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TrueCert: Blockchain based QR Code Generator

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Abstract: *A blockchain-based ID system for certificates uses decentralized ledger technology to issue, store and verify certificates securely. Each certificate is recorded as a unique, tamper-proof entry on the blockchain, which ensures authenticity and prevents forgery. This system enhances transparency, reduces administrative overhead, and allows for easy verification by anyone with access to the blockchain, improving the reliability and efficiency of credential management..*

This paper delves into the transformative integration of blockchain, QR codes, and Firebase Cloud within the domain of document creation and verification. The foundation of this evolution lies in the application of blockchain technology, characterized by its decentralized ledger and smart contracts. Through these features, documents attain an unprecedented level of integrity, facilitated by an indelible digital signature. The inclusion of QR codes as integral components in document verification brings a user-friendly dimension to the process. By being affixed to documents, QR codes act as gateways to corresponding blockchain entries, incorporating essential information such as timestamps and cryptographic hashes. This amalgamation streamlines the verification process, offering both speed and security. The final layer of this technological triad involves the strategic integration of Firebase Cloud, a scalable and real-time cloud database. This addition ensures not only secure storage but also efficient retrieval of blockchain-anchored documents. The synergistic collaboration of blockchain's immutability, QR code-enabled swift verification, and Firebase Cloud's dynamic storage capabilities create a resilient ecosystem, redefining standards in document security, authenticity, and accessibility.

Keywords: blockchain, SHA-256, QR Codes, Transparency, Decentralization, Immutable, Secure Hash Algorithm, Security.