ABSTRACT

ANALYSIS OF APPLICATION DEVELOPMENT USING RSA AND EL-GAMAL ALGORITHMS IN STEGANOGRAPHY TECHNIQUES WITH THE LEAST SIGNIFICANT BIT (LSB) METHOD

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In today's modern world, everything is developing, because of the internet as a support for activities that are all digital like today. Human activities that were once conventional have now become more effective because of the internet, such as communicating, sending data and so on. However, this development must be accompanied by good security so that the continuity of today's digital activities can run smoothly. The combination of cryptography and steganography is one of the efforts to maintain the security and integrity of the data sent and transmitted. In this research, a comparative analysis of cryptographic algorithms, namely RSA and El-Gamal, which are two public key algorithms and combined with Least Significant Bit as a steganography method and MD5 hash function as an implementation in the construction of data security systems. This research produces a system with the results of the analysis of the RSA algorithm has an advantage in the encryption process with a faster time than El-Gamal, while El-Gamal excels in the decryption process which is faster than RSA. Then in terms of decryption results for RSA is superior because with a higher density of file contents the RSA decryption process is more perfect than El-Gamal. To increase the validity of the system, testing is carried out using the blacbox testing method which focuses on testing the functionality of the system built and shows good results with successful indicators in each test case applied. From the results of the tests carried out, it has been concluded that the system has been successfully built in accordance with the objectives, namely data security and a more effective algorithm is RSA seen in terms of the integrity of the data generated after going through the encryption and decryption process better than El-Gamal.

Keywords: Cryptography, Steganography, RSA, El-Gamal, Hash MD5, Least Significant Bit