Documentation
Hackathon: Make it Mobile Hackathon with Celo

Challenge Description

ETH is an incredibly powerful technology - however, the full magic of the Ethereum ecosystem has yet to make its way to the world of 5.6 billion smartphone users. With Celo's EVM compatible mobile-first network - we're here to change that and we hope you'll join us in making the magic of crypto, mobile-first! There's a status quo in web3 and a status quo in mobile apps - let's explore what's possible with both.
Prompt
Build a DeFi DApp, tool, or mobile browser app that showcases the type of ingenuity and network effects seen in layer 2 projects currently only available on Ethereum. Build new products, fork a DApp, or innovate new ideas - and most importantly help make crypto accessible on mobile phones. This can be done through designing a native mobile DApp (with the help of DAppkit) or just designing an easy-to-use product for mobile web browsers.

Understanding the Challenge

As a crypto user can understand the pain of waiting time and heavy cost of transaction in Layer1. We needed a better solution which can reduce the latency as well as transaction cost without hampering the underlying advantages of Blockchain Protocols.

Celo.org provides a solution to develop the layer2 technology giving a mobile user to easily use cryptocurrency in day to day life. This does not hamper the security aspects in Decentralised Finance (defi) and gives the benefit of fast and cheap transactions.
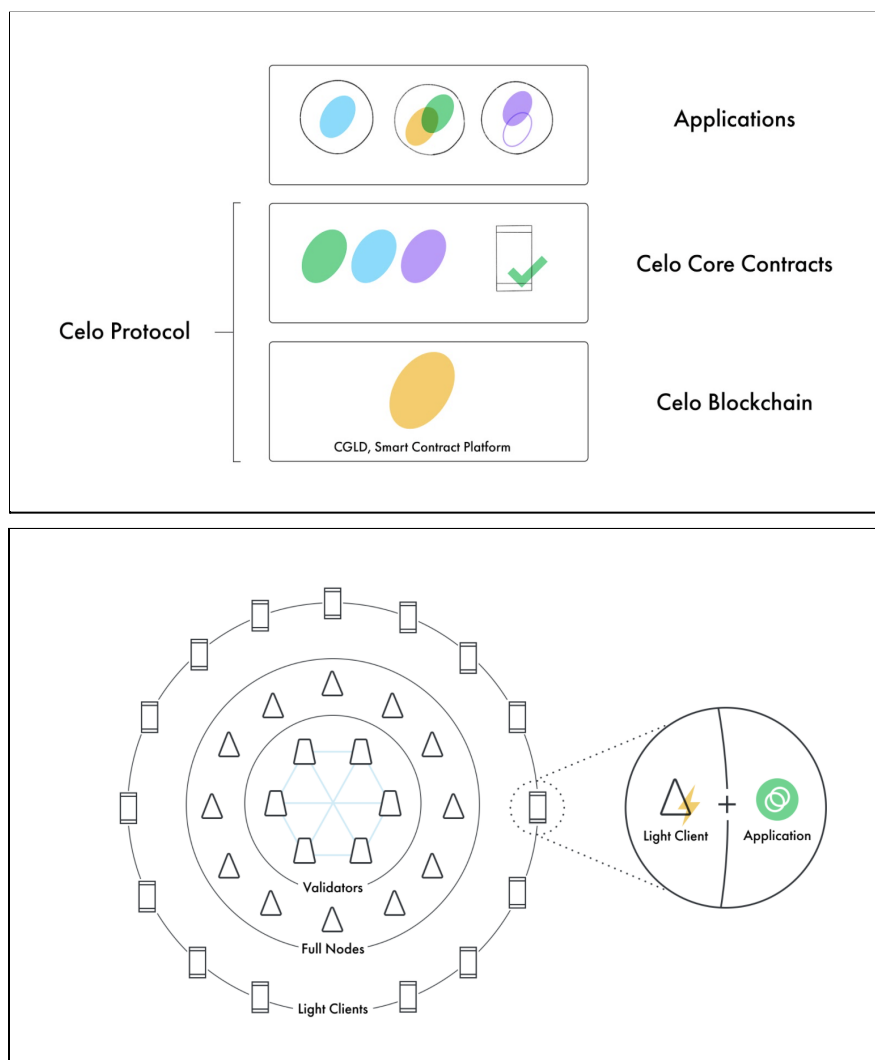
Celo oversees a list of problems, and provide features like:
1. Stable Value Currency
2. Phone Number to Public Key Infrastructure.
3. On-Chain Governance
4. Self Custody
5. Proof of Stake - Permissionless consensus algorithm running on decentralized infrastructure.
6. Very Fast Sync for ultra-light clients
7. Gas payable in multiple currencies
8. Programmable (Full EVM Support)

EVM - Ethereum Virtual Machine.

As the platform is taking a flight with a lot of investors and collaborators along with stable coin and amazing mobile-first crypto tech, we have a great opportunity to create the community of apps supporting the above hard work of celo, which benefit all.
Relatively this tech domain is very little touched and we just scraped the surface.
Let's Make Crypto Accessible to All!

More on Celo can be found Here: https://docs.celo.org/v/master/overview
More on Layer 2 can be found Here:
https://entethalliance.org/how-ethereum-layer-2-scaling-solutions-address-barriers-to-enterprises-building-on-mainnet/

Extracting Problem Statement

Advantages:
1. stable coin- celo, cUSD
2. Decentralised
3. Fast, secure, cheap transaction
4. Phone - key mapping
5. Easy exchanges.
6. Big Names backing the project

Disadvantages(Problems):
1. No mass appealing apps
2. No General use case apps
3. Limited use of cryptocurrency in daily life
4. Most current Defi Dapps, limit the types of users.

Solution
1. Integrating Legacy Apps with crypto payment options.
2. Integrate Crypto Apps with MarketPlaces.
3. Create more general use case mobile applications supporting cryptocurrency.

Description
As the technology grows around the celo ecosystem, there is a huge potential for developers, innovators, entrepreneurs to understand the concept and build their applications crypto friendly, making it easier for anyone to use cryptocurrency in real trades as well.

1. Integrate Legacy Apps with Crypto Payment options.
    a. Amazon with crypto wallet
    b. Uber with crypto payment option
2. Integrate Crypto Apps/ Wallet with marketPlaces.
    a. Integrate valora with:
        i. Exchange crypto between wallets (Already support)
        ii. Exchange crypto with fiat (already support)
        iii. Trading Options
        iv. Bill Payments
        v. Shopping
        vi. Insurance
        vii. Food delivery
        viii. Grocery

        ix.   Insurance
        x.   Bookings - Flight, hotel, etc
3. Create an application where users can spend cryptocurrency like fiat currencies.
   a. E-commerce aggregator
   b. Platform for freelancers
   c. Funding platforms
   d. Food Delivery Platforms
   e. Cab Aggregator Platforms

The above list is just the tip of the iceberg with endless possibilities. This list is inclusive but not exhaustive.

Boom in the smartphone industry occured when startups offered a wide range of services available through a tap on their phone screens. Amazon, Uber, Swiggy, Fiverr, Alibaba, leveraged the underlying 3G, 4G network protocols and helped making services available to general users at ease. We are now moving towards the Decentralised Finance Era, where the **Traditional Banking System** may be obsolete if we look far away from now.

As of now Big startups/ companies transact in fiat currencies, while some are taking initiatives in cryptocurrencies as well (Tesla Inc.). Which can also be seen as a step to shift the paradigm. This also creates an early bird opportunity for entrepreneurs to gain the traction before giants enter the room.

tokenShop: Defi E-commerce Aggregator Dapp

As an early bird there are numerous opportunities in this domain.
We are inclined to boost the development of the "celo" ecosystem.
As the number of users increase, so does the use of crypto and thus the ecosystem grows.

We decided to build an DeFi E-commerce Aggregator Dapp, where any user around the world can shop with multiple brands and stores with his/her crypto assets.
As to not get ahead of ourselves, we decided to provide a solution which can be achieved in the near future with a startup team. We have kept in mind the existing infrastructure and established brands.
Valora App already supports the gift/coupons to redeem for a store, and we wanted for user to do more with their crypto asset.

Listing Data
For this to work, we need a listing of products on our platform.
We thrive in making most of what is already available and make the most out of it.
We have 3 broad option to move ahead with listing:
1. Deals and tie-ups- Handshake on corporate level with the prestigious stores and brands. would also require a lot of overhead including team, money, and direction.
   Api - Subscribe to e-commerce api's, to get listing and place order.
2. Browser method- open the browser application of the respective store inside the tokenShop App.

Selling Items
Convert the listing in CELO and cUSD from fiat, and display the price to users in tokenShop App.

Buying
Users need to connect to the Valora wallet to pay for their orders.
Necessary Details will be collected on tokenShop App for delivery purposes.
Name, Billing/ Shipping Address, etc. and will be submitted to the necessary platform when needed.

This will also create a single auth center with user's detail, which can be used in multiple stores without hassle.

1. We'll need the ordering api if we use (Deals and api methods), which will serve to place an order successfully at the backend of e-com service.
2. Users can select the item from their respective favorite store in browser mode. While checkout, tokenshop will prompt the address details to be used as prefilled on the app. Payment would be done using tokenShop Crypto Wallet or through valora.

Payment

1. Users will pay tokenShop using valora celo or cUSD, in turn of the selected cart order.
2. Payment on behalf of the user to the respective online store or brand to be done in native currency from the tokenShop account.

Personalisation & Other Details

1. Users can manage their personal details (Delivery Address) at one place.
2. Users can view their previous order details.
3. Users can manage their wallet, connect with valora.
4. Users can return, cancel the order.

Advantages

1. Unlimited browsing- Multiple store access using only one app
2. A place where general users can buy using crypto.
3. No heavy transaction fee, due to celo layer 2 infrastructure.
4. User details can be reused across multiple platforms, reducing auth latency
5. Highly scalable and multidirectional business
6. Complete digital entity.

Business

There are a lot of opportunities in this domain, as the number of users grows.

1. Featuring Spaces in the app.
2. Advertisements
3. Commision from store
4. Commision from Customers.
5. Integrating crypto marketplaces like **moola** and **ubeswap**

As these depend mostly on research and business models. I will not go further deep in this topic, and leave it to be brainstormed in Future.
A lean canvas was designed for self interest and to have deep insight.

The model is uploaded to this same github repository:
https://github.com/t-phoenix/tokenshop/tree/main/business

Workflows

USER IDENTIFICATION FLOW

```
                    ┌────────┐
                    │  User  │
                    └────────┘
                         │
                         ▼
              ┌──────────────────────┐
              │      tokenShop       │
              └──────────────────────┘
                    │            │
                    │            ▼
                    │     ┌──────────────────┐
                    │     │  download valora │
                    │     └──────────────────┘
                    │            │
                    ▼            ▼
        ┌────────────────┐   ┌──────────────────┐
        │ Authenticate   │◄──│  Create and      │
        │ using valora   │   │  account using   │
        └────────────────┘   │  Phone           │
                    │        └──────────────────┘
                    │ Fetch Wallet Details
                    ▼
        ┌────────────────────────┐
        │ Initialize Home DashBorad │
        └────────────────────────┘
```

Connecting Online Stores/Brands with API's

Home

↓

User enter his home details
(to get the delivery location)

↓

Select **STORE OR BRAND** to shop

↓

Browse and choose throughout the store

↓

Add Item to favorite or Cart

→ Exit the store →
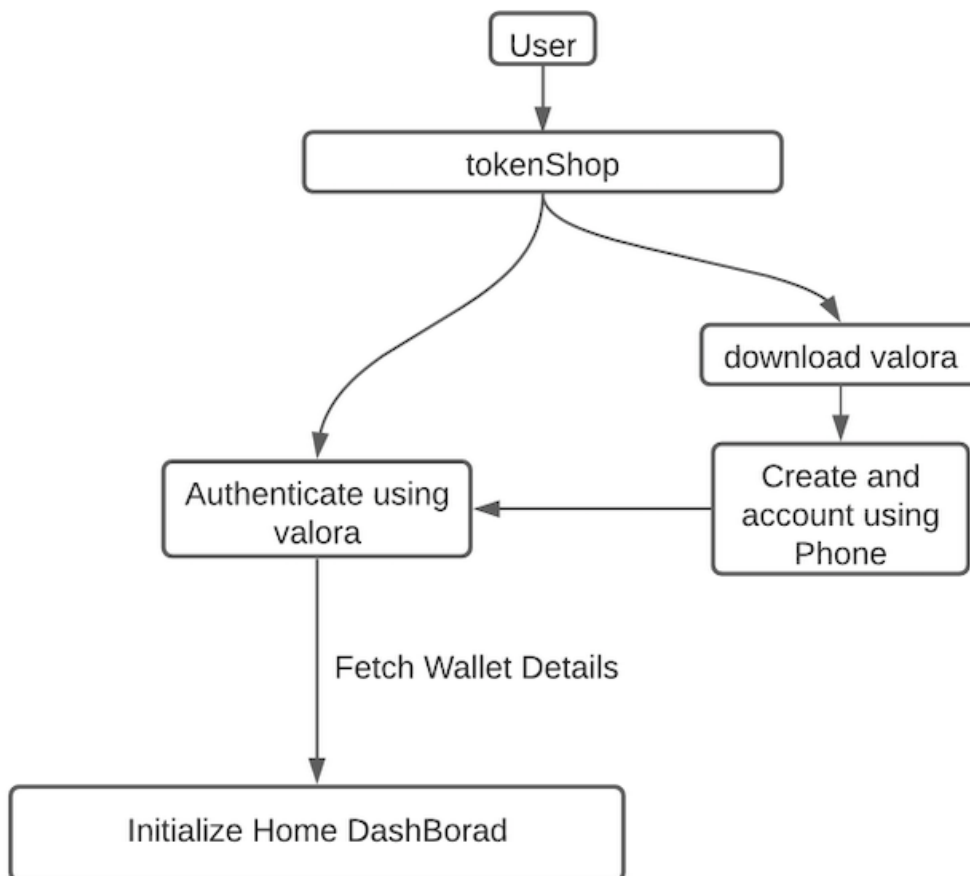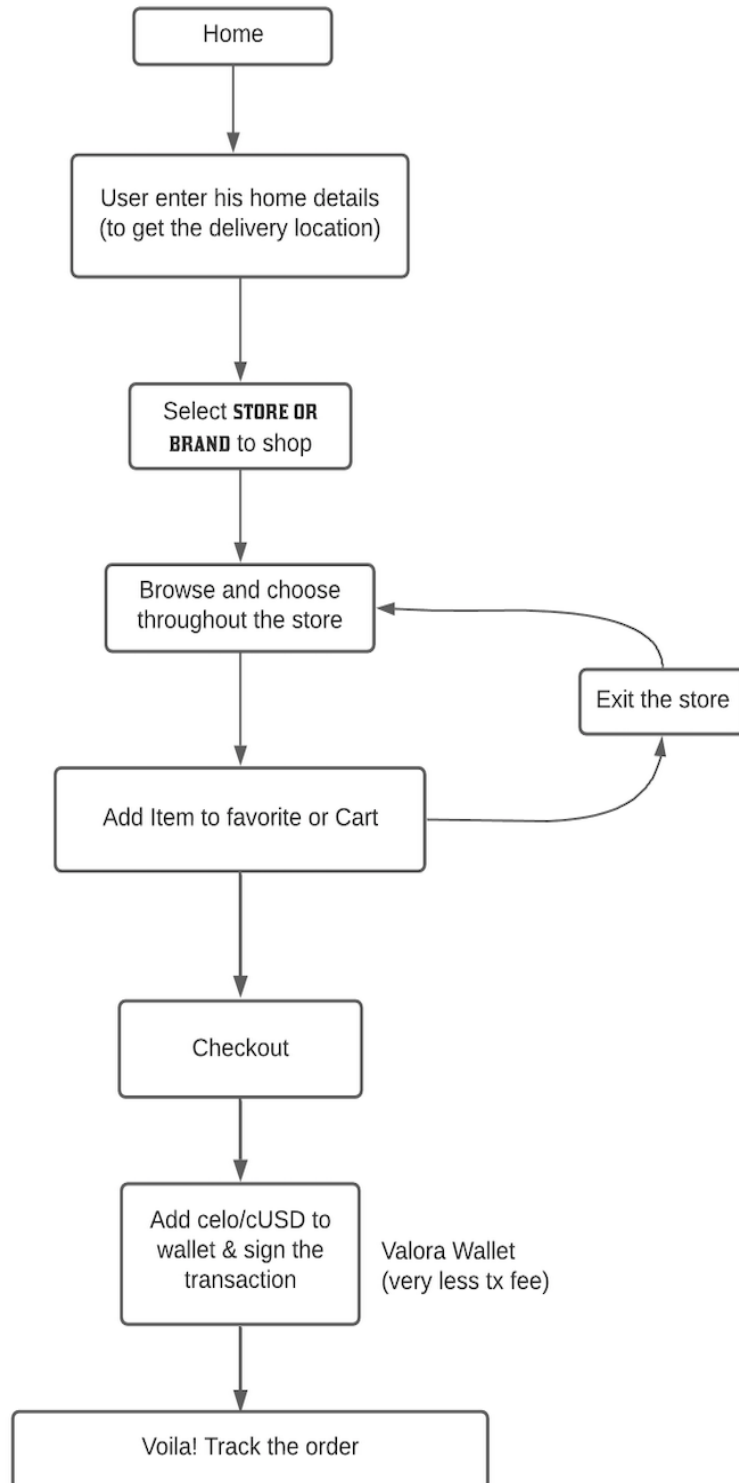
Cart would be universal.
Users can add multiple items from multiple stores/brands in a single order.

↓

Checkout

↓

Add celo/cUSD to wallet & sign the transaction

Valora Wallet
(very less tx fee)

↓

Voila! Track the order

Connecting online stores/ Brands with Browser mode

```
                    ┌─────────────────┐
                    │      Home       │
                    └─────────────────┘
                              │
                              ▼
              ┌──────────────────────────────┐
              │ User enter his home details   │
              │ (to get the delivery location)│
              └──────────────────────────────┘
                              │
                              ▼
                 ┌─────────────────────┐
                 │ Select STORE OR      │
                 │ BRAND to shop        │
                 └─────────────────────┘
                              │
                              ▼
                 ┌─────────────────────┐
                 │ Browse and choose   │        Cart Cannot be
                 │ throughout the store│        Universal Here
                 └─────────────────────┘
                              │
                              ▼
              ┌──────────────────────────────┐
              │ Add Item to favorite or Cart  │
              └──────────────────────────────┘
                              │
                              ▼
                 ┌─────────────────────┐
                 │      Checkout       │
                 └─────────────────────┘
                              │
                              ▼
              ┌──────────────────────────────┐
              │ Use home address              │
              │ previously filled in step 1   │
              └──────────────────────────────┘
                              │
                              ▼
                 ┌─────────────────────┐
                 │ Add celo/cUSD to    │        Valora Wallet
                 │ wallet & sign the   │        (very less tx fee)
                 │ transaction         │
                 └─────────────────────┘
                              │
                              ▼
              ┌──────────────────────────────┐
              │ Voila! Track the order        │
              └──────────────────────────────┘
```
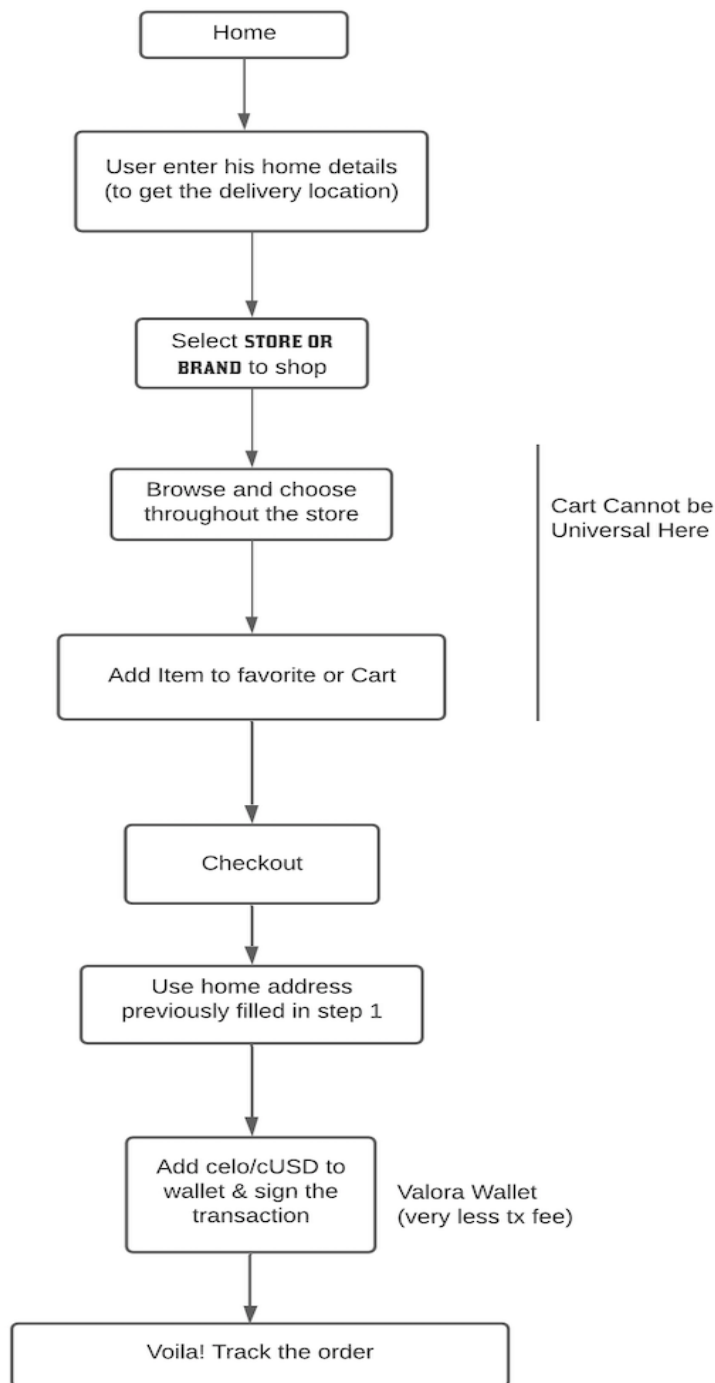
The workflow pdfs are also uploaded in the same repository:
https://github.com/t-phoenix/tokenshop/tree/main/app%20flow
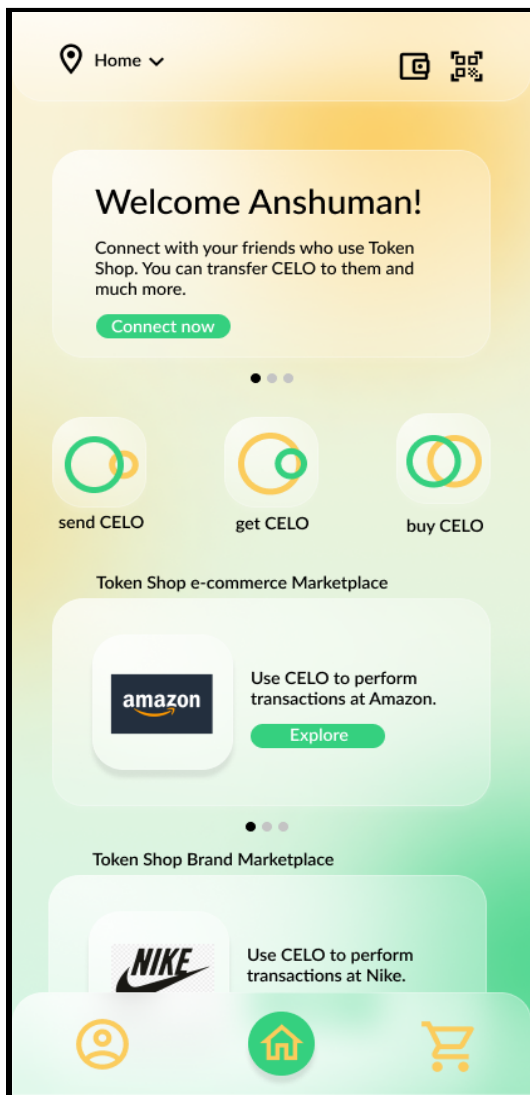
Impact

This app can be launched globally, potentially impacting billions of users.

Previous celo/ cUSD holders will now have a new, easy, secure and decentralised way to shop online.
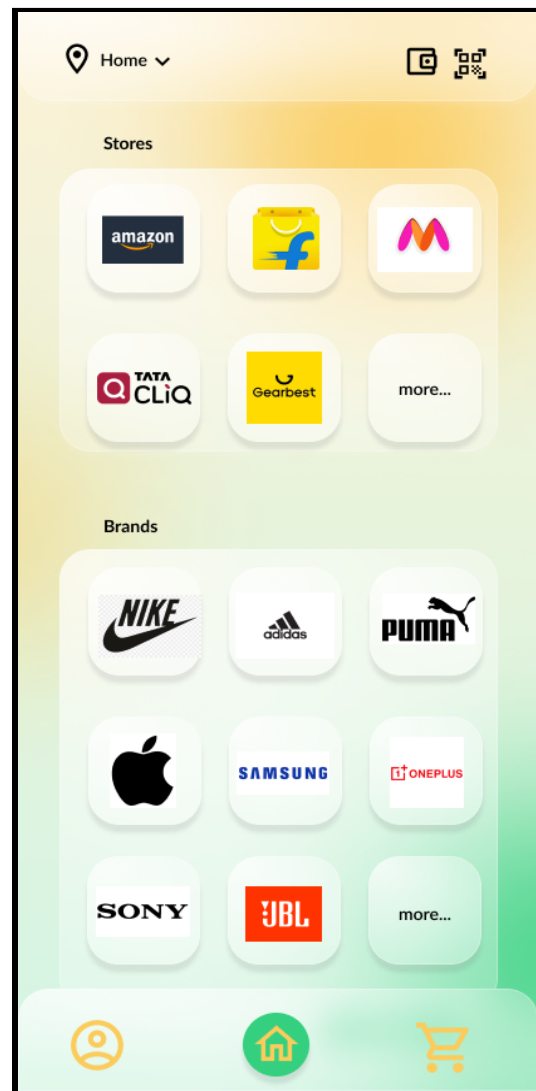
New users searching for online shopping aggregators, can now shop using celo/ cUSD.

More crypto transactions, hence more crypto-flow(similar to cash flow).
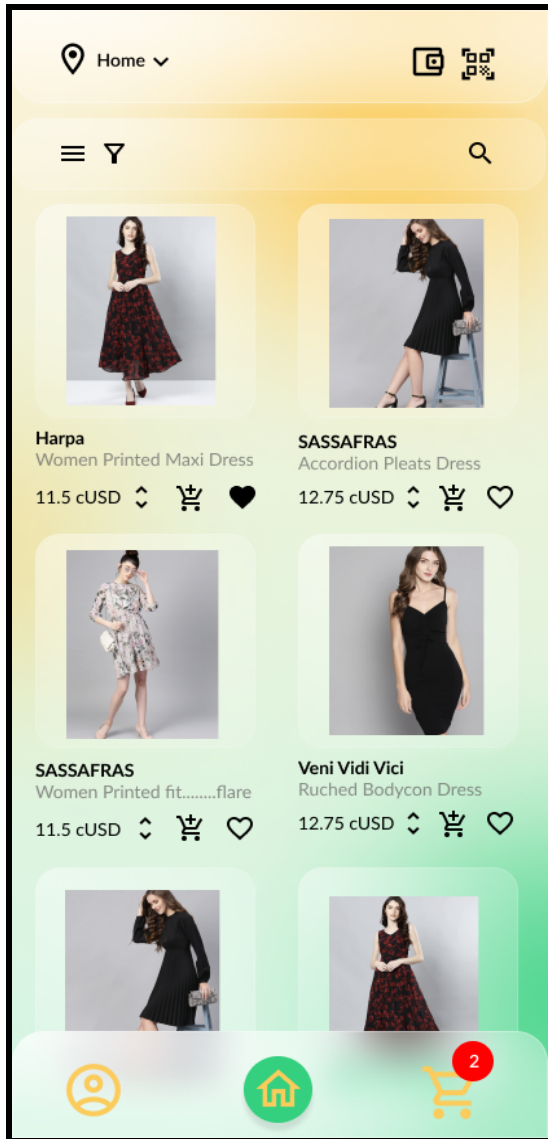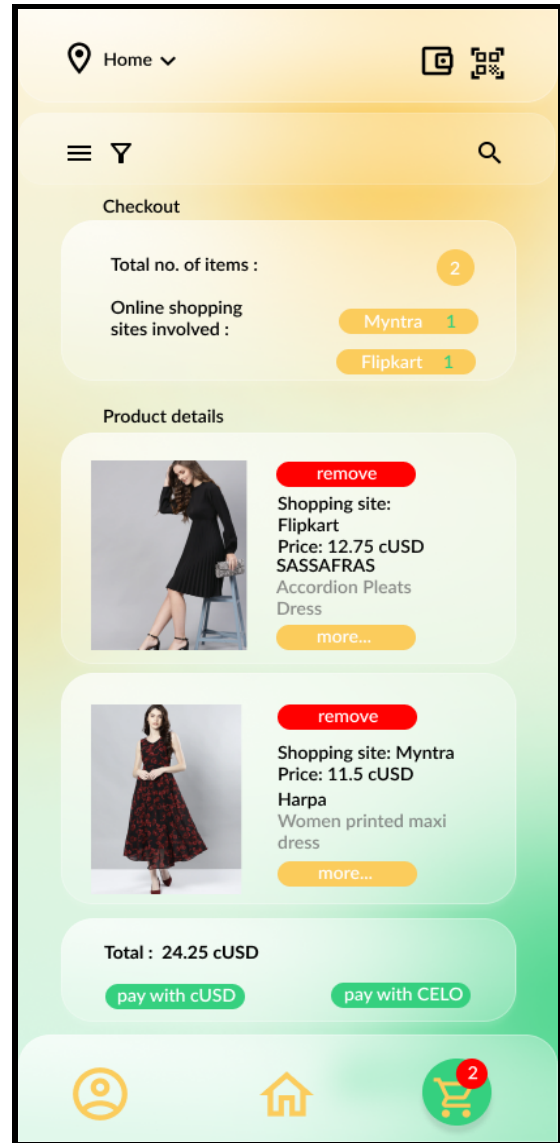
UI/ UX Designs

Home Screen

Store and Brand Listing Screen

Item Listing Screen

Cart Screen

Link for the figma Design Sheet:
https://www.figma.com/file/Wacd7bAUqzzaL8oei2TD42/TokenShop_Screens?node-id=99%3A3

Png images of the screens are uploaded in the same repo
https://github.com/t-phoenix/tokenshop/tree/main/UI%20designs

React-Native App
- We used expo to build the Ui part of the application.
  This can be just further taken directly into **proof of concept.**
- The code is uploaded in the github repository: https://github.com/t-phoenix/tokenshop
- The video of the demo in **IOS Simulator** can be downloaded from "**app demo"** folder, in the same repo: https://github.com/t-phoenix/tokenshop/tree/main/app%20demo.

Run the Application
1. Clone the repository : https://github.com/t-phoenix/tokenshop.
   [note: you will download some un-necessary documents which are related to business and work flows]
2. cd into repo: $cd tokenShop
3. run $npm i
4. run $expo start
5. Run emulator by browser option or by typing initials in terminal
   a. "a" for android
   b. "i" for ios
   c. "w" for web(not stable)
6. View the App UI in ios/ android emulator.

Collaborators

- **Abhinil Agarwal**
  iMTech-student, International Institute of Information Technology, Bangalore.
  +91 81075 99599

- **Anshuman Mohanty**
  Full Stack Developer, ETG Global
  +91 87633 13777