

DATA ENCRYPTION AND DECRYPTION APPLICATION FOR ELEMENTARY SCHOOL EXAMINATION QUESTIONS USING AES CRYPTOGRAPHY

***(Case Study: Kauman Elementary School, Wiradesa District,
Pekalongan Regency)***

MUHAMMAD RIZZA FAHLEVI

Informatics Study Program, Faculty of Science & Technology

University of Technology Yogyakarta

Jl. Ringroad Utara Jombor Sleman Yogyakarta

E-mail : nacentareymizard@gmail.com

ABSTRACT

Education is considered the main foundation in developing quality human resources. Evaluation of student achievement through exams is an important aspect in the educational context. However, exam implementation at Kauman State Elementary School still relies on conventional methods, which increases the risk of question leaks. Previous data leak case studies, such as the leaking of national exam (UN) answer keys in several places, show security vulnerabilities in the implementation of exams. This research aims to design a computer-based exam application with the implementation of Advanced Encryption Standard (AES) cryptography. Cryptography is expected to increase the security of exam questions. The AES algorithm was chosen because it is known to be effective and has a high level of security. This application allows teachers to encrypt exam question data when input into the system, maintaining the security of exam data stored in the database. In addition, teachers have the ability to manage student data. Administrators also have an important role in managing teacher and student users, supervising exam questions, and planning and managing exam schedules. It is hoped that this application will not only provide an efficient solution to the risk of question leaks, but also increase the reliability and efficiency of exam implementation at Kauman Public Elementary School.

Keywords: AES Cryptography, Computer Based Exam Application, Exam Question Security.