. *IMPLEMENTATION OF THE ADVANCED ENCRYPTION STANDARD (AES) ALGORITHM TO SECURE STUDENT DATA (Case Study: SMP NEGERI 2 PURWADADI)*

MUHAMAD RIVALSYAH GAYO
Informatics Study Program, Faculty of Science & Technology
University of Technology Yogyakarta
Jl. Ringroad Utara Jombor Sleman Yogyakarta
E-mail : danishsidqi030612@gmail.com

ABSTRACT

Confidentiality of student data or personal information is a necessity to prevent access by unauthorized parties. Student data, which includes information such as name, address and date of birth, sometimes needs to be transferred, for example when providing reports to parents. Efforts to maintain the confidentiality of information can be done by using encryption methods, one of which is Advanced Encryption Standard (AES). AES is a cryptographic method that secures data by converting it into a form that can only be read by the owner of the correct secret key. The encryption process makes information difficult for unauthorized parties to access, maintaining data security and integrity. Cryptography, as the science of information security, is very important in the digital era. AES was selected as the new encryption standard in 2001, replacing the Data Encryption Standard (DES) which was considered less secure. AES supports various key lengths, allowing users to choose the appropriate level of security. This algorithm uses a process of combining and substituting bits in 128-bit data blocks, designed for efficiency in encrypting and decrypting even on resource-limited devices. In conclusion, student data security is necessary to protect the confidentiality of information from unauthorized access.

Keywords: AES, security, encryption, cryptography.