

# Strategic Customer Profiling And Marketing Enhancement

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## Problem Statement



Although new deposit customers were acquired, the total number of active accounts remained unchanged.



The bank struggles to understand low customer conversions and declining engagement with deposit accounts.



The bank struggles to evaluate SOFR fluctuations, inflation, and EURIBOR 3M's impact on deposits, customer segments.

## Data Overview



Age, Job Type, Marital Status, Education.



Personal Loan, Housing Loan, Default Status.



Contact, Duration Campaign, pdays, previous, poutcome,



Employment Rate, CPI, Confidence Index, M3, SOFR, Inflation, Euribor3M



Deposit Account (Target Variable)

## Methodology & Analysis

### CLV

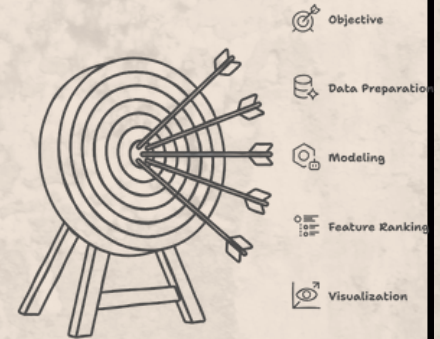
- Modeled loyalty using XGBoost Classifier
- Ranked features using SHAP values & PDP plots
- Visualized results with boxplots, histograms, and CI plots

### Non-Churn

- Created binary target (loyal vs. non-loyal) and applied Logistic Regression model
- Interpreted coefficients to find key drivers and validated results using Accuracy, F1, ROC-AUC, Recall

### Cluster

- Selected and normalized key features (Euribor, CPI, SOFR, etc.)
- Performed K-Means Clustering
- Determined cluster count using Elbow & Silhouette methods



## Interpretation

### CLV

- Call duration > 300s = higher loyalty; < 1% = favorable conditions.
- "euribor3m" > 5000 = financial stability, higher loyalty.
- Age 30-60 = more loyal; < 30 = higher switch rate.

### Non-Churn

- Frequent campaign contacts = disengagement;
- longer time since last contact = higher churn.
- No prior campaign history = lower conversion.

### Cluster

- Lower SOFR and Euribor (Cluster 1) = lower financial burden; higher values
- (Cluster 2) = higher financial stress.
- Larger clusters (Cluster 0) = stable financial clients.



## Validation

we are confident that the proposed marketing strategies will be successful in enhancing customer engagement and business growth.

	CLV	NON-CHURN	CLUSTER
Upper C.I	0.9354	0.0686	1.1406
Lower C.I	0.0646	0.0599	1.1358

## Conclusion

With well-defined confidence intervals, our models show strong reliability and accuracy. Therefore, Without this project, the bank would risk customer loss and ineffective campaigns.

## Marketing Strategies

### Churn Prevention

Implement predictive measures and youth-focused retention to reduce churn.

### Customer Segmentation

Identify and target specific customer segments for tailored strategies.

### CLV Strategies

Focus on high-value customers with premium services and proactive engagement.