



Problem Statement Title:
Team Name:

Team members details

Team Name	Tech Titans Go		
Institute Name/Names	Indian Institute of Information Technology, Guwahati		
Team Members >	1 (Leader)	2	3
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Batch	2024	2024	2024

Deliverables/Expectations for Level 2 (Idea + Code Submission)

- Blockchain-enabled loyalty program deployed on Polygon.
- Fungible tokens generated as reward points on the blockchain.
- Clearly defined tokenomics, including value and issuance rules.
- Transactions of tokens recorded on-chain.
- User-friendly interfaces for customers, brands, and partners to perform transactions, and add loyalty programs.
- Users can get tokens on buying products and earning loyalty of brand partners.
- Decaying tokens mechanism are formularized but yet to be implemented.

Glossary

- **Blockchain:** A distributed, immutable digital ledger that records transactions across multiple nodes.
- **Fungible Tokens:** Digital assets that are interchangeable, like currency. Each token is of equal value and can be exchanged on a one-to-one basis.
- **Tokenomics:** The study of the design and implementation of tokens, including their distribution, value, and economic properties.
- **Smart Contracts:** Self-executing contracts with the terms of the agreement directly written into code.
- **Polygon:** A layer 2 scaling solution for Ethereum, offering faster and cheaper transactions.
- **Supercoins:** Fungible token created and implemented on Polygon blockchain
- **Brownie:** Framework used to deploy on polygon blockchain and interact with the smart contract

Use-cases

The use-cases of the prototype are as follows:

- **User Engagement Enhancement:** The loyalty program incentivizes users to interact with the E-commerce platform, leading to increased brand loyalty and frequent purchases.
- **Transparent Transactions:** Blockchain's transparency ensures trust and accountability in reward distribution and settlements.
- **Partnership Strengthening:** Sellers and partners can issue tokens to loyal customers, forging stronger relationships.
- **Token Decay and Redemption:** Inactive tokens lose value with time which encourages timely redemption and also ensures active participation.
- **Security Enhancement:** Immutability of blockchain offers secure way of conducting transactions.

Solution statement/ Proposed approach

Our proposed solution is to build a blockchain-based loyalty and rewards program on the Polygon network. The platform will leverage the benefits of blockchain technology to enhance security, transparency, and user engagement. The key features are as follows:

- **Fungible Tokens Creation:** We will develop smart contracts to generate fungible tokens representing loyalty points. These tokens will be issued based on predefined criteria such as purchases, referrals, and social media interactions.
- **Tokenomics and Governance:** The tokenomics of these fungible tokens will be clearly defined. Smart contracts will manage token issuance, distribution, and decay. Governance rules for managing the token treasury will be established.
- **Instant Settlements:** Smart contracts will enable simple and instant settlements of tokens between brands, partners, and E-commerce platforms. All transactions will be recorded on the blockchain, ensuring transparency.

- **User-Friendly Interface:** A user-friendly web interface will allow customers to track their earned tokens, view available rewards, and manage their loyalty points. Brands and partners will also have an interface to reward loyal users.
- **Token Decay:** Tokens in a users wallet will decay after a certain period of time which encourages timely redemption. After 2 months, 5 supercoins will be deducted from the user wallet.

Limitations

The limitations of are as follows:

- **Scalability:** While using a layer 2 solution like Polygon helps, scalability may still pose challenges during peak usage.
- **User Adoption:** General Indian public might initially be unfamiliar with blockchain technology, which could affect their participation into different programs.
- **Regulatory Considerations:** Blockchain regulations and compliance could impact the programs implementation and usage.
- **No Exchange Between Users:** Initially we wanted to add a feature that allows a user to exchange supercoins with some other user. But during our reasearch we found out that in such case, Flipkart will have to pay the gas fees for every transaction of that kind which makes this option infeasible.
- **Gas fees:** Gas fees for every transaction is paid by Flipkart which can be limiting to profit making.
- **Premature Prototype:** Some functionality such as recieving supercoins from buying, leaving reviews and referrals are not implemented due to lack of time.

Future Scope

The future scope are as follows:

- **Integration with More E-commerce Platforms:** The loyalty program can be extended to other E-commerce platforms which will broaden its impact.
- **Enhanced User Experience:** Implementation of AI-driven personalization to tailor rewards and recommendations for a given user.
- **Interoperability:** Integration with other blockchain networks for wider token adoption.
- **Gamification:** Introduction of gamified elements to further engage users and encourage participation.
- **Token Interchangeability:** Explore options to exchange tokens for other digital assets such as NFTs.



Thank You