**Ministry of Higher Education and Scientific Research**

**University of Babylon**

**Information technology collage**

**Information Security Department**

**Study: morning**

**Project Title:**

# Cloud data encryption

**A Graduate Project Submitted to the department of Information Security of the College of Information Technology, University of Babylon, in Partial Fulfillment of the Requirements for the Bachelor's degree in the Information Security of Information Technology.**

***student preparation***

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# Abstract

The ever-growing reliance on cloud storage necessitates robust security measures to protect sensitive data. This project investigates the effectiveness of the Rivest-Shamir-Adleman (RSA) algorithm for cloud data encryption.

We explore the security challenges inherent in cloud storage, emphasizing unauthorized access, data breaches, and insider threats. The project delves into the principles of RSA encryption, highlighting key generation, encryption, and decryption processes. We analyze the security strengths of RSA based on the mathematical difficulty of factoring large prime numbers.

Security limitations of RSA: Computational overhead for large datasets and potential key size vulnerabilities are addressed.

Alternative approaches: We discuss the potential benefits of hybrid encryption, combining RSA with symmetric algorithms for improved performance.

**The project aims to:** Evaluate the suitability of RSA for cloud data encryption through theoretical analysis and potential performance comparisons with other algorithms (if applicable).