

## # Risk Scoring Explanation Document :

### 1. Data Collection Method

- **Source:** The transaction history for each wallet was fetched from the Compound V2 or V3 protocol using their respective APIs.
- **Process:**
  - Utilized web3 libraries (e.g., Web3.js or ethers.js) to connect to the Ethereum blockchain.
  - For each wallet address, queried the transaction history, focusing on:
    - Amounts borrowed/lent
    - Interest rates
    - Collateralization ratios
    - Transaction timestamps
  - Stored the retrieved data in a structured format (e.g., JSON or DataFrame).

### 2. Feature Selection Rationale

- **Key Features:**
  - **Total Borrowed Amount:** Indicates the level of debt and potential risk.
  - **Total Lent Amount:** Reflects the wallet's engagement in lending, which can be a sign of trustworthiness.
  - **Average Interest Rate:** Higher rates may indicate riskier behavior or less favorable lending conditions.
  - **Collateralization Ratio:** A lower ratio may signify higher risk of liquidation.
  - **Transaction Frequency:** High frequency may indicate active trading behavior, which can be risky.
  - **Age of Wallet:** Older wallets may have a more established history, potentially lowering risk.

### 3. Data Preparation

- **Normalization:**
  - Normalized features to a scale of 0 to 1 using Min-Max scaling:
- **Feature Engineering:**
  - Created additional features such as:
    - Risk-adjusted return (total lent / total borrowed)
    - Volatility of transaction amounts over time.

### 4. Scoring Method

- **Scoring Logic:**
  - Assigned weights to each feature based on its perceived impact on risk (e.g., total borrowed: 30%, collateralization ratio: 25%, etc.).
  - Calculated a weighted sum of normalized features:
  - Scaled the final score to a range of 0 to 1000.

## 5. Justification of Risk Indicators Used

- **Total Borrowed Amount:** High borrowing can lead to liquidation risks.
- **Collateralization Ratio:** A critical indicator of financial health in lending protocols.
- **Average Interest Rate:** Reflects the risk associated with the loans taken.
- **Transaction Frequency:** Active wallets may engage in riskier behavior.
- **Age of Wallet:** Older wallets may have a more stable transaction history.