Loan Default Prediction Project | Feature Engineering (Milestone 4)

Executive Summary Report

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Project Overview

I'm currently developing a data analytics project aimed at decreasing overall loan default among borrowers by predicting which client attributes most contribute their loan default. For the purposes of this project, loan default means borrowers failed to pay their loans to the financial institution.

Feature engineering offer possibility to enhance the ML models and achieve better results by combining the most predictive basic features into new features, which can add predictive power to the modeling. **This** report offers details and key insights from Milestone 4, which impact the future development of the overall project.

Milestone 4 - Feature Engineering

Target Goal: Create new interactive features and check their additional predictive power on user subscription churn.

@ Methods:

- Assessment of loan default among the most predictive basic features
- Creation of interactive features
- Evaluation of their correlation with loan default
- Impact: By deep engineering, the new features can reveal important relationships and predict the target feature

Next steps

→ Taking into account the benefits of tree-based ML models, evaluate different types of models to assess the best roc_auc score on the validation dataset.

Age -0,168 InterestRate 0,131 Income -0,099 MonthsEmployed -0,097 LoanAmount 0,087 HasCoSigner_Yes -0,039 HasCoSigner_No 0,039 EmploymentType_Full-time -0,039 EmploymentType_Unemployed 0,035 HasDependents_No 0,035 HasDependents_Yes -0,035 CreditScore -0,035 NumCreditLines 0,028 MaritalStatus_Married -0,027 HasMortgage_Yes -0,023 HasMortgage_No 0,023 Education_HighSchool 0,023 LoanPurpose_Home -0,023 MaritalStatus_Divorced 0,023 DTIRatio 0,019 Education_PhD -0,018 Education_Masters -0,013 LoanPurpose_Business 0,011 Education_Bachelors 0,003 MaritalStatus_Single 0,007 EmploymentType_Part-time 0,006 LoanPurpose_Education 0,	Correlation of Features with Loan Default	
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LoanTerm 0,001	LoanTerm	0,001