Constructing a Blockchain-Based Loyalty Program Model for Secure and Transparent Customer Rewards in Retail Marketing

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Ch. Anudeep ; Kathari Santosh ; M Sandeep Kumar ; Jahnavi M ; Sabareesh R ; B Kiran Bala **All Authors**

Abstract:
As the retail industry continues to evolve in the digital era, businesses are exploring innovative solutions to enhance customer engagement and loyalty. This research proposes a novel approach to loyalty programs by leveraging blockchain technology to create a secure and transparent model for customer rewards. Traditional loyalty programs often face challenges related to security, transparency, and trust, leading to issues such as fraud and customer skepticism. The proposed model outlines the design and implementation of a blockchainbased loyalty program, ensuring a secure and immutable ledger for tracking customer transactions and rewards. Smart contracts, self-executing contracts with predefined rules, are utilized to automate and enforce the terms of the loyalty program, reducing the potential for disputes and enhancing transparency. The decentralized nature of the blockchain ensures that customer data is securely stored and accessible only to authorized parties, addressing privacy concerns prevalent in centralized loyalty systems. This research employs a mix of theoretical analysis and practical implementation to validate the feasibility and effectiveness of the blockchain-based loyalty program model. The proposed Ethereum Blockchain model stands out with a significantly higher throughput of 5300 transactions per day, accompanied by an exceptional transaction transparency score of 99.5 .

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