

Implementation of AES-256 Encryption for Data Security on the Desa Cantik Administration Services Website

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ABSTRACT

Village administration services still face various problems, particularly in the management and security of community personal data. Sensitive data such as Population Identification Numbers (NIK), Family Cards (KK), addresses, and administrative documents are potentially subject to leaks and misuse if not protected with adequate security methods. This study uses the Advanced Encryption Standard (AES-256) algorithm as a method for securing community personal data in the village administration service system of the beautiful village program. The purpose of this study is to design and implement a village administration service system that implements encryption and decryption processes using the AES-256 algorithm. Security is implemented by encrypting sensitive data before it is stored in the database so that data access can only be carried out by authorized parties. The system development method used includes the stages of needs analysis, system design, implementation, and decryption testing using Cryptool. The results of the study indicate that the application of the AES-256 algorithm that has been encrypted becomes difficult to decrypt again, thereby improving the security of community personal data and preventing unauthorized access to sensitive information in the village administration service system.

Keywords: *Encryption, AES-256, Data Security, Village Administration Website, DESA CANTIK*