**Wallet Risk Scoring Using On-Chain Lending Data from Compound Introduction**

This report outlines a methodology to assess the risk level of Ethereum wallets that interact with the Compound protocol.

The objective is to assign a risk score (0 to 1000) to each wallet using on-chain lending behavior such as borrowing, supply, liquidation events, and wallet age.

# Data Collection

Data was collected using The Graph's Compound V2 Subgraph. For each wallet, the following data was retrieved:

* Total supplied and borrowed balances
* Number of supply, borrow, and liquidation events
* Wallet creation date (via Etherscan API)

Compound V3 data is compatible and can be integrated similarly.

# Feature Engineering & Normalization

From the raw data, these features were extracted:

* Borrow-to-supply ratio
* Liquidation count
* Total borrowed and supplied amounts
* Wallet age in days
* Asset diversification (number of tokens used)
* Activity score (borrow + supply tx count)

Each feature was normalized using Min-Max scaling to a [0, 1] range for comparability.

# Scoring Model & Logic

A weighted formula was used to calculate risk, where a higher score represents lower risk.

Final score = (1 - normalized\_risk) \* 1000

Risk Score =

0.25 \* norm\_borrow\_to\_supply +

0.20 \* norm\_liquidations +

0.10 \* norm\_borrow -

0.10 \* norm\_supply 0.10 \* norm\_wallet\_age 0.10 \* norm\_asset\_count 0.05 \* norm\_activity\_score

# Justification of Risk Indicators

* High borrow-to-supply ratios and liquidation frequency are strong indicators of risk.
* Greater wallet age and more diverse holdings indicate more responsible behavior.
* Active wallets with consistent supply and repayment habits tend to be lower risk.

These indicators collectively form a holistic risk profile that is both explainable and scalable.

# Sample Output

Example output format:

|  |  |
| --- | --- |
| Wallet\_id | Score |
| 0xfaa0768bde629806739c3a4620656c5d26f44ef2 | 732 |
| 0x06b51c6882b27cb05e712185531c1f74996dd988 | 901 |

The final CSV includes 100 such wallets with normalized, interpretable scores.