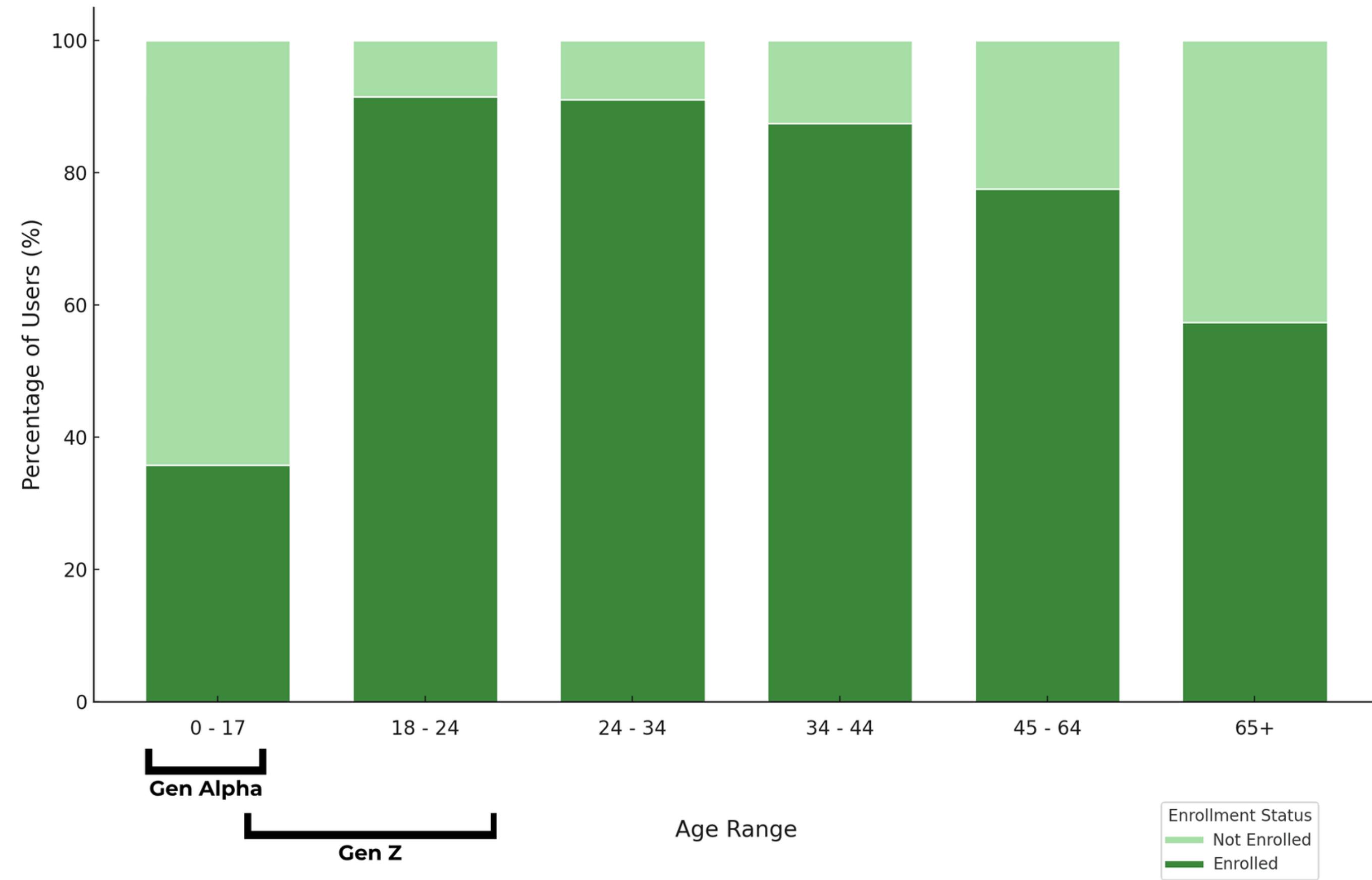
# Digital Logins vs. Branch Transactions



# Digital Enrollment Status



# Digital Enrollment by Age Range



# POTENTIAL SOLUTIONS

# POTENTIAL SOLUTIONS

1

MORE ATTRACTIVE  
SAVINGS ACCOUNT



# POTENTIAL SOLUTIONS

- 1 MORE ATTRACTIVE SAVINGS ACCOUNT
- 2 AVENUES FOR FINANCIAL LITERACY

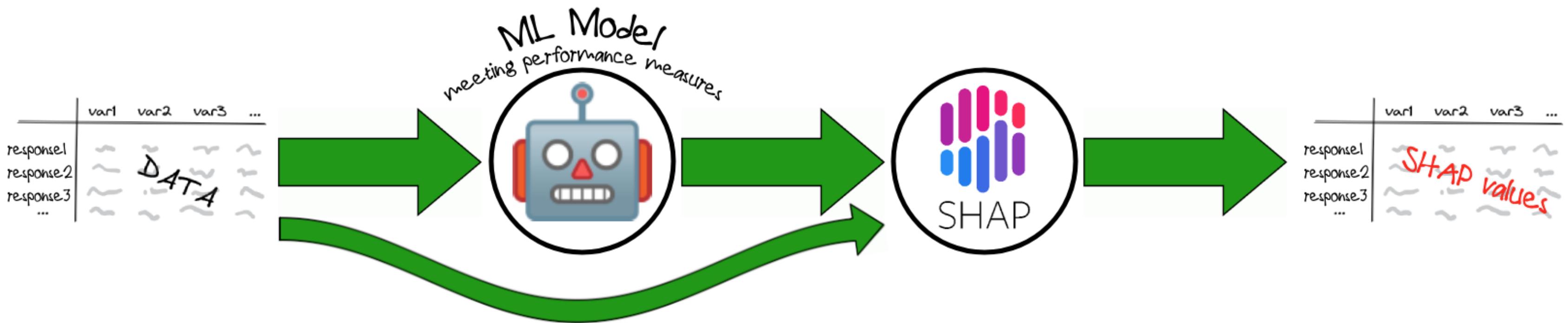


# POTENTIAL SOLUTIONS

- 1 MORE ATTRACTIVE SAVINGS ACCOUNT
- 2 AVENUES FOR FINANCIAL LITERACY
- 3 CONSCIOUS APP DESIGN

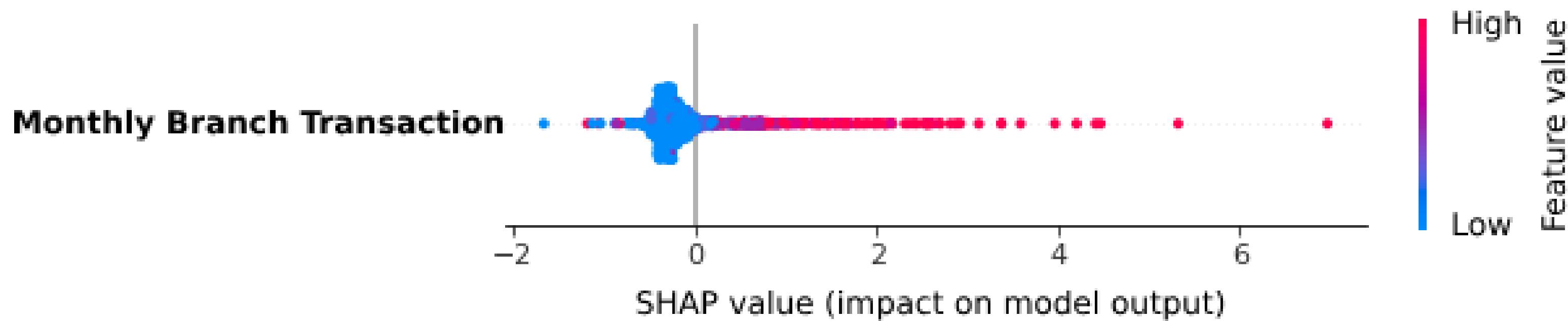


# ML FRAMEWORK

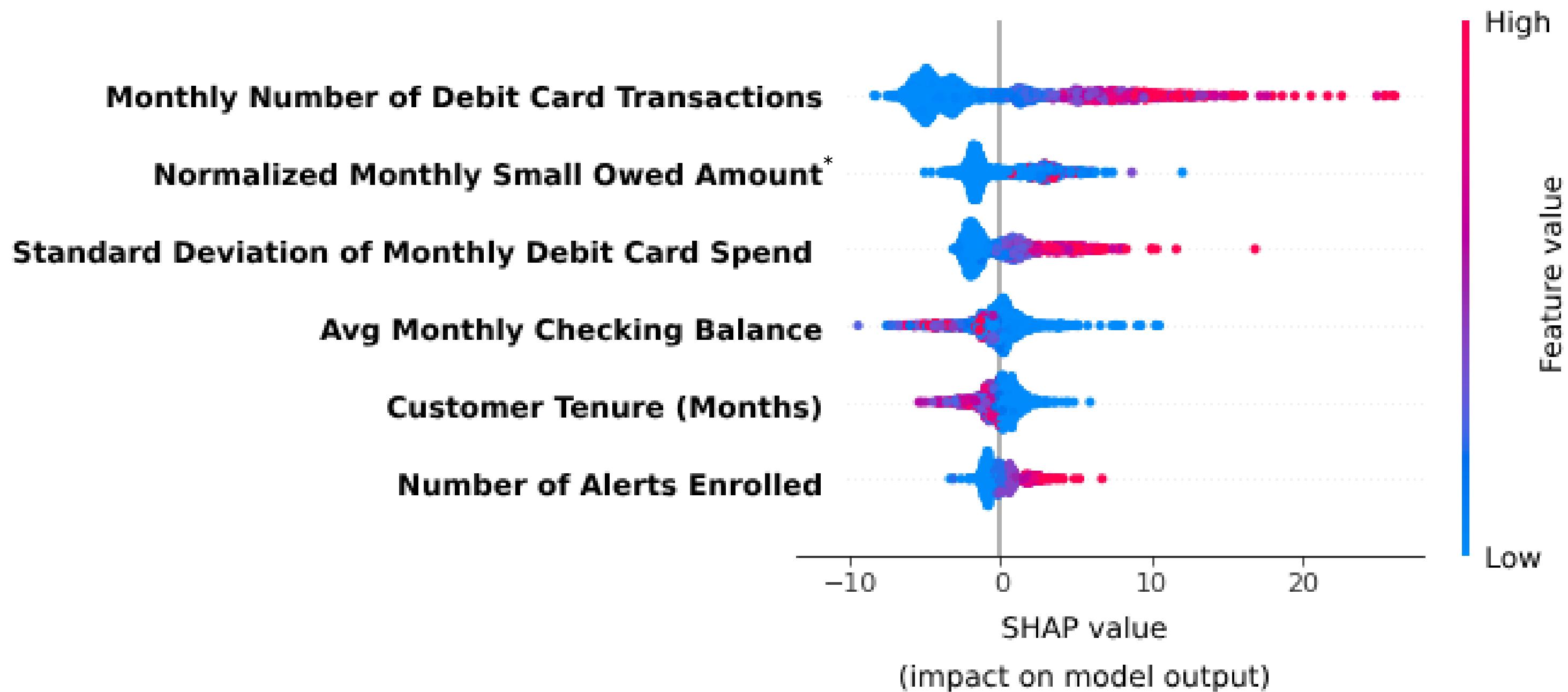


- Post hoc interpretation technique - Agnostic towards ML algorithm used
- Quantifies importance of each variable towards making predictions

# BEYOND THE SURFACE: BRANCH TRANSACTIONS IMPACT



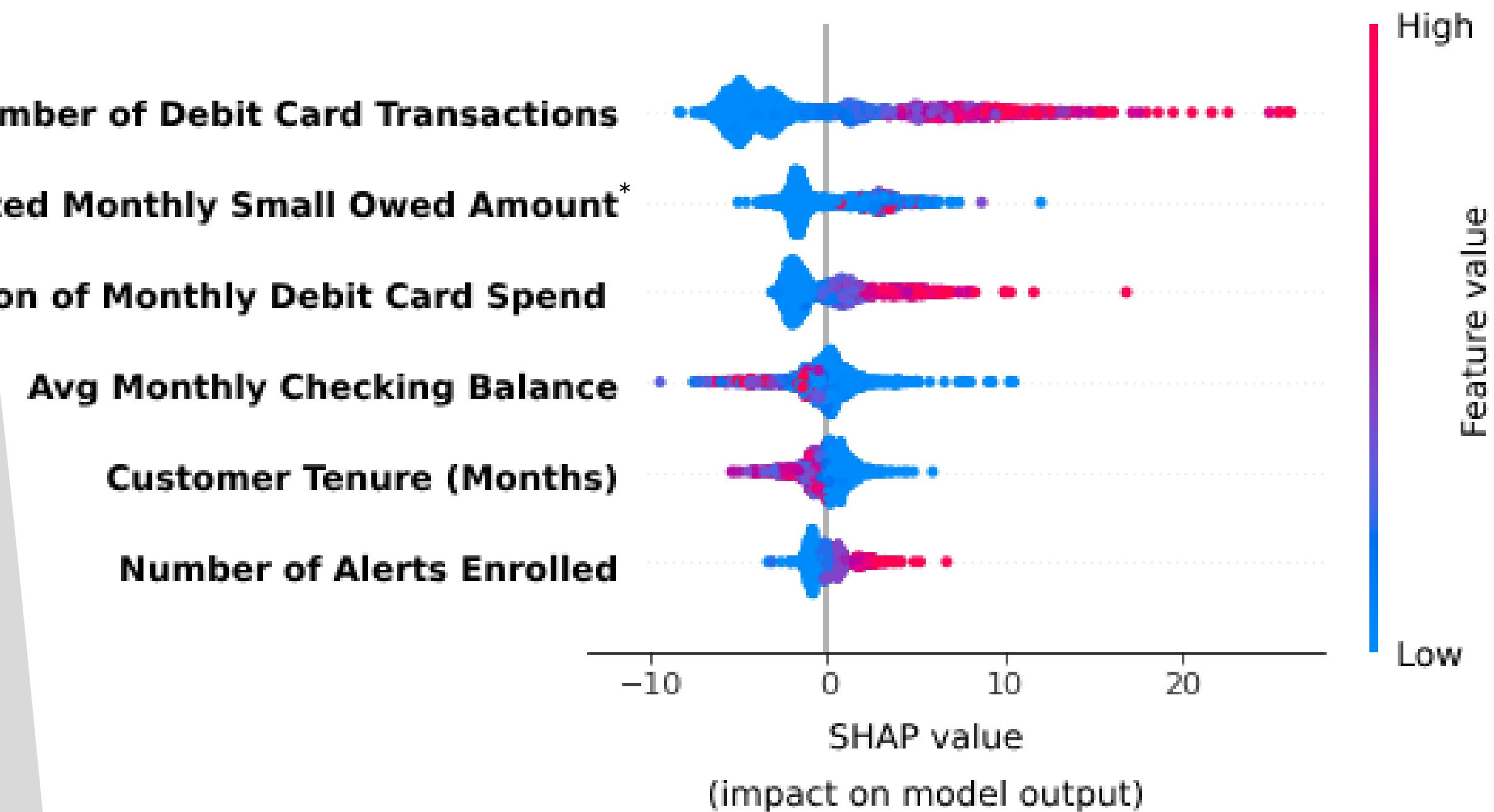
# DECIPHERING DIGITAL ENGAGEMENT: KEY PREDICTORS



\* = (Avg Monthly CreditCard Balance + Avg Monthly DebitCard Spend) / ( Avg Monthly Checking Bal + Avg Monthly Saving Bal +Avg Monthly CD Bal)

# DECIPHERING DIGITAL ENGAGEMENT: KEY PREDICTORS

This reveals not just the relative importance of features, but also their actual relationships with the predicted outcome!



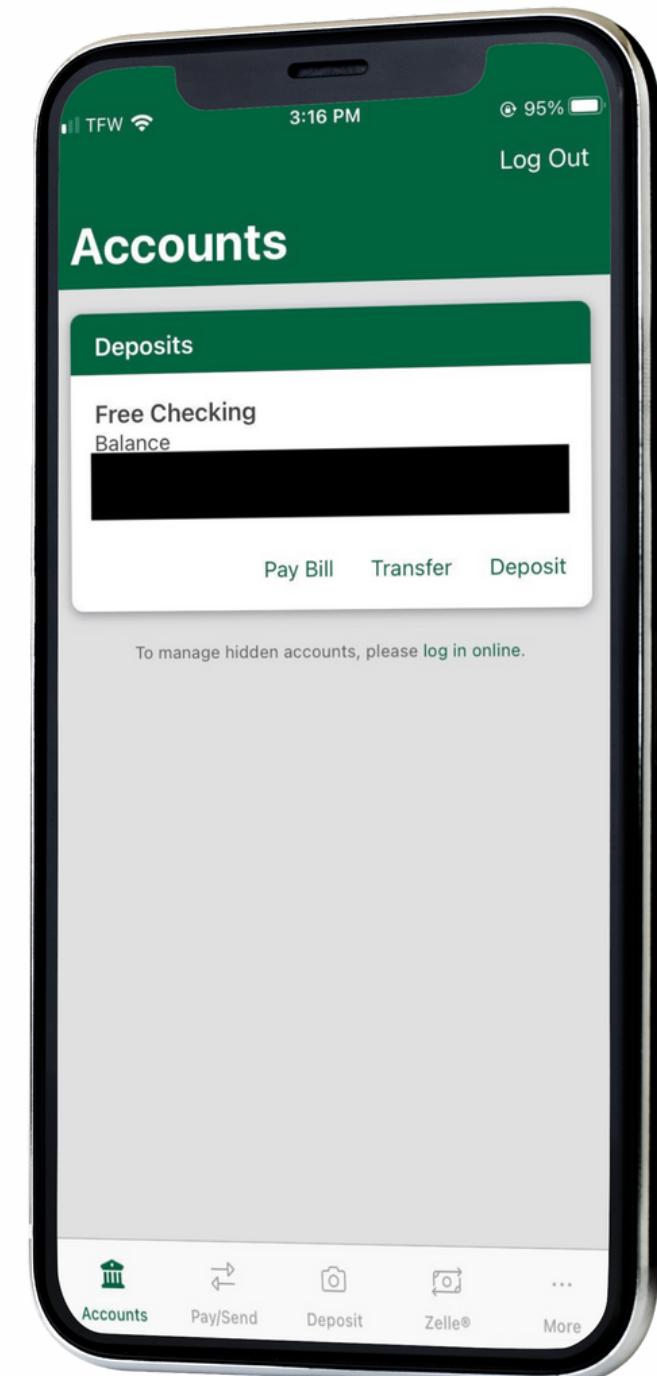
\* = (Avg Monthly CreditCard Balance + Avg Monthly DebitCard Spend) / ( Avg Monthly Checking Bal + Avg Monthly Saving Bal +Avg Monthly CD Bal)

# POTENTIAL SOLUTIONS FOR ENGAGEMENT

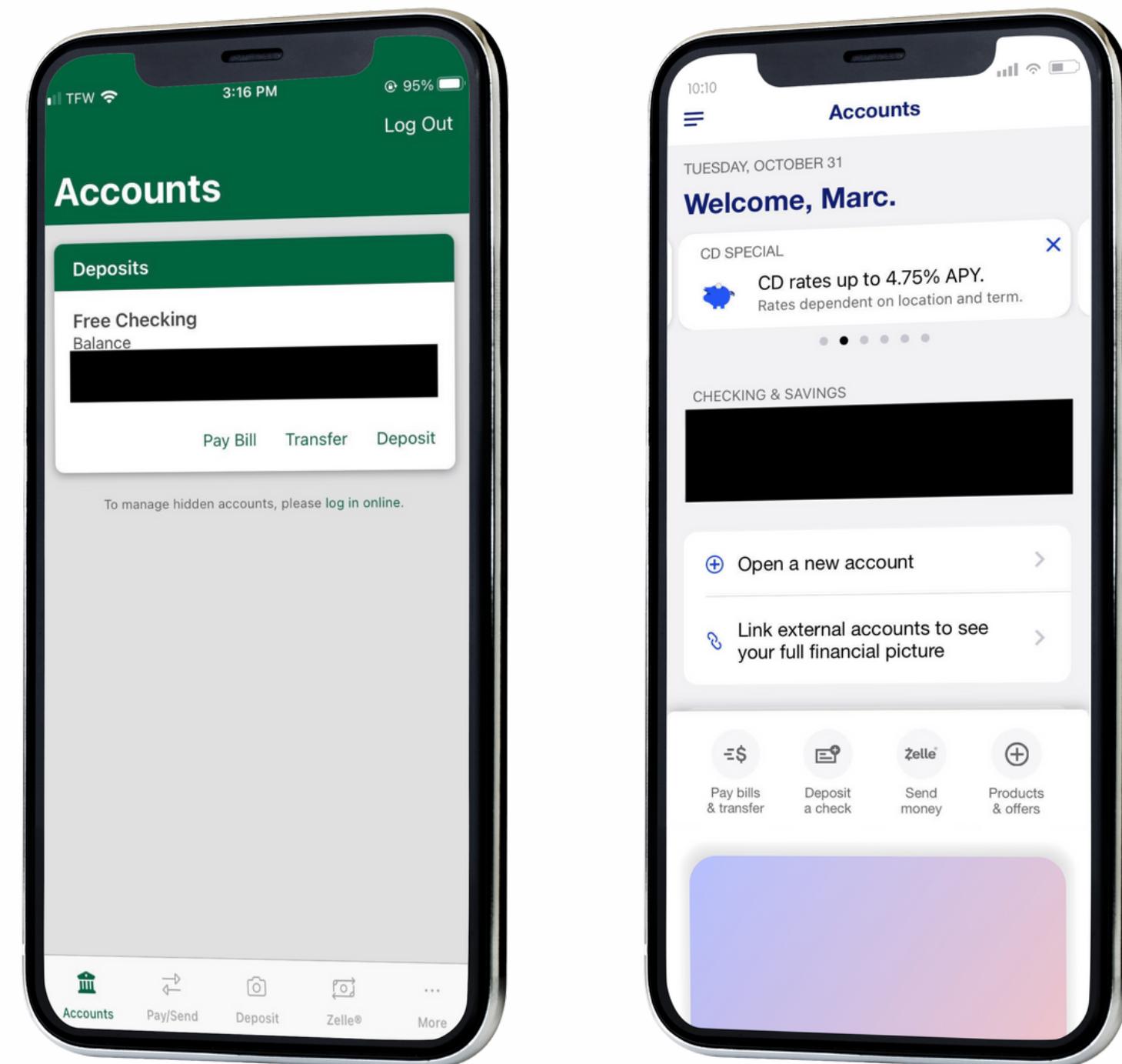
- EXAMINE ALERT CLICKTHROUGH RATE
- ENGAGE WITH NEW CUSTOMERS
- ENCOURAGE PRODUCT USE



# USER EXPERIENCE AT THE FOREFRONT



# USER EXPERIENCE AT THE FOREFRONT



# Supervised Customer Segmentation Rules

Filter Dataset by:

None

Select Outcome Column:

Digital Logins Above Median

Sort Rules By:

Precision  F1-Score

Select Features:

New Customer Feature  Account Category  No.of Alerts Enrolled  Monthly No.of Debit Card Transactions  No.of Checking Accounts  
 Std Dev No. of Checking Accounts  Monthly No. of Branch Transactions  Std Dev of Monthly Debit Card Spend  Monthly Avg Savings Balance  
 Std Dev of Monthly Avg Mortgage Balance  Monthly Avg Credit Card Balance  No.of Loan Accounts  Std Dev No. of Loan Accounts  No.of CD Accounts  
 Std Dev No. of CD Accounts  Monthly Avg Loan Balance  Std Dev of Monthly Avg Loan Balance  Monthly Avg Checking Balance  Std Dev of Avg Checking Balance   
 No.of Savings Accounts  Std Dev No. of Savings Accounts  Monthly Avg CD Balance  Std Dev of Monthly Avg CD Balance  No.of Credit Card Accounts  
 Std Dev No. of Credit Card Accounts  Wealth Products Indicator  Normalized Monthly Large Owed Amount  Normalized Monthly Small Owed Amount  
 Normalized Monthly Remote Deposit Amount  Customer Tenure (Months)  Age Range  Generation  Market

**RUN MODEL**

No.of Alerts Enrolled > 0.25 and Monthly No.of Debit Card Transactions > 6.75 and Monthly Avg Checking Balance <= 2385.75 (Precision: 92.86%, Recall: 33.34%)  
No.of Alerts Enrolled > 0.25 and Monthly No.of Debit Card Transactions > 11.25 and Std Dev of Monthly Debit Card Spend > 396.77 (Precision: 92.72%, Recall: 38.55%)  
No.of Alerts Enrolled > 0.25 and Std Dev of Avg Checking Balance > 46.76 and Std Dev of Monthly Debit Card Spend > 103.09 (Precision: 88.56%, Recall: 41.97%)  
Monthly Avg Checking Balance > 20.25 and Normalized Monthly Remote Deposit Amount > 3.43e-05 and not in Generation\_Silent\_Generation (Precision: 84.35%, Recall: 13.62%)  
No.of Alerts Enrolled <= 0.25 and in Age Range\_18 - 24 and Std Dev of Monthly Debit Card Spend > 786.69 (Precision: 83.86%, Recall: 6.86%)  
Monthly No.of Debit Card Transactions > 2.75 and No.of Savings Accounts > 0.25 and not in Generation\_Silent\_Generation (Precision: 82.53%, Recall: 34.57%)  
No.of Checking Accounts > 0.75 and Normalized Monthly Small Owed Amount > 3.87e-05 and Std Dev of Monthly Debit Card Spend > 3368.25 (Precision: 81.83%, Recall: 52.35%)

# Supervised Customer Segmentation Rules

Filter Dataset by:

New Customer

Select Outcome Column:

Not Online Enrolled

Sort Rules By:

Precision  F1-Score

Select Features:

New Customer Feature  Account Category  No.of Alerts Enrolled  Monthly No.of Debit Card Transactions  No.of Checking Accounts  
 Std Dev No. of Checking Accounts  Monthly No. of Branch Transactions  Std Dev of Monthly Debit Card Spend  Monthly Avg Savings Balance  
 Std Dev of Monthly Avg Mortgage Balance  Monthly Avg Credit Card Balance  No.of Loan Accounts  Std Dev No. of Loan Accounts  No.of CD Accounts  
 Std Dev No. of CD Accounts  Monthly Avg Loan Balance  Std Dev of Monthly Avg Loan Balance  Monthly Avg Checking Balance  Std Dev of Avg Checking Balance   
 No.of Savings Accounts  Std Dev No. of Savings Accounts  Monthly Avg CD Balance  Std Dev of Monthly Avg CD Balance  No.of Credit Card Accounts  
 Std Dev No. of Credit Card Accounts  Wealth Products Indicator  Normalized Monthly Large Owed Amount  Normalized Monthly Small Owed Amount  
 Normalized Monthly Remote Deposit Amount  Customer Tenure (Months)  Age Range  Generation  Market

RUN MODEL

No.of Alerts Enrolled <= 0.5 and Std Dev of Avg Checking Balance <= 0.13 and in Generation\_Gen\_Alpha (Precision: 100.00%, Recall: 19.01%)

No.of Savings Accounts > 0.5 and in Generation\_Gen\_Alpha (Precision: 100.00%, Recall: 18.95%)

No.of Alerts Enrolled <= 0.75 and Monthly No.of Debit Card Transactions <= 96.0 and in Generation\_Gen\_Alpha (Precision: 100.00%, Recall: 18.57%)

Customer Tenure (Months) > 5.5 and in Generation\_Gen\_Alpha (Precision: 100.00%, Recall: 12.78%)

Customer Tenure (Months) <= 5.5 and in Generation\_Gen\_Alpha and not in Market\_Kansas (Precision: 100.00%, Recall: 6.17%)

No.of Checking Accounts <= 0.75 and in Account Category\_deposit\_only and Std Dev of Monthly Debit Card Spend <= 14.41 (Precision: 86.79%, Recall: 31.97%)

# ANALYTIC PROGRESSION

Riddhimoy Ghosh, Marc Wade, Nick Patt