ABSTRACT

One method to protect data is through cryptography, which secures information using encryption processes. This research adopts a two-stage encryption approach to enhance the security of a web-based system. The first stage uses the Camellia algorithm, known for its speed and efficiency, followed by RSA, which employs a public and private key system for additional protection. The objective of this study is to design a two-stage encryption system, evaluate its effectiveness in securing database data, and analyze the testing results. Findings indicate that the system can protect data effectively without disrupting basic CRUD operations. Encrypted data cannot be displayed or modified without going through the decryption process, and this two-stage encryption approach helps preserve the confidentiality of sensitive information even in the event of unauthorized access or attacks on the application layer. With this approach, sensitive data is shown to be better protected against potential misuse. This research is expected to contribute to the development of information security technology and raise awareness of the importance of digital data protection.

***Keywords**: Cryptography, Camellia, RSA, Database Security*