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Blockchain-Based Decentralised Transaction Settlement System

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Abstract: *The Blockchain-Based Decentralized Transaction Settlement System offers a secure and transparent method for conducting financial transactions without relying on a central authority. It uses blockchain technology to maintain a distributed ledger, where each transaction is recorded across multiple nodes in a peer-to-peer network. The SHA-256 hashing algorithm ensures data integrity and security by generating unique, tamper-proof hashes for each transaction. Transactions are grouped into blocks and verified through a mining process, which involves solving computational puzzles to achieve consensus across the network. This prevents fraud, double-spending, and unauthorized changes. By eliminating intermediaries, the system reduces transaction costs, increases processing speed, and enhances trust. It is particularly suitable for secure digital payments, asset transfers, and financial settlements.*

Keywords: Blockchain, Decentralized, Transaction Settlement, Distributed Ledger, Cryptographic Algorithms, Peer-to-Peer Network