

# Encryption and Decryption

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**Abstract:** *In the modern digital era, securing sensitive information is of utmost importance. Encryption and decryption play a crucial role in protecting data from unauthorized access by converting plaintext into unreadable ciphertext and vice versa. Various cryptographic algorithms, such as AES (Advanced Encryption Standard), RSA (Rivest-Shamir-Adleman), and ECC (Elliptic Curve Cryptography), are widely used in securing communications, financial transactions, and personal data. This paper explores the fundamental concepts, types of encryptions (symmetric and asymmetric), key management techniques, and real-world applications. Additionally, we discuss emerging threats and advancements in cryptographic techniques, ensuring robust data security in an increasingly interconnected world*

**Keywords:** Advanced Encryption Standard