Squirtle Voucher Vault

Blockchain Voucher Platform

Agenda

01

Voucher Redeeming, Extra Features

Focus on the relationship between influencer and manufacturer. This is governed by QR codes and secure transactions.

02

Contract Security

Improvements on the blockchain program security. This is core to the decentralized and trustless nature of the system.

03

Demo

A user-centric walkthrough of the application's key features and functionality. Showcasing the application's improvements.

“The primary goal of this sprint is to enhance the trustless ecosystem between influencers and manufacturers by refining voucher redemption, fortifying contract security, and delivering a compelling demonstration of the platform’s enhanced capabilities”

01

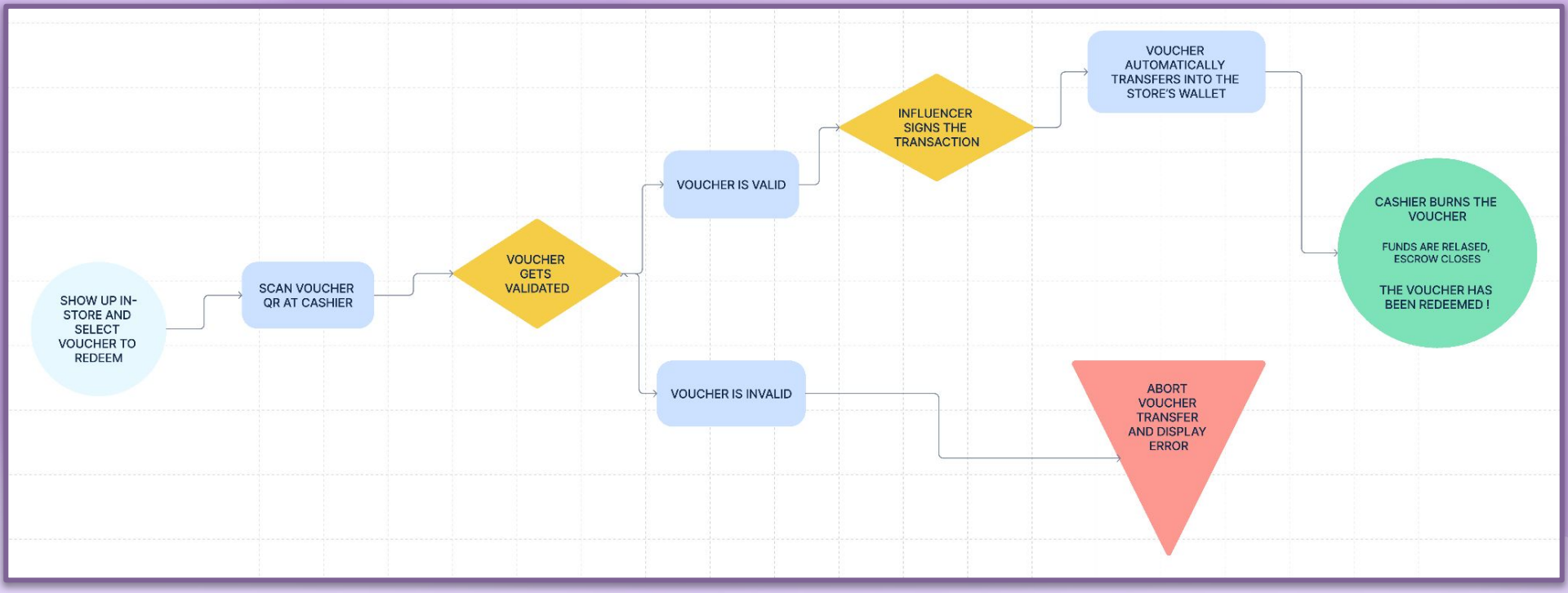
Voucher Redeeming

Customer Flow

Redeeming Flow

1. The influencer shows up to the store.
2. Finds the voucher they want to redeem on our website (inside their dashboard).
3. They click “redeem”, which generates a QR code.
4. They show this QR code to the cashier.
5. The cashier scans this code with our website. (This process could be similar to how takealot package collection works).
6. On the cashier side a popup appears , validating the details accordingly.
7. If the scan is successful, the cashier’s program will signal the influence’s program to automatically transfer the voucher as an NFT into the store’s wallet
8. On the influencer side a popup appears allowing them to sign the send transaction.
9. Once the voucher has been transferred, the voucher details are displayed to the cashier with a “burn” button, that burns the vouchers
10. Now the cashier has the voucher and can burn it to release the escrow funds into the store’s account
11. The voucher has been redeemed !

Redeeming Flow



Decentralised Integrity and Security

1. **Direct, Peer-to-Peer Transfer**: The QR code facilitates a direct connection between the influencer and the store through a PeerJS ID, allowing them to interact without relying on a centralized server for the transaction, preserving the decentralized nature of blockchain.
2. **Decentralized Validation**: The voucher and wallet data shared during the QR scan is validated on both sides without intermediaries, ensuring that both parties have full control over their assets.
3. **Secure Transaction Approval**: The influencer signs the transaction directly from their wallet, maintaining personal control over the voucher transfer to the store.
4. **Temporary PeerJS Connection**: The peer-to-peer connection enables secure communication between the store and influencer for the transaction process, and is closed once the voucher is burned, preventing any long-term connections that could compromise security.
5. **Escrow and Fund Release**: The decentralized escrow mechanism holds the funds securely until the voucher is successfully transferred and burned, ensuring the integrity of the transaction without third-party involvement.

By using PeerJS for direct communication and Solana's blockchain for the transfer, this process remains fully decentralized and secure.

Extra Features

1. **Country Selection / Exchange Rate:** This feature allows users to select their country, automatically setting the local currency for transactions based on real-time exchange rates by making use of the CoinGecko API.

2. **Expiration Date:** Users can set an expiration date for vouchers, after which they become invalid, ideal for time-sensitive promotions.

3. **Blockchain Transaction History:** This feature provides a detailed history of users' blockchain transactions, including IDs, timestamps, amounts, and statuses, ensuring transparency.

4. **QR Code Feature:** A QR code is generated for vouchers or transactions, enabling quick access and secure transactions through scanning.

5. **Custom Wallet Address Validation:** This feature validates wallet addresses for correct format and accuracy, preventing errors and ensuring transactions are sent to valid addresses.

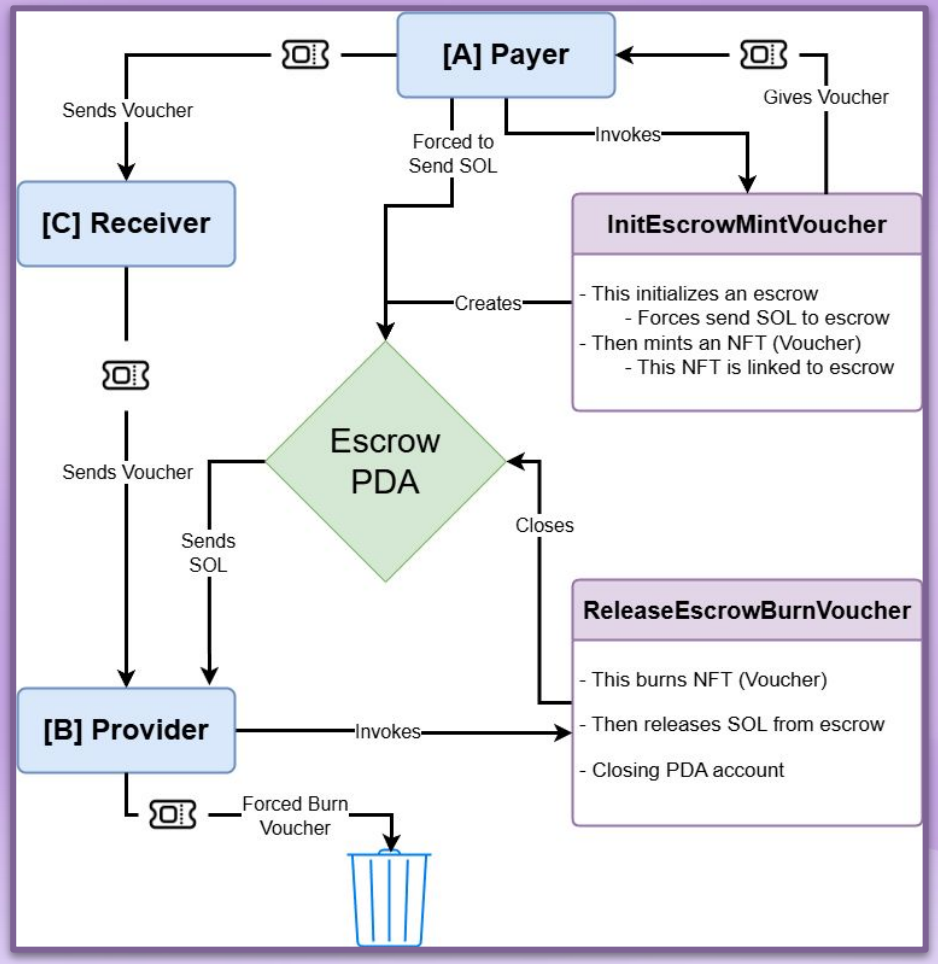
6. **Front-end Bug Fix:** A bug causing transferred vouchers to still appear in the list was resolved by implementing a filter to exclude items with zero quantity, addressing the Solana blockchain's handling of such cases.

02

Contract Security

Transaction History

Voucher System (Gideon)



Contract Bugs and Security (Gideon)

Security Improvements

- The on-chain security is core to our program.
- Program now verifies voucher metadata.
- Program now ensures correct escrow linked to voucher.

Bug Fixes

- Fixed transferred/redeemed tokens still showing in wallet.
- Expiry metadata needed to be formatted.
- Various other bug fixes.

Vouchers Now Expire

- A new expiry field was added to the vouchers.
- This allows for improved security.
- Allowing issuers to limit the amount of time influencers have to redeem.
- In the next sprint issuers will be able to reclaim expired vouchers.

03

Live Demo

User-centric walkthrough

04

SE Principles

Agile Software Engineering, SCRUM

Agile Manifesto

Notion Dashboard

Add comment

CS 344 Team Squirtle

deadlines

~~Sprint 1 - 23 Aug~~

Sprint 2 - 27 Sept !

Sprint 3 - 18 Oct

git workflow

- no one does *anything on master branch*
- [START] Installing git-flow
- Merging to Develop Branch
- Starting work on a feature
- Commits Checklist [IMPORTANT]
- Using **Git Flow** (NOT github flow)

todo board

Board | Timeline

Sprint 3 9

- mobile accesibility
- Expiry Date Reclaim Money — Luke Leppan
- add cool solana animation from solflare

Sprint 2 TODO 4

- more in depth CI/CD tests
- Ensure we are re checking for vouchers in wallet when other dashboards besides influencer are show

In Progress 7

- QR Codes Transfer Tokens — Caeden Telfer | Izak
- fix transfer token and redeem — Caeden Telfer

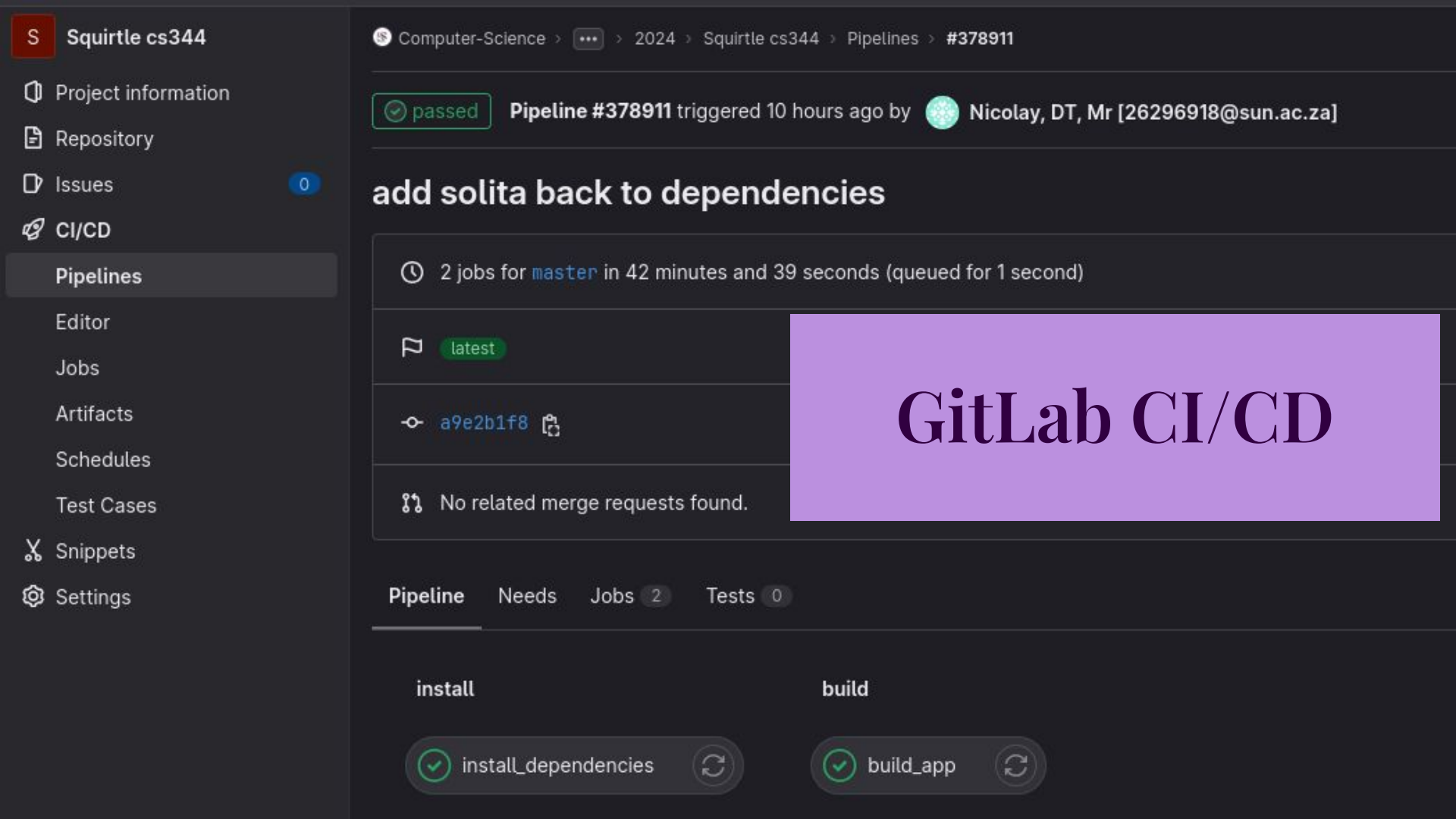
Sprint 2 Done 20

- adding manufacturer transfer vouchers — David
- Fix Burning of NFTs still showing on list — David

Hidden groups

Sprint 1 Done 20

No Tags 0


S
Squirtle cs344
Project information
Repository
Issues
0
CI/CD
Pipelines
Editor
Jobs
Artifacts
Schedules
Test Cases
Snippets
Settings
Computer-Science
2024
Squirtle cs344
Pipelines
#378911
passed
Pipeline #378911 triggered 10 hours ago by
Nicolay, DT, Mr [26296918@sun.ac.za]
add solita back to dependencies
2 jobs for master in 42 minutes and 39 seconds (queued for 1 second)
latest
a9e2b1f8
No related merge requests found.
GitLab CI/CD
Pipeline
Needs
Jobs 2
Tests 0
install
build
install_dependencies
build_app

Sprint Breakdown

Blockchain voucher system, basic UI

Sprint 1

Sprint 2

Transferring through QR codes, transaction history,

Admin system, stats tracking and visualization, UX, UI Overhaul

Sprint 3

"We call it SCRUM. It’s really Waterfall with meetings every two weeks."

—Programmers are also human (YouTube)