ABSTRAK

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Program Studi	: Teknik Informatika
Judul Proposal Penelitian	: Pengimplementasian Metode Kombinasi Steganografi *Least Significant Bit Insertion* (*LSB*) Dan Enkripsi Base64
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Peningkatan keamanan data menjadi imperatif dalam era digital, di mana risiko penyadapan dan akses tanpa izin terus meningkat. Penelitian ini bertujuan mengatasi tantangan ini melalui pengimplementasian metode kombinasi steganografi *Least Significant Bit Insertion* (*LSB*) dan enkripsi Base64. Penggabungan keunggulan steganografi *LSB* dan enkripsi Base64 memiliki potensi untuk meningkatkan keamanan komunikasi online dan penyimpanan data di lingkungan digital yang terus berkembang. Implementasi steganografi *LSB* memungkinkan penyisipan data rahasia ke dalam gambar tanpa merusak visualnya, sementara enkripsi Base64 memperkuat tingkat keamanan data yang disembunyikan. Penelitian ini menitikberatkan pada evaluasi tingkat keamanan, fleksibilitas, dan kinerja sistem. Perbandingan dilakukan antara metode kombinasi *LSB* steganografi dan enkripsi Base64 dengan metode tunggal. Analisis fleksibilitas dan kinerja bahasa pemrograman Python menjadi fokus untuk memahami kontribusinya dalam pengembangan solusi keamanan data. Hasil yang diharapkan dapat memberikan panduan praktis bagi pengembang dan peneliti dalam mengimplementasikan solusi keamanan data yang efisien.

Kata Kunci: Steganografi, Least Significant Bit Insertion (LSB), enkripsi Base64, keamanan data, Python.

ABSTRACT

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Internship Report Title	: Pengimplementasian Metode Kombinasi Steganografi *Least Significant Bit Insertion* (*LSB*) Dan Enkripsi Base64
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Ensuring data security is paramount in the current digital era, where the risks of eavesdropping and unauthorized access continue to escalate. This research addresses these challenges through the implementation of a combined method of *Least Significant Bit Insertion* (*LSB*) steganography and Base64 encryption based on Python. The integration of the strengths of *LSB* steganography and Base64 encryption has the potential to enhance the security of online communication and data storage in the continually evolving digital environment. The *LSB* steganography implementation allows for the covert embedding of sensitive data into images without compromising their visual integrity, while Base64 encryption enhances the security level of the concealed data. This study focuses on evaluating the security level, flexibility, and system performance. A comparison is conducted between the combined *LSB* steganography and Base64 encryption method and individual methods. The analysis of the flexibility and performance of the Python programming language is emphasized to understand its contribution to the development of efficient data security solutions. The outcomes of this research aim to provide practical guidance for developers and researchers in implementing efficient data security solutions.

Keywords: Steganography, Least Significant Bit Insertion (LSB), Base64 Encryption, Data Security, Python.