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Multi factor authentication

A Graduate Project Submitted to the Department of Information Security of the College of Information Technology, University of Babylon, in Partial Fulfilment of the Requirements for the Bachelor's degree in Information Security of Information Technology

By
Ahmed haider abd

Supervisor by
Asst lect : Shahad Saleem

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ABSTRACT

This academic work focuses on the design and development of a dual authentication system for Android applications using Firebase technology and the OTP (One-Time Password) algorithm. The system utilizes phone numbers and email addresses as the primary means of authentication. The main objective is to enhance the security level for users accessing Android applications by implementing a two-factor .authentication mechanism based on registered phone numbers and email addresses The proposed system employs the OTP technology, which generates a one-time password that remains valid fo a limited time period. This password is delivered to the user's mobile device through a text message or email. Upon login to the application, the user is prompted to enter the received password to verify their identity. The verification process is executed using the Firebase authentication system, which .ensures secure and encrypted communication between the application and the authentication server The implementation of the proposed system was carried out using the Android Studio development environment. Extensive testing was conducted using various mobile devices and different environments to evaluate the system's performance. The results demonstrated that the proposed system provides a high level of security and protection for users. It offers user-friendly features and exhibits reliable .performance with rapid response times In conclusion, the utilization of binary authentication technology using Firebase and OTP algorithm in Android applications represents a significant enhancement to security and safeguarding of personal data for users. This system can effectively mitigate the risks of hacking and fraud, providing users with a.trustworthy and convenient experience when interacting with Android applications