



**Problem Statement Title:** Blockchain  
**Based :** Loyalty and Rewards Program using  
Fungible Tokens

**Team Name:** TheDarkKnights

# Indian Institute of Engineering Science and Technology, Shibpur

**Team Name - The DarKnights**

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# TABLE OF CONTENTS

01

## Deliverables

Concise overview of project outcomes, milestones, and solutions.

02

## Use Case

Illustrates real-world applications, showcasing practical usage scenarios effectively..

03

## WEBSITE UI

This section focuses on different functionalities of our website UI and also show its flow with Block Diagram

04

## LIMITATIONS

This section focuses on the limitations of our project

05

## FUTURE SCOPE

This section focuses on the advanced improvements that can be made in the project

06

## WHY THIS PROJECT ?

This section focus on the why this project stands out.

# Deliverables

## Idea Component:

- **Project Proposal**: Present a comprehensive overview of our loyalty program, including the problem statement, solution, key features, tokenomics.
- **Tokenomics and Rules**: Define token value, issuance rules, and how users earn/redeem tokens.
- **User Interface**: Provide visual mockups of the user-friendly interface for managing points and rewards.

## Code Component:

- **Solidity Code**: Submit well-structured Solidity code for generating tokens, managing transactions, and settlements.
- **User Interface Prototype**: Deliver a functional web prototype of the user interface.
- **Testing and Completion**: Demonstrate essential functions, ensure clean code, integration, and testing.

# USE CASES

## P0: Token Generation & Tokenomics

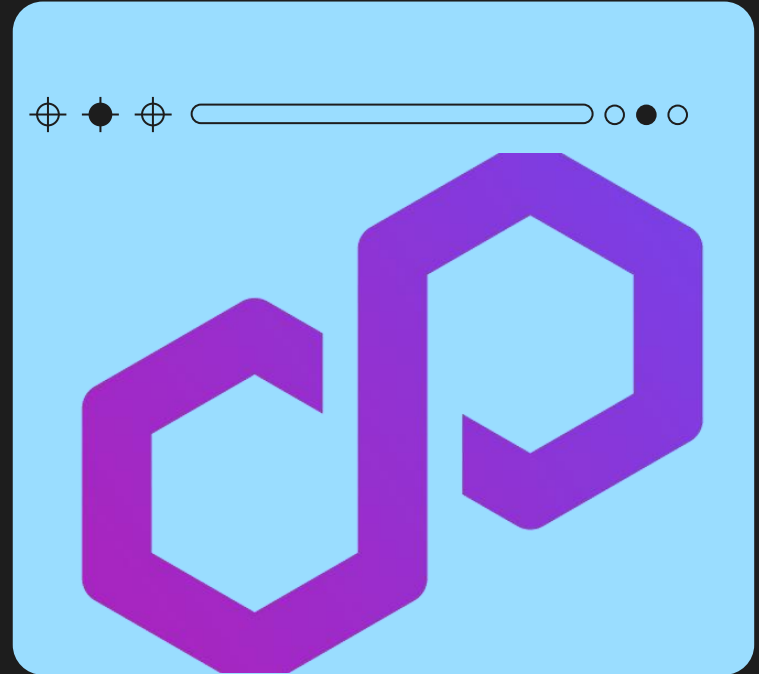
- Users receive tokens for purchases, boosting customer loyalty.
- Record settlements transparently on-chain

## P1: Earning Tokens & Partner Issuance

- Referral rewards in tokens promote user referrals.
- Partners reward tokens for high-value purchases.

## P2: Rewards Redemption

- Tokens used for discounts and coupons.



# Token.sol

Contract used to generate  
LYT tokens

Used the ABI  
and contract  
address

## Block Diagram and Website UI

DEPLOY  
ON SEPOLIA  
TESTNET

INTEGRATION

EVENT  
HANDLING

# Faucet.sol

Contract used to maintain the  
distribution of LYT tokens

Used the method of  
deployed contracts

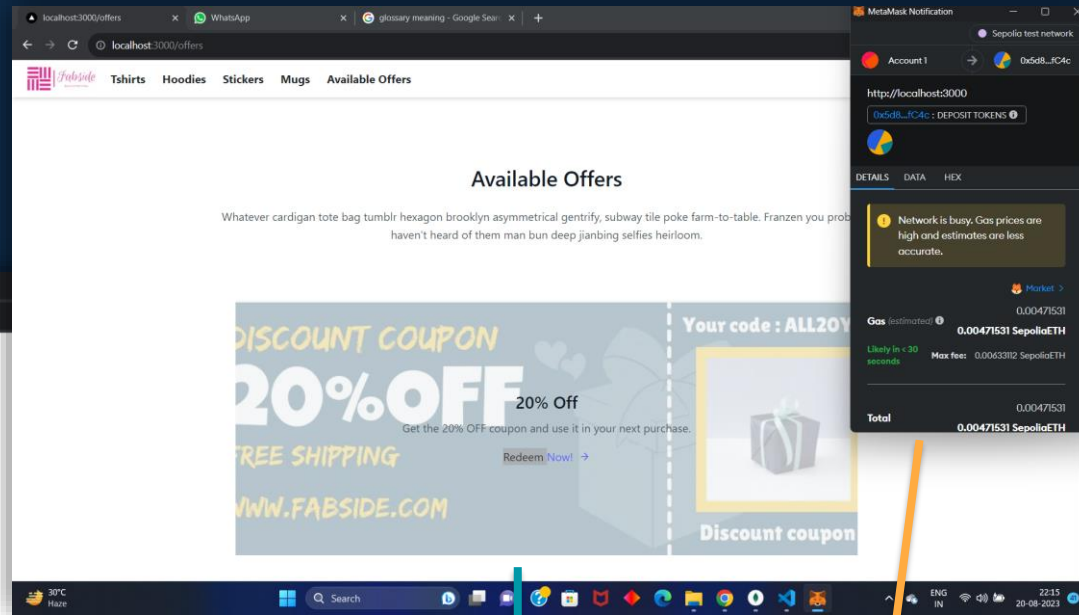
The rewards or loyalty tokens that you customer get on our website



Your Loyalty Token: 20.0

Your Wallet Address:

0x262f33b0ea8fc998659ad592c5980a06eebc698e



Coupons based on tokens

Metamask wallet



Transaction done using fungible tokens

Transaction history recorded on blockchain

localhost:3000/loyalty

WhatsApp

loyalty meaning - Google Search

localhost:3000/loyalty

### Your Token Logs

Your Token Transaction log is safe with us.

Method	Time	From	To	Token
Received	12/8/2023 1:05:00 PM	0x5f503fab0811d4defb3bad1d3c843e452cd9bec3	0x262f33b0ea8fc998659ad592c5980a06eebc698e	50 LYT
Received	12/8/2023 1:19:00 PM	0x5f503fab0811d4defb3bad1d3c843e452cd9bec3	0x262f33b0ea8fc998659ad592c5980a06eebc698e	50 LYT
Received	12/8/2023 4:14:48 PM	0x5f503fab0811d4defb3bad1d3c843e452cd9bec3	0x262f33b0ea8fc998659ad592c5980a06eebc698e	50 LYT
Received	12/8/2023 4:28:00 PM	0x5f503fab0811d4defb3bad1d3c843e452cd9bec3	0x262f33b0ea8fc998659ad592c5980a06eebc698e	50 LYT
Received	12/8/2023 11:21:24 PM	0x5f503fab0811d4defb3bad1d3c843e452cd9bec3	0x262f33b0ea8fc998659ad592c5980a06eebc698e	50 LYT
Received	14/8/2023 9:08:36 PM	0x5f503fab0811d4defb3bad1d3c843e452cd9bec3	0x262f33b0ea8fc998659ad592c5980a06eebc698e	50 LYT
Transfer	16/8/2023 12:20:36 PM	0x262f33b0ea8fc998659ad592c5980a06eebc698e	0x5d8cb78e658541775683198f91920d0c3c8bfc4c	20 LYT
Transfer	16/8/2023 12:27:24 PM	0x262f33b0ea8fc998659ad592c5980a06eebc698e	0x5d8cb78e658541775683198f91920d0c3c8bfc4c	20 LYT

localhost:3000/checkout

Phone: 1234567890 District: Mihijam

State: Jharkhand PinCode: 815354

### 2. Review Cart Items

1. LEOTUDE Men's Casual Printed Short Sleeve with Round Neck, Oversized Longline Drop Shoulder, Very Trendy Printed, Boho Style T-Shirt(XL/orange)

SubTotal : ₹499

Coupons

Pay ₹499

Buy With Tokens: 20

MetaMask Notification

Network is busy. Gas prices are high and estimates are less accurate.

Gas (estimated) 0.00445351 SepoliaETH

Liberty In: 30 seconds Max Fee: 0.0069777 SepoliaETH

Transaction done using Metamask

# LIMITATIONS



## GAS FEES

Polygon's Layer 2 solutions may not fully prevent gas fees, impacting loyalty points' value and user appeal during network congestion.



## DATA PRIVACY

Public blockchain storing sensitive data raises privacy concerns; balancing transparency and user privacy is crucial.



## NETWORK RELIABILITY

While blockchains strive for high reliability, unexpected network downtime or delays could impact the user experience and real-time interactions.

# FUTURE SCOPE



## AI INTEGRATION

Incorporating artificial intelligence for personalized rewards, predictive analytics, and user behavior analysis to optimize the rewards program's effectiveness.



## NFT INTEGRATION

Introducing non-fungible tokens (NFTs) for exclusive rewards and experiences, adding uniqueness and collectibility to the loyalty program.



## PARTNERSHIPS

Cross-chain compatibility and partnerships with diverse networks and industries broaden program reach and versatility.

# WHY OUR PROJECT?

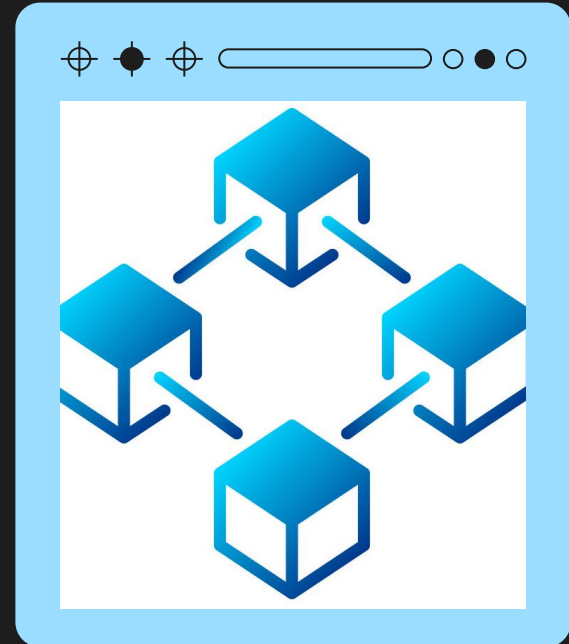
**Enhanced User Engagement:** Our Project provides transparent and rewarding user experience, fostering increased engagement and loyalty.

**Transparency and Trust:** Transactions recorded on the blockchain ensure transparency, building trust between users, brands, and platforms.

**Innovation and Differentiation:** Implementing blockchain sets the program apart, attracting tech-savvy users and positioning brands as innovative.

**Secure and Efficient Settlement:** On-chain settlements streamline transactions, reducing reconciliation time between brands and E-commerce platforms.

**Global Accessibility:** Blockchain's borderless nature enables global participation, appealing to a wider audience and expanding market reach.





**Thank You**