ECO5037S 2025 Class Project Brief

Background

In South Africa, a significant percentage of individuals are unable to access affordable credit due to thin or non-existent credit histories, despite being banked. This systemic gap contributes to the perpetuation of financial exclusion. However, the convergence of Open Banking APIs and public blockchain infrastructure, such as the XRP Ledger (XRPL), now makes it possible to rethink how trust and creditworthiness are assessed and delivered.

The goal of this project is to design and build a decentralised micro-lending platform that uses a South African bank's APIs to generate an alternative credit score, and facilitates borrowing and lending on XRPL through programmable smart escrow.

Objective

Develop a proof-of-concept lending platform that:

- Facilitates decentralised lending between borrowers and lenders
- Collects user-permissioned transaction data via a local Open Banking API based on Absa's API.
- Calculate a credit score for thin-file clients based on alternative (non-credit) data using a basic Python-based credit scoring engine
- Issues loans via XRPL smart contracts on the XRPL EVM Sidechain
- Handles repayment via smart contracts
- Mints non-transferable "CreditTrust Tokens" based on repayment behaviour
- Incorporate into a Telegram bot for P2P lending and borrowing.
- Develop a web platform that shows some information about the micro-lending smart contract.
    - It can also be used by lenders who are more tech-savvy to deposit funds into the liquidity pool.

This platform should demonstrate how decentralised infrastructure can support financial inclusion and unlock affordable credit for users excluded from traditional scoring systems.

Deliverables

The project deliverables include:

1. Project and Technical Specification Document
    a. Market research
        i. Identifying the problem
        ii. Literature review on causes and solutions
        iii. Market sizing (how many people are excluded; how many people could such a system bring into the credit market)
    b. Requirements
    c. User stories
    d. UI mockups
    e. Proposed implementation
    f. Technology justification
    g. Architecture diagrams
2. Lessons Learnt Document (*individual*)
3. Proof of Concept (including GitHub repo and deployed version)

The project will culminate with a presentation and a product demo.

Technical Guidelines / Specification

This section provides the technical resources, frameworks, and implementation guidelines for building the proof-of-concept decentralised micro-lending platform. You should use these tools and references as a guideline but do your own research and use any other tools to complete the project.

The total supply of XRP (native token on XRPL EVM) on the XRPL EVM mirrors the XRPL ledger XRP locked on the bridge accounts on XRPL. You can then use the programmability provided by the smart contracts on XRPL EVM to develop more complex Dapps.

- Core Documentation
    - XRPL EVM Docs - primary reference for deploying and interacting with smart contracts on the XRPL EVM sidechain.
- Cross-chain bridging
    - XRPL Cross-Chain Bridge Standard - understanding bridging on XRPL. You only need to read the introduction and get an understanding of how cross chain bridges work
    - Axelar Architecture - Understanding Axelar's architecture. Axelar network is used for interchain token and message transfer between source and destination blockchain. One can build a dapp that utilizes this protocol and route tokens on the destination. That is what squid router does.
    - Squid Router - Understanding the architecture of the squid router dapp. You can also use squid router UI widgets for interchain transfer.
- Helper Resources

    - Scaffold-ETH XRPL EVM Testnet Starter - A scaffold eth starter project for deploying smart contracts on the XRPL EVM side-chain.
    - XRPL Interchain Playground - A playground project for interchain transactions from XRPL to XRPL EVM via the squid router dapp.
    - Axelar XRPL Integration - How to send messages from XRPL to XRPL EVM using the Axelar network.

Teams

The class will be split into a product team and a dev team. Additionally, there will be a need for a management team comprising a CEO, COO, and CTO, who will be elected from the core teams.

Support

- Hub space - Project teams will have access to the Hub as a co-working space, Tuesday - Thursday, 09:00 - 18:00.
- Technical and Business Development support hours - The technical specialists and business developers from the Hub will be available every Wednesday at the Hub between 11:00 and 13:00.

Dates

Your submission for the project and presentation will be on **Monday, 3 November.**

- 10 October: Project and Technical Specification Document Check-in
- 17 October: Project and Technical Specification Document
- 24 October: POC Check-in
- 31 October: POC and Presentation Demo