

Empowering Certificate Management with Blockchain Technology

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Abstract: *The rise of online courses and certifications has created new opportunities for individuals to enhance their skills. However, this digital transformation has also given rise to counterfeit certificates. To address this multifaceted issue, we present a comprehensive certificate management system founded on blockchain technology and strengthened by smart contracts. Our innovative system comprises three pivotal components: certificate generation, authenticity verification, and a user-centric digital locker for certificate storage. Blockchain technology underpins the entire system, ensuring the immutability and integrity of each certificate. The inclusion of a cryptographic hash for each certificate is a fundamental aspect of our design. Any alteration in the certificate's data will yield a distinct hash, a powerful indicator of potential tampering. Furthermore, our system includes a secure digital locker based on cloud storage that empowers users to efficiently manage and access all their certificates in one place. Moreover, our project is committed to providing features for certificate revocation and updating, thereby enhancing the system's flexibility and security. Hence, the blockchain and smart contract-based certificate management system offers a robust and one-stop solution to the escalating problem of counterfeit certificates in the digital era*

Keywords: Blockchain technology, Smart contracts, Counterfeit certificates, Authenticity verification, Cryptographic hash, Digital locker

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