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| **BATCH AND ROLL NO:** |
| **EXPERIMENT NO.: 03** |
| **TITLE:** Design a mobile application to create the login page using sqlite / firebase |
| **DATE OF PERFORMANCE:** |
| **DATE OF SUBMISSION:** |

**Title:** Design a mobile application to create the login page using sqlite /firebase

**Requirements:**

1 Android studio

2. Sqlite /firebase

**Theory:**

In the rapidly evolving landscape of mobile application development, creating a seamless and secure login experience is a fundamental aspect. The login page serves as the gateway for users to access the application's features and functionalities. Two widely utilized technologies for implementing login systems are SQLite and Firebase.

**SQLite:**

SQLite is a self-contained, serverless, and zero-configuration relational database engine. It is embedded into the mobile application to handle local data storage efficiently. For mobile applications, SQLite provides a lightweight and efficient solution to manage databases directly on the user's device. In this lab, we will explore the integration of SQLite to design a local database for storing user credentials securely.

**Firebase:**

Firebase, on the other hand, is a comprehensive mobile and web application development platform provided by Google. Firebase offers a real-time NoSQL database, allowing for seamless synchronization of data between different devices. Additionally, Firebase Authentication simplifies the process of user authentication, providing a secure and scalable solution for managing user logins in mobile applications.

**Objective of the Lab:**

The primary objective of this lab is to guide you through the process of designing a mobile application login page. You will have the opportunity to choose between two robust technologies: SQLite for local database storage or Firebase for a cloud-based solution. By the end of this lab, you should be proficient in implementing a secure and user-friendly login system in your mobile application.

**Lab Prerequisites:**

* Basic understanding of mobile application development concepts.
* Familiarity with the chosen development environment (e.g., Android Studio).
* Prior knowledge of programming languages such as Java (for Android)

**Steps:**

**Using SQLite:**

**Step 1: Set Up SQLite Database**

* Create a SQLite database to store user credentials.
* Define a table structure to hold user information, including fields such as username and password.
* Implement methods to create, read, update, and delete user records in the SQLite database.

**Step 2: Design the Login Page UI**

* Create a login page UI with input fields for username and password.
* Include a "Login" button that triggers the authentication process.

**Step 3: Authenticate User**

* Retrieve user input from the login page.
* Query the SQLite database to verify the entered username and password.
* Grant access if the credentials are valid; otherwise, display an error message.

### **Common Steps:**

**Step 1: Handle User Input**

* Implement error handling for invalid inputs on the login page.
* Validate and sanitize user input to enhance security.

**Step 2: Test Your Implementation**

* Test the login functionality thoroughly, considering various scenarios (valid and invalid credentials, edge cases).
* Debug and resolve any issues that may arise during testing.

**Step 3: Enhance Security**

* Implement secure coding practices to protect user data.

**XML Code:**

**JAVA Code:**

**Output:**

#### Conclusion:

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