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TITLE : Brute force attack on login page

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Introduction

In the modern digital age, web applications are often targeted by attackers using techniques such as **SQL Injection** to manipulate backend databases and gain unauthorized access to sensitive data. This project aims to design and implement a **secure login system** that prevents such attacks using **prepared statements** in PHP and MySQLi.

The frontend is built using **HTML and CSS**, focusing on a clean and stylish user interface, while the backend leverages secure coding practices to ensure robust protection against SQL Injection.

Objective

- To develop a stylish and secure login system for users.
- To protect the backend from SQL Injection attacks using PHP prepared statements.
- To enhance user experience with a modern, responsive frontend.
- To demonstrate good coding practices in web security and design.

Tools Used

- HTML/CSS/PHP
- KALI
- BROWSER

Methodology

1. **Environment Setup**
    - Installed and started Apache and MySQL services in Kali Linux.
    - Created a MySQL database named secure_db with a users table.
2. **Frontend Development**
    - Designed a responsive and aesthetic login page using HTML and CSS.
    - Used clean UI design principles for better usability.
3. **Backend Development**
    - Connected the login form to the PHP backend (login.php).
    - Implemented **prepared statements** in PHP using MySQLi to prevent SQL injection.
4. **Testing**
    - Attempted normal logins with valid and invalid data.
    - Simulated SQL injection attempts (e.g., ' OR '1'='1) and verified that the system blocked them

Conclusion

This project successfully demonstrates the creation of a **secure login system** that is both user-friendly and protected against common security vulnerabilities like **SQL Injection**. By using **prepared statements** in PHP and maintaining a clean frontend, this system ensures safety and usability. Such systems are essential for any real-world application that deals with user authentication and data protection.