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RSA based Secure Card Payment System

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ABSTRACT

Secure card payment systems are essential for safeguarding sensitive financial information during online transactions. The RSA algorithm, a widely adopted asymmetric encryption technique, plays a crucial role in ensuring the security and integrity of card payment processes. This research focuses on the application of the RSA algorithm in secure card payment systems.

The research begins by explaining the fundamental principles of asymmetric encryption and the RSA algorithm. It discusses how RSA utilizes a pair of mathematically related keys, namely the public key for encryption and the private key for decryption, to protect the confidentiality and integrity of cardholder data during transmission. The research also examines the performance and efficiency aspects of RSA in card payment systems. It analyzes the computational complexity of RSA encryption and decryption operations, highlighting the need for efficient algorithms and hardware acceleration techniques to ensure real-time transaction processing. In conclusion, the RSA algorithm serves as a cornerstone for secure card payment systems, enabling secure transmission and protection of sensitive cardholder data.