IS4302: Blockchain and Distributed Ledger Technologies

Group Project Report

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Members:	**Matriculation Number:**
NGOH ZAI YAN	A0234134R
LIM YU YOUNG, DOUGLAS	A0233348E
SOH KIAN HAO JUSTIN	A0234739W
GILLIAN GOH LIXUAN	A0259522B
ONG MING HUI	
HILDA WANG XINYU	A0296678B

Introduction and Business Motivation

Financial services and access to banking are fundamental components of modern society, playing a crucial role in enabling individuals and communities to thrive economically. Finance empowers people to save, invest, and manage risks, while banking provides the infrastructure for safe storage of money, payment facilitation, and access to credit. Financial inclusion extends beyond economic growth; it is a matter of human rights, as recognized by the United Nations (United Nations, n.d.). Ensuring everyone has access to financial services contributes to achieving broader social goals such as poverty reduction, education, and health improvement (CGAP, n.d.).

However, financial inclusion remains a global challenge. According to the World Bank, approximately 1.4 billion adults worldwide are still unbanked, meaning they lack access to basic financial services such as bank accounts, credit, or insurance (World Bank, n.d.). About half of them hail from rural environments, where access to banking is often impeded by costs, travel distances and burdensome requirements involved in opening a financial account.This issue is particularly prevalent in developing countries, where financial exclusion often correlates with poverty, gender inequality, and lack of infrastructure. Women, rural populations, and marginalized groups are disproportionately affected, limiting their ability to participate fully in economic activities and improve their living standards (Global Findex Database, n.d.).

Without access to financial services, individuals struggle to secure loans for education or entrepreneurship, save for future needs, or weather economic shocks. The inability to manage finances effectively perpetuates cycles of poverty and exclusion, leaving many vulnerable to exploitation by predatory lenders. Hence, ensuring accessible and affordable financial services for all is crucial not only for economic development but also for protecting human dignity and empowering individuals to realize their potential (World Economic Forum, 2021).

In recent years, innovative solutions such as digital finance, mobile banking, and decentralized finance (DeFi) are transforming the landscape, making it easier for unbanked populations to access financial services through technology (World Bank, n.d.). Yet, significant work remains to be done to close the financial inclusion gap and ensure that the benefits of banking and finance are accessible to everyone, regardless of socioeconomic status or geographic location.

Therefore, our team has decided to embark on a decentralized financing system and community to encourage entrepreneurial growth, particularly in countries facing problems of financial inclusion, by providing accessibility to financing sources and funding management services through the use of a blockchain platform powered by Ethereum. This enhances the reachability and convenience of financial services to citizens in these countries, where the financial landscape remains traditional and there is a lack of digital finance platforms.

Today, there are 5.45 billion internet users in the world, approximately 69% of the global population, and internet accessibility continues to grow fast, at 3.2% increase in users annually, and even higher year-on-year growth for many developing economies (Datareportal, n.d.).

With the leverage of technology, individuals in these developing countries can be able to access financial services for their needs, without the obstacles faced by traditional banking. Furthermore, it can help lower the barrier to entry for such services, which often require certain financial thresholds, which may not be easily attainable in these countries, due to existing societal problems and issues. By building a decentralized finance system, our team seeks to overcome such barriers to entry and allow it to be available to the general population, through greater flexibility and elimination of bureaucracy.

Market Opportunities

Our team has decided to focus on Vietnam, one of the countries with the highest proportion of unbanked individuals. Approximately 66% of Vietnam's population of 98 million people remain unbanked without credit history (ISEAS - Yusof Ishak Institute, 2021). This stems from a long-term lack of trust in Vietnam's financial system after years of political instability and pessimistic economic environments. Banks and financial institutions have been seeking to change this societal stance, but these efforts have seen little change. Volatile interest rates remain an issue, where interest rates fell close to 0% during the COVID-19 pandemic. Concurrently, the social preference for cash and gold transactions has remained the norm.

Such financial exclusion remains a significant obstacle for consumer lenders and credit bureaus, including the Credit Information Center (CIC), the national credit bureau under the State Bank, and the Vietnam Credit Information Joint Stock Company (PCB). Credit bureaus are expanding their activities and databases, but still lack credit data about a large proportion of citizens.

This has impeded business and economic growth in the country, where businesses are unable to obtain funding essential for business development. Credit scoring is a prerequisite for financial inclusion as it helps financial institutions determine borrowers' creditworthiness and to standardize and enhance lending decisions. Banks have traditionally used credit scoring as part of their risk assessment for loan applications, to ensure no loss is incurred by the bank. However, in Vietnam, this approach is obstructed by the lack of credit information of the general consumer population, and has led to stagnancy in the consumer financing sector.

However, the same cannot be said for the cryptocurrency space in Vietnam. Vietnam is actually the top country in the 2022 Global Crypto Adoption Index, which measures the grassroots cryptocurrency adoption of cryptocurrency in different countries (Chainalysis, 2022).

Crypto is an increasingly popular method to access financial services, which would otherwise be inaccessible in Vietnam. In the same index, Vietnam is also shown to hold the 2nd position in DeFi usage, signifying the acceptance of crypto as not just an asset but also a medium of financial exchange in Vietnam.
Approximately 17% of the population owns or have used cryptocurrencies, where bitcoin is the most popular cryptocurrency used, followed by Etherum. The revenue generated by crypto exchanges within the Vietnamese is anticipated to hit USD$109.4 million for 2023 (Mills, 2023).

Such an active interest in cryptocurrency stems from the lack of faith in the Vietnamese dong, and citizens believe in holding external assets such as USD or gold to hedge against inflation issues. Cryptocurrency further exemplifies these traits, where it holds the edge against such traditional assets in terms of accessibility to the asset.

With such active usage of cryptocurrency in Vietnam, our team believes in the ease of acceptance and entry of our DeFi system into the market, allowing us to further enhance and fill the gap for business financing and entrepreneurial growth through the medium of crypto funding.

Business Model

Our DeFi System will function as a platform to allow individual business owners and aspiring entrepreneurs to post and pitch their business ideas, for potential funders to view and finance. Financing can be done via 2 channels, debt financing and equity financing.

~~For the equity financing model, business owners can opt to raise an Initial Coin Offering (ICO) for the amount of capital they wish to raise, which will offer portions of the business' equity to financiers, in the form of crypto tokens powered by Ethereum to represent the unique ownership of equity by these financers.~~
~~Financiers can opt to partake in the ICO and commit capital (in the form of Ethereum) to the extent they wish to do so. If insufficient capital is not raised by the ICO's deadline, the ICO will fail and all Ethereum committed will be returned to the respective financiers.~~

For the debt financing model, business owners will raise a credit fund request for the amount of capital they would like to borrow for the business. This capital will be borrowed in the form of Ethereum and will be managed through the smart contract system we have in place. Financiers who wish to lend to the business will be able to loan Ethereum to meet the required capital either wholly or partially. Multiple financiers can loan to the business to meet the required capital in totality. After the deadline of the fund request is reached, business owners will have a choice on whether to accept the loaned Ethereum if it has not reached their required capital threshold. If it has reached their capital threshold, business owners would be required to accept the loan. A promissory note will then be issued to all the financiers by the business owner, facilitated by LoanEasy, which will hold legal liability and business owners will be required to return the borrowed Ethereum by the stipulated due date.

LoanEasy's infrastructure will facilitate and document the flow of Ethereum into the financiers' and business owners' wallet addresses to prevent fraud and theft of funds, as well as to provide transparency and accountability to the process. To ensure LoanEasy's sustainability, we will collect a 0.5% commission fee from the business owner's raised capital to finance our operations, and will largely operate on a not-for-profit basis.

Debt Financing Mechanism

For the debt financing mechanism, we will be incorporating the concept of unsecured debt, where lenders decide whether to grant the loan based on the borrower's creditworthiness, as indicated by their credit score, credit history, and other factors. Given the likely lack of credit history for borrowers due to Vietnam's legacy issue as shared above, we will introduce a tiered system of borrowing that will build a progressive credit matrix system for the business owners to borrow.

Through determining credit risk, we will identify the different factors that will affect credit risk, such as income level, current debt outstanding and number of past defaults (Chase, n.d.) (DBS, 2022).

For the collection of income documents and debt document declarations, we will liaise with business owners off-chain and ensure the legality of these documents for input into the credit scoring system.

We will pre-set a lending limit quantum of USD 200 worth of Ethereum for all new business owners who register with us and have their income and debt status declarations approved.

As business owners continue their trajectory in LoanEasy, their loan repayment compliance will be tracked, where default activity will be recorded and taken into consideration for credit scoring to further adjust their loan quantum limit. Such activity will also be displayed to potential financiers for transparency and risk considerations to financiers. To ensure the accountability and reputation of LoanEasy, we will suspend business owners from borrowing activity once they have defaulted 3 times till they take action to pay their debts.

Financing can be done in the form of promissory notes, where the loan's terms, repayment schedule, interest rate, and payment information are included in the note. The business owner (note issuer) signs the note and gives it to the financier as proof of the repayment agreement. This will be reflected in LoanEasy to ensure clear tracking and records, as well as off-chain for documentation and legality.

To enhance the ease of the loan's process, LoanEasy's loans will take place in a simplified definition, where an annually compounded interest rate will be charged on the loan principal, and it will be in the form of a singular payment when the note expires.

This interest rate charged will be based on the risk-free interest rate provided by the US Treasury Bills, followed by a risk levering premium to further enhance the attractiveness of providing the loan for financiers, to account for the additional risk taken up by the financiers.

As of Oct 18, 2024, the risk-free interest rate provided by a US 3-month T-Bill investment is 4.53%.

https://ycharts.com/indicators/3_month_t_bill#:~:text=Basic%20Info,a%20maturity%20of%203%20months.

At the same time, we would apply a default spread and Vietnam's country risk premium to reflect the additional risk in undertaking this loan, compared to a US 10-year government Treasury Bond, which is our measure of a risk-free investment.

As of 5 Jan 2024, Vietnam's default spread and country risk premium is 3.28% and 4.40% respectively.
Therefore, to arrive at the financiers' expected yield of the loan, we will utilise the formula:
Expected Yield = U.S. Risk-Free Rate + Country Risk Premium + Default Spread = 12.21%.
This will be used as the interest rate charged for our loans to ensure sufficient risk-rewards have been provided to financiers to attract them to partake in our application.

At the successful completion of each loan, NFT tokens will be issued to the financiers as a reward, which will be released in collaboration with prominent artists, such as famous NFT digital artist Beeple. These NFT Tokens will serve 2 purposes.

Firstly, it will serve as a digital asset, to hold speculative value for financiers to sell or trade, through our collaborations with these famous artists, encouraging financiers to partake in lending activity for collection of these NFTs.

Secondly, LoanEasy will also introduce an insurance compensation protocol, where we will partially compensate financiers for defaulted loans, with the use of our commission profit reserves. This is to further entice financiers by reducing the risk associated with their financing activities. This will be tagged to a progressive matrix, where insurance coverage increases proportionally to the number of NFTs collected by the financier, up to a maximum of 50% loan coverage. Although this will introduce risk to LoanEasy, the consequent market capitalisation share will offset the potential losses faced after business consideration.

LoanEasy will also seek to work with Vietnam Credit Bureau for their expertise and resources in improving our credit assessment matrices and processes, in exchange for the credit information we can collect from users throughout their trajectory. Such collaborations and information sharing is clearly communicated to users from the start.

Economic Incentives Table

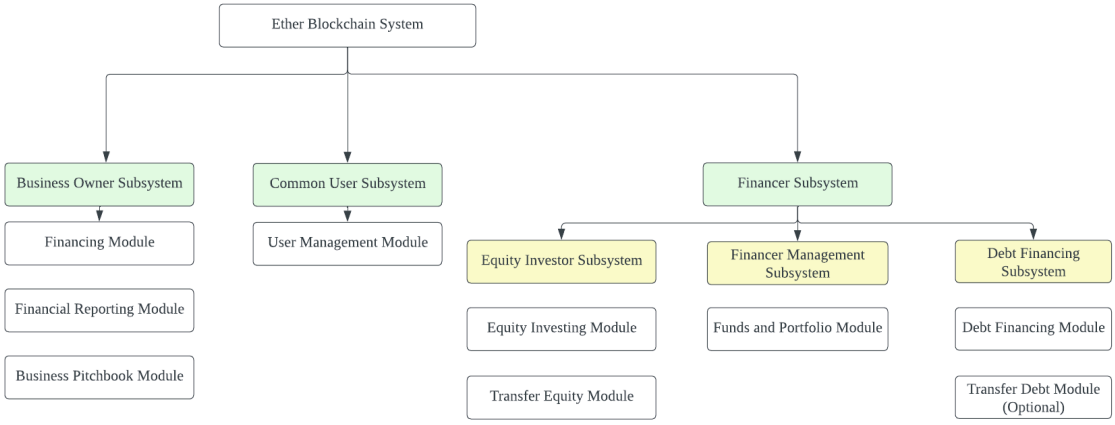
Involved Party	Incentives
LoanEasy	1. Commission Earnings from facilitating the loans process - From successful operations of the application, LoanEasy can profit from the process through its 0.5% commission drawings, allowing self sustenance and expansion capital.
Financier	1. Higher yield from loans compared to traditional investments - Adequate reward for the higher risk undertaken for the loans 2. Portfolio & Risk Management - Allows diversification of portfolio due to the many loan profiles available, allowing risk reduction 3. NFT Rewards - NFT Tokens issued to financiers for their loans serves as a digital asset that could hold value. These NFTs will be associated with art pieces or music in collaboration with artists, allowing it to generate value for sale. This would entice financiers to join our lending scheme for these NFT rewards, which could attain high speculative value. - These tokens also serve as a cumulative representation for LoanEasy's compensation coverage protocol as seen in the next point. 4. Risk reduction of loan from LoanEasy's insurance protocol - LoanEasy's progressive compensation coverage for lenders to compensate partially for defaulted loans will

	significantly reduce the risk taken by lenders at the same yield provided, allowing better yield risk ratios for lenders. The compensation coverage will vary proportionally through a metric of NFT tokens held by the financiers i.e. financiers who hold more NFTs due to lending more, will receive higher compensation coverage. This would encourage financiers to utilize our application at a higher frequency to attain the maximum risk coverage, which is not offered elsewhere.
Business Owner	1. Access to Capital - Lower barriers to entry compared to traditional banking - No physical collateral needed for initial small loans - Faster approval process 2. Credit Building - Progressive usage will allow building of credit ability for owners on the platform And consequently higher loan quantum limits. This would encourage owners to continue using our application especially for long-term growth and expansion. - Credit history amassed will also allow owners to gain access to more loan channels due to our collaboration with VIetnam Credit Bureau
Vietnam Credit Bureau (VCB)	1. Building of Credit Database - LoanEasy's collaboration will provide borrowers' borrowing and loan default history to VCB, allowing VCB to build the

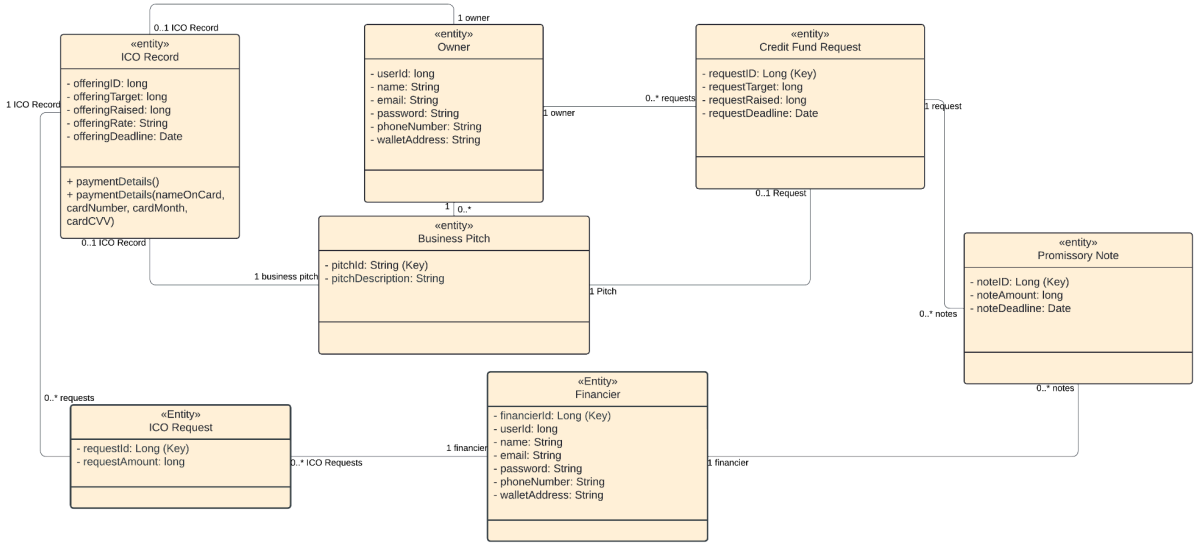
	currently-empty database and bridging the gap in information present and allow them to fulfill their objectives as discussed previously.

As can be seen in the table above, there are strong direct economic incentives for the involved parties to utilize our application, thus attracting users to join our application. At the same time, we employ progressive and long-sustaining incentives to capture these users on a long-term basis for continued usage of the application, and this would allow our application to attain long-term success.

System Architecture



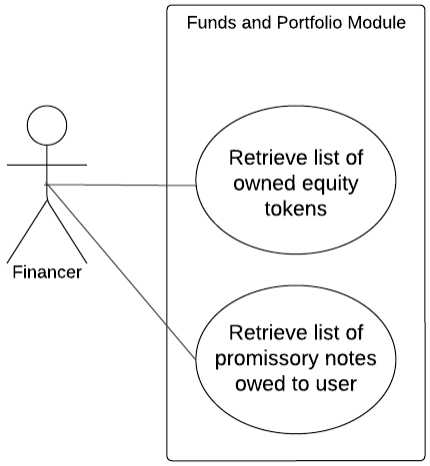
Entity Relationship Diagram



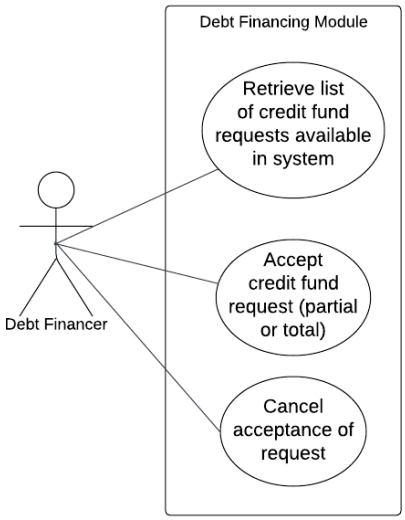
User Stories and Use Cases

1. Investor Subsystem

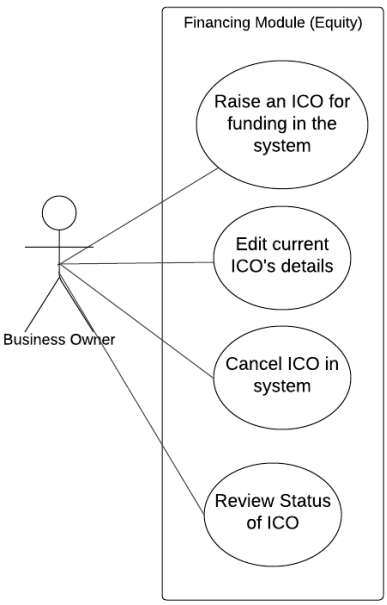
A) Financer Management Subsystem

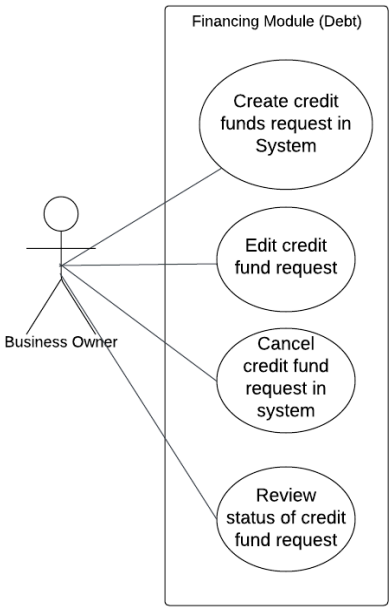


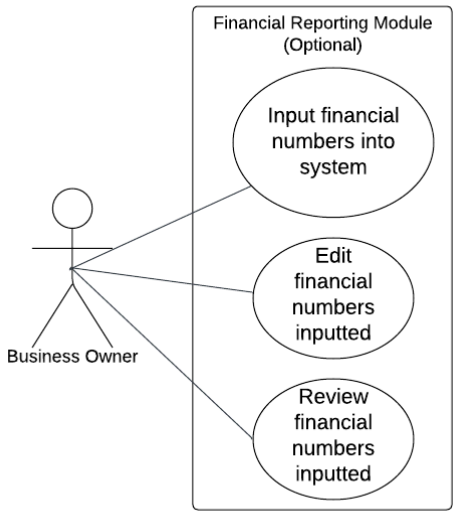
B) Debt Financing Subsystem

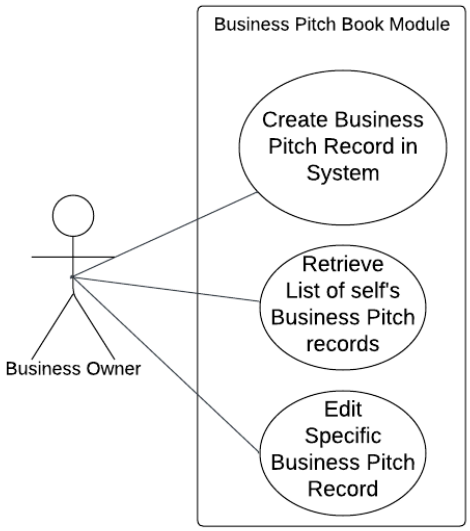


2. Business Owner Subsystem
   A) Financing Subsystem

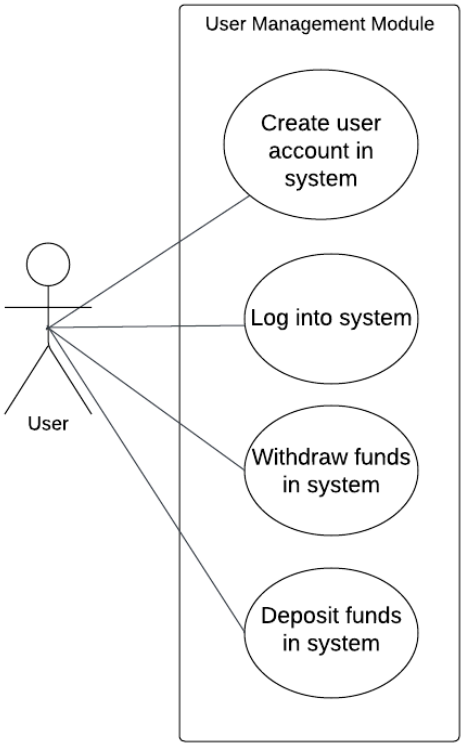




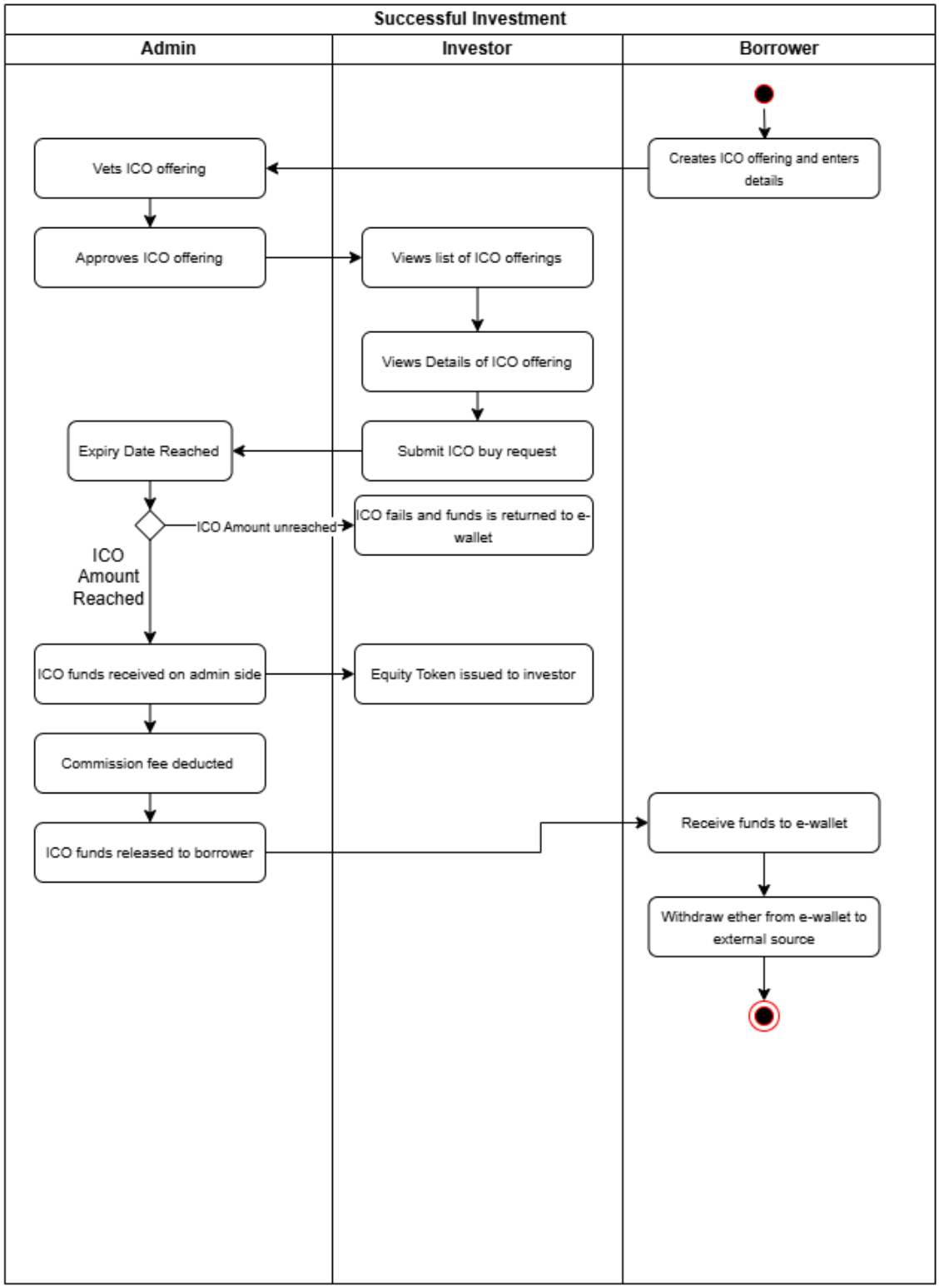


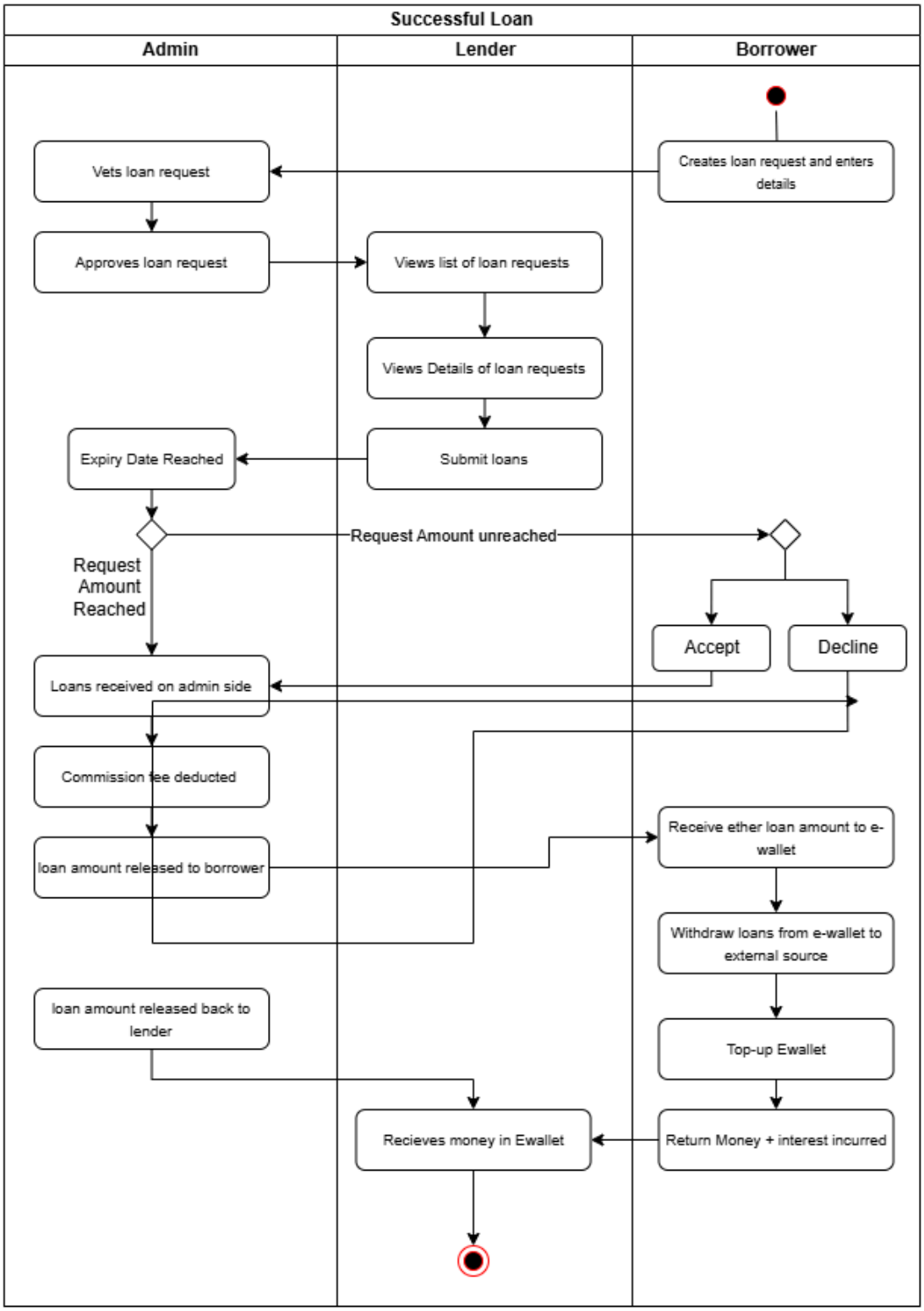


3. Common User Subsystem



Business Process Flows




Successful Loan
Admin
Lender
Borrower
Creates loan request and enters details
Vets loan request
Approves loan request
Views list of loan requests
Views Details of loan requests
Submit loans
Expiry Date Reached
Request Amount unreached
Request Amount Reached
Accept
Decline
Loans received on admin side
Commission fee deducted
loan amount released to borrower
Receive ether loan amount to e-wallet
Withdraw loans from e-wallet to external source
loan amount released back to lender
Top-up Ewallet
Recieves money in Ewallet
Return Money + interest incurred

Technical Implementations

(more for potential implications given more resources)

Oracle: for creditworthiness tiered system
Although lack of credit scoring data in Vietnam, Oracles can help feed external data into the blockchain for an initial credit score verification?

DAO:
Allow lenders and borrowers to vote on important matters related to the crowdfunding platform / projects funded. (e.g. Updates / changes made to the project from the borrower, platform commission fees adjustments, dispute resolutions between 2 parties)

(can actually implement if want to)

Smart contract design patterns: State machine, Speed bump

The crowdfunding platform allows different behavioral states and transitions, thus we implemented a state machine smart contract design pattern to ensure that the contract behaves predictably and securely at each stage of the crowdfunding process. The state machine design is a system where the contract goes through a sequence of states and transitions from one state to another through functions. As a project gets created by a borrower, the project's state would be at 'open' and is open for lending. If the funding goal is met, the state transitions to …

The crowdfunding platform also allows the transfer of funds where implementing a speed bump smart contract design pattern would be able to introduce a deliberate time delay before the releasing of funds or handling refunds. This gives users a chance to intervene or validate decisions before they are executed and finalized. There are three contract sensitive use cases on our crowdfunding platform and this includes funds to be released to the borrower when the goal is met, funds to be refunded as the borrower did not reach their funding goal before the deadline, and the borrower deleting a project before the funding goal is met.

After the borrower reaches the funding goal, a delay is introduced via a speed bump to allow lenders to verify that all conditions are met such as compliance or legitimacy of the borrower before releasing the funds to the borrower. If the borrower did not manage to reach their funding goal before the deadline, the speed bump provides the borrower an opportunity to extend the project, rather than closing the project immediately. Lastly, if the borrower deletes their project before the funding goal is met, the speed bump introduces a delay to notify the lenders and provide the lenders an opportunity to validate the deletion request before the refund process. Overall, the speed bump acts as a delay to halt fund release if anything suspicious arises, adding a layer of security.

Future Steps

Currently, we are utilising a simplified credit risk matrix for our risk evaluation for the loaning process. This can be further improved using Machine Learning to formulate an effective credit risk model.

XGBoost Machine Learning (ML) Model

As discussed, LoaEasy's goals is to make use of technology to formulate an effective credit risk model, hence reducing loan default probability. We can explore the use of machine learning models for risk evaluation. The most common ML model used in the market is the XGBoost model, which is adopted by leading loan providers such as Klarna from the US (Jovanovic, 2020).

The XGBoost model is a decision tree ensemble learning algorithm for classification and regression. Ensemble learning algorithms combine several ML algorithms to obtain a comprehensive model. The XGBoost model utilises Extreme Gradient Boosting to attain this effect (Nvidia, n.d.).

```
from xgboost import XGBRegressor
model = XGBRegressor()
model.fit(train_X, train_Y)
test_y_hat = model.predict(text_x)
```

Sample Code Snippet for XGBoost

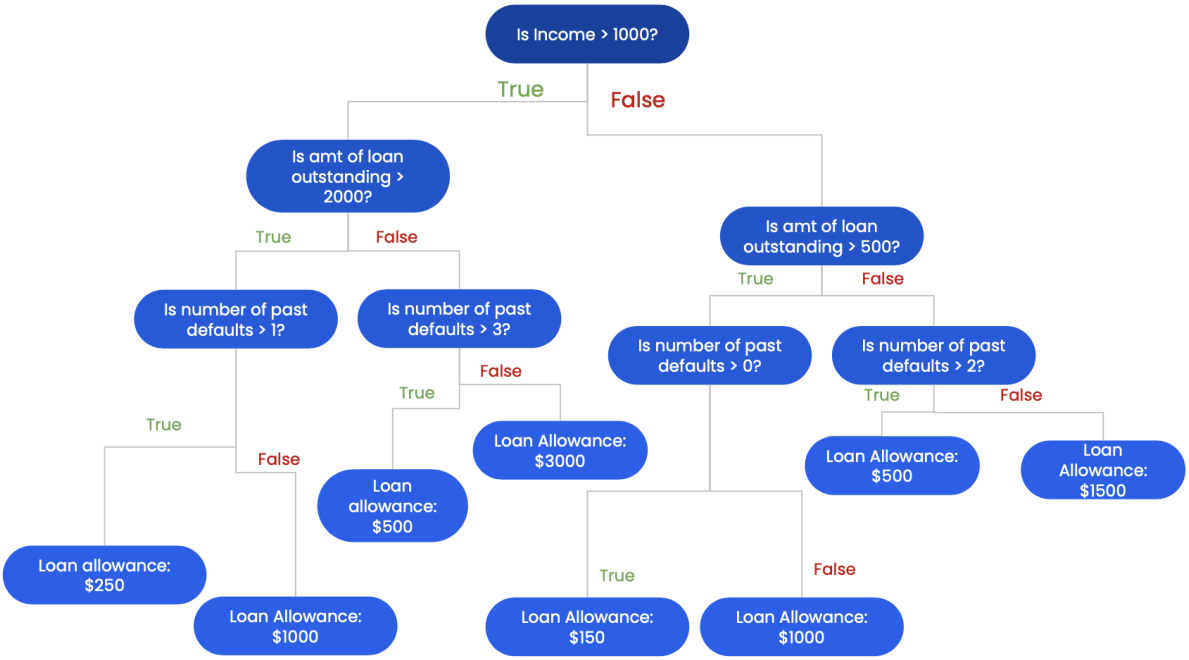
Data Required For XGBoost

Like other ML models, data is core to XGBoost. In determining the data inputs required for XGBoost, we assess the factors that affect a user's credit risk score. These include income level, debt amount outstanding, and number of past defaults (Chase, n.d.) (DBS, 2022). This would be similar to the data used in our matrix, allowing us to ease the transition into the machine learning model.

As what we have shared above, we will particularly use business owners' loan and default activity on our platform as a central data metric, which will be fed into the XGBoost ML model.

Decision Trees

Since XGBoost uses decision trees, we explore how decision trees for financiers and creditors could work. Decision trees form a model that predicts the output by evaluating a tree of if-then-else true/false feature questions, and estimating the minimum number of questions needed to assess the probability of producing an accurate output (Nvidia, n.d.).



Sample Credit Risk Decision Tree

The inputted data is utilised in answering these feature questions, sparking different outcomes based on the data. This will lead to different predictions of default probability and consequently different loan quantums we allow for business owners.

There are two uses for a decision tree -- classification is used to predict a category, while regression is used to predict a continuous numeric value (Nvidia, n.d.). For the use of a credit risk model, the XGBoost utilises regression, where the data is inputted into a linear model to output a predictive default probability for LoanEasy to decide on the appropriate credit quantum and repayment period for business owners. For example, business owners who have a 100% repayment rate could be offered better terms (e.g. a higher credit quantum or lower late repayment penalties).

Gradient Boosting

A second feature of XGboost is that it uses gradient boosting to improve the performance of decision trees. Each time a decision tree is fitted for prediction, prediction error is assessed. A successive decision tree is then built and focuses on producing accurate predictions for the

cases with prediction error. Each successive decision tree seeks to correct the inadequacies of the existing combined boosted ensemble model. (Hoare, 2022).

Gradient boosting follows an additive model. Additive training is a specific type of boosting that adds new models to the ensemble one at a time, instead of training all the models at once. In additive training, the new model is trained on the residuals (the errors or the difference between the predicted values and the actual values) of the previous model. The new model is then added to the ensemble, and the process is repeated until the desired accuracy is achieved (Brownlee, 2020). The additive equation is shown in Appendix H. Such a process highly enhances the accuracy of the final output value, providing a better reference consideration for BNPL providers for decisioning.

4.5. Limitations Of XGBoost -- Interpretability

Despite all the benefits the ML model brings to the table, a limitation we have identified is an interpretability issue of the model. One interpretability issue could be, what constitutes as a default? A 1 day delay in payment could suggest a potential default, yet could also be an unintentional mistake. We believe that the ML model would find it difficult to differentiate between these two given that its predictive ability is based on past data, and leaves little room to interpret human behaviour. The ML model will likely reject most customers with delayed repayments, regardless of the reasons for late payment.

Ultimately, whether this is a good approach depends on the risk approach BNPL providers would want to undertake. XGBoost could be a viable model for risk-averse BNPL providers, but they risk over-rejection of customers that could contribute to revenue, as their “poor repayment habits” identified by the model could be due to unrelated factors to default. For a volume-reliant business model like BNPL, this could be detrimental.

Therefore, we believe that the use of an ML model assumes monotonicity without delving into the cause of the input, which could obstruct accurate decisioning.

Incentives

Platform Incentive Structure

Credit Scoring System

- Inputs
    1. Oracle: External Credit Scoring system
    2. Internal: Past loan performance
- Output
    a. Loan terms
    b. Collateral percentage required

1. Borrowers (Business Owners)

Primary Incentives
1. Access to Capital
  - Lower barriers to entry compared to traditional banking
  - No physical collateral required for initial small loans
  - Faster approval process
  - Access to both debt and equity financing options

2. Credit Building
  - Progressive credit limit increases:
    * Starting limit: 200 USD in ETH
    * +25% increase after 3 successful repayments
    * +50% increase after 6 successful repayments
    * Up to 5000 USD maximum for established borrowers

2. Lenders

Primary Incentives
1. Financial Returns
  - Higher yields than traditional investments:
    * Base return = T-Bill rate + Risk Premium
    * Additional 2-5% APY in LOAN tokens
    * Bonus yields for early stage lenders

2. Risk Management
  - Portfolio diversification options:
    * Ability to split investments across multiple loans
    * Auto-invest features based on risk preferences
    * Insurance pool protection (up to 50% coverage)

3. Progressive Benefits
```solidity
```

```
contract LenderBenefits {
    struct Tier {
        uint256 minStaked;
        uint256 insuranceCoverage;
        uint256 feeDiscount;
        uint256 priorityAccess;
    }

    // Tier Structure
    Tier[] public tiers = [
        // Bronze
        Tier(1000 LOAN, 10%, 0.1%, 0),
        // Silver
        Tier(5000 LOAN, 25%, 0.25%, 12),
        // Gold
        Tier(10000 LOAN, 50%, 0.5%, 24)
    ];
}
```

4. NFT Rewards
    - Collab with artists

3. Platform (Protocol)

Revenue Streams
1. Transaction Fees
   - 0.5% loan origination fee
   - 0.1% repayment processing fee
   - 1% early repayment fee
   - Premium feature subscriptions

2. Token Economics
   - Total Supply: 1,000,000,000 LOAN
   - Distribution:
     * 40% - Community rewards and incentives
     * 20% - Platform development
     * 15% - Team and advisors (vested)
     * 15% - Liquidity provision
     * 10% - Treasury

3. Sustainability Mechanisms
   - Insurance pool funding (10% of all fees)
   - Treasury growth (5% of all fees)

- Protocol-owned liquidity

4. Community Contributors

Incentive Structure
1. Risk Assessors
   - Earn 0.1% of loan value for accurate risk assessments
   - Bonus LOAN tokens for identifying fraudulent applications
   - Reputation points leading to higher earning potential

2. Technical Validators
   - Bug bounty rewards
   - Protocol improvement proposals (PIPs) compensation
   - Network security incentives

3. Community Moderators
   - Monthly LOAN token rewards
   - Reduced platform fees
   - Priority access to new features

5. Ecosystem Partners

Partnership Benefits
1. Local Banks
   - Referral fees for KYC verification
   - Access to credit scoring data
   - Integration revenue share

2. Credit Bureaus
   - Data sharing compensation
   - Access to alternative credit metrics
   - Integration fees

3. Technology Providers
   - Revenue share for API integrations
   - Priority access to platform features
   - Co-development opportunities

6. Risk Mitigation and Insurance

Insurance Pool Structure
```solidity
contract InsurancePool {
    struct Coverage {
```

```
        uint256 premium;      // Based on risk level
        uint256 coverage;     // % of loan amount
        uint256 lockPeriod;   // Time before claim
    }

    // Premium calculation
    function calculatePremium(
        uint256 loanAmount,
        uint256 riskScore
    ) public pure returns (uint256) {
        return (loanAmount * riskScore * 2) / 10000;
    }
}
```

1. Premium Structure
   - Base rate: 1-3% of loan amount
   - Risk multiplier based on borrower score
   - Discount for LOAN token stakers

2. Coverage Benefits
   - Default protection
   - Delayed payment coverage
   - Fraud protection

7. DAO Governance

Voting Power
1. Token-based voting:
   - 1 LOAN = 1 base vote
   - Multipliers for:
     * Staking duration
     * Platform activity
     * Successful loan history

2. Proposal Power
   - Minimum 10,000 LOAN to submit proposals
   - Community voting periods
   - Implementation bounties

Decision Rights
- Interest rate adjustments
- Risk parameter updates
- Fee structure changes

- Protocol upgrades
- Treasury management

8. Long-term Sustainability

Economic Flywheel
1. Usage drives fee generation
2. Fees fund insurance and treasury
3. Treasury provides ecosystem grants
4. Grants drive platform improvement
5. Improvements attract more users

Value Capture
- Protocol fees auto-convert to LOAN
- LOAN burning mechanism from fees
- Treasury growth through activity
- Protocol-owned liquidity building

Would you like me to elaborate on any specific aspect of these incentive structures or provide more detailed tokenomics calculations?