Chained Finance

Project 3 - Team 1

Meet The Team

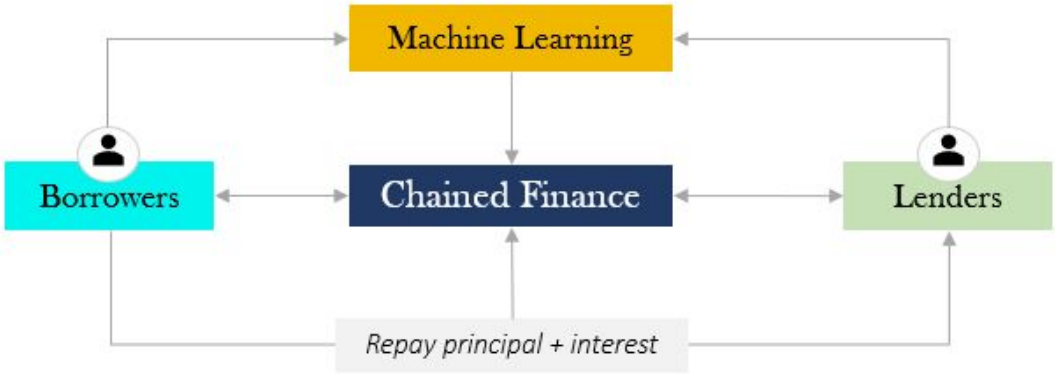
Kala Pi

Ramees Thanikkal

Harshita Panchal

Oby Nwafor

Project Overview



This is a financial technology solution which provides a peer-to-peer lending platform leveraging blockchain technology and machine learning to facilitate lending and borrowing without the need of intermediaries such as Banks

Fintech - Attempting to solve Banks' problem

Black Box

General public do not know what is going on inside banks.

Banks hold power from knowledge withheld.

Credit is based on compulsory trust.

Complex

Banks is the engine of economy.

Economy is complex. Economists are the best guess we count on.

Banking business is extremely complex.

Central Control

Public depends on banks in good faith and obligation.

Banks hold control over people's lives.

Authorities hold control over banks.

ChainedFinance - Solution to the problems

Transparency

Everything in front of eyes

The very basic function: deposits and loans.

Show the rate.

Show the risk.

Show the “bank”.

Open source.

Simplify

Bet is bet

Extremely simple product.

Bare minimal functions.

Self-containing.

No hedging. Crowd risk.

AI decision.

De-centralization

Web3 is here

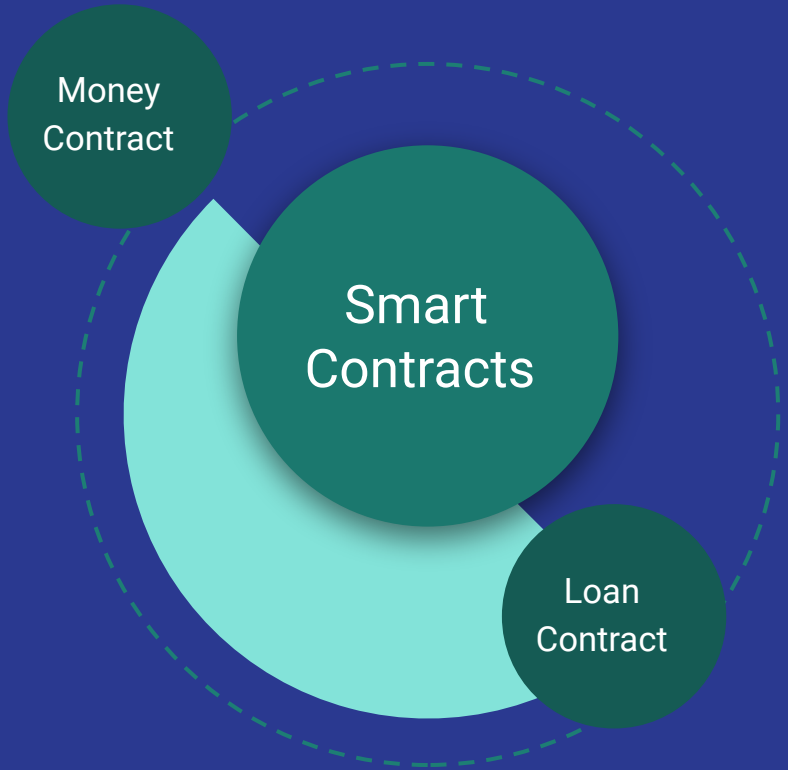
Leverage Blockchain.

Monetary over Ethereum.

No central team.

Enhancement by participants.

Implementation


Money
Contract
Smart
Contracts
Loan
Contract

Money Contract

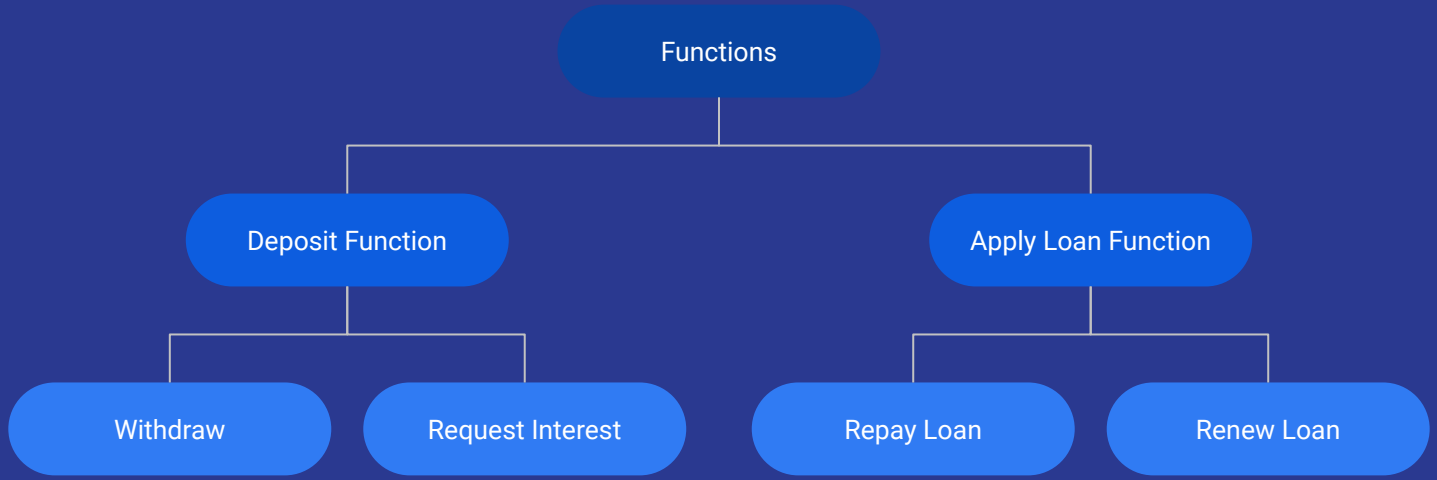
The Money smart contract is the backbone of the project. It offers a range of functions designed to facilitate the financial operations within the ecosystem. Notable features include the "Deposit," "Withdraw," and "Cash Loan" functions, which allow users to manage their assets seamlessly. The contract also maintains aggregated balances and interest rates. These features form the foundation for a decentralized financial infrastructure, bringing several advantages to the world of DeFi.

The Money Contract is the “balance sheet”. All cash, loan, interest and rate are stored in there.

Loan Contract

The LoanRegistry smart contract plays a pivotal role in the lending and borrowing process. It enables the creation of unique tokens for loans and stores essential details, including the loan's start date , duration and a link to the loan's URI. The LoanRegistry acts as a crucial component that underpins the transparent and secure lending and borrowing activities in our ecosystem.

The Loan Contract is the “assets”.


Functions
Deposit Function
Apply Loan Function
Withdraw
Request Interest
Repay Loan
Renew Loan

Deposit Function

- Users initiate a deposit by sending their ETH to the Money contract.
- The Money contract captures a snapshot of the user's funds and tracks the duration since the last snapshot.
- This function changes the following :
  - Increases total cash in the system and in the depositor's account.
  - System interest rate is recalculated based on the proposed rate.
  - Decreases the balance on the depositor’s ETH wallet.

Withdraw Function

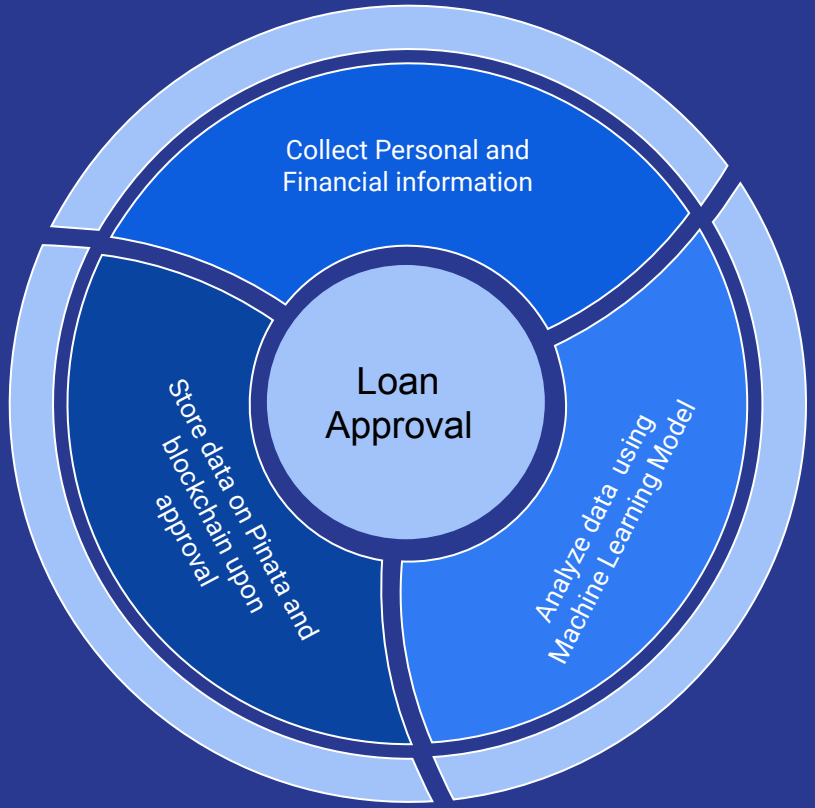
The "Withdraw" function allows users to retrieve their assets from the Chained Finance ecosystem. It operates as follows:

- Users request a withdrawal, specifying the amount they wish to retrieve.
- The Money contract ensures the user has sufficient funds and completes the withdrawal securely.
- This function changes the following :
    - Decreases the total system cash.
    - Increases the depositor’s ETH wallet balance.
    - Decreases the depositor’s system account balance.

Apply Loan Function

The "Apply Loan" function allows users to apply for new loans. The system uses machine learning model to evaluate eligibility and then dispenses the loan directly to their wallet address upon approval

- Users specify the desired loan amount and tenure.
- The Money contract facilitates the application process and issues the loan token.
- This function offers the benefits of easy access to credit and decentralized lending opportunities.
- This function changes the following if the loan is approved:
    - System loan increases.
    - System cash decreases.
    - Borrow’s loan balance is updated.
    - Borrow’s ETH wallet balance increases.


Collect Personal and Financial information
Analyze data using Machine Learning Model
Store data on Pinata and blockchain upon approval
Loan Approval

Repay Loan Function

The "Repay Loan" function enables users to repay their loans, including both the principal amount and any accrued interest. The process involves:

- Users initiate repayment by sending funds to the Money contract, covering the loan amount and interest.
- The Money contract ensures the repayment is valid and processes the transaction.
- This function highlights the fairness and efficiency of the loan repayment process within Chained Finance.
- This function changes the following if the loan is approved:
  - The system cash balance and interest balance increases.
  - The borrower’s ETH account and loan balance decreases.

Renew Loan Function

The "Renew Loan" function serves the purpose of renewing existing loans.

- Users can renew their loans given they are approved for further lending by the ML model.
- The Money and Loan contracts processes the renewal, adjusting the terms accordingly.
- This function offers benefits such as flexibility in managing existing loans and ensuring ongoing access to credit.
- This function changes the following if a renewal is approved:
  - Interest is paid in full till date.
  - If the amount increased the difference can be cashed.
  - If decreased the difference is repaid.

Conclusion

In conclusion, Chained Finance is an ambitious project that leverages blockchain technology and smart contracts to offer a decentralized financial ecosystem. Users can benefit from secure, transparent, and accessible financial services, including lending, borrowing, and interest earnings. The project's components, such as the Money and LoanRegistry smart contracts, work in synergy to empower users in the world of decentralized finance.

Challenges and Next Steps

- Request interest function is still under construction as it requires days to accumulate interest . Since every change requires the contract to start fresh, there hasn’t been enough time to make it work.
- Collector function allows third parties to takeover default loan accounts. This function is still under construction due to lack of time. It also requires an update in contract.
- There are still features important but yet to be added, such as verifying transactions using signature (private key), a voting mechanism to automate decision and action of write-off, more artificial intelligence to help making that decision, collecting and verifying emails so as to send due-soon reminder to borrowers.

Live Demo

Thank you !!

Q&A