# Credit Scoring Model – Aave V2 Protocol

## Problem Statement

The goal is to develop a robust machine learning model that assigns a credit score between 0 and 1000 to DeFi wallets based solely on historical transaction behavior from Aave V2 protocol. Higher scores indicate reliable and responsible DeFi usage, while lower scores highlight risky or bot-like behavior.

## Project Architecture

user-wallet-transactions.json  
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 feature\_engineering.py → Extracts wallet-level features (borrow count, repay ratio, etc.)  
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 model\_training.py → Trains Random Forest model on rule-based labels  
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 score\_generator.py → Predicts credit score (0-1000) for each wallet

## Features Engineered:

- Total transaction count  
- Deposit count, Borrow count, Repay count, Liquidation count  
- Ratio of repay/borrow  
- Number of unique action types  
- Active wallet days (first to last transaction)  
- Amount-weighted behavior features (e.g., average transaction amount)

## Modeling Approach:

• Labeling Strategy: Rule-based scores used for training (bonus points for repay behavior, penalties for liquidation, etc.)  
• Model Used: Random Forest Regressor (scikit-learn)  
• Scaling: Features are standardized using StandardScaler

## How to Run

1)Install dependencies:

pip install -r requirements.txt

2)Train model:

python src/model\_training.py --input data/user-wallet-transactions.json

3)Generate scores:

python src/score\_generator.py --input data/user-wallet-transactions.json --output wallet\_score.json

## Project Structure

├── data/  
│ └── user-wallet-transactions.json  
├── src/  
│ ├── feature\_engineering.py  
│ ├── model\_training.py  
│ ├── score\_generator.py  
│ └── utils.py  
├── model.pkl  
├── scaler.pkl  
├── wallet\_score.json  
├── README.md  
└── analysis.md