SAFEACCESS AUTHENTICATION PROTOTYPE

ITEC85B:Information Assurance and Security1 Final Project

PROJECT PURPOSE

Problem:
- Weak or outdated authentication in many systems
- Unsafe password storage practices
- Missing CSRF and brute-force protection
- Legacy hashing without secure migration
- Risk of unauthorized access and data breaches

Solution:
- SafeAccess as a secure authentication prototype
- Modern password hashing (password_hash)
- CSRF protection and prepared statements
- Rate limiting and CAPTCHA
- Secure legacy password migration

PROJECT OBJECTIVES

- To design and implement a secure authentication prototype
- To demonstrate best practices in user registration and login
- To showcase modern security controls in a practical system
- To support legacy password migration while improving security

SYSTEM OVERVIEW

- Frontend: PHP pages, JavaScript, CSS
- Backend: PHP authentication & security logic
- Database: MySQL (single users table)

AUTHENTICATION FLOW

- Registration: Validate input, hash password, store user
- Login: Verify password and migrate legacy hashes
- Security checks: rate limiting, CAPTCHA, sessions

SECURITY FEATURES

- Password hashing & verification
- CSRF protection
- Prepared SQL statements
- Rate limiting & CAPTCHA
- Session hardening & logging

TECHNICAL STACK

- Password hashing & verification
- CSRF protection
- Prepared SQL statements
- Rate limiting & CAPTCHA
- Session hardening & logging

CONCLUSION

- SafeAccess successfully demonstrates a secure authentication prototype
- Implements modern security best practices:
  - Password hashing and verification
  - CSRF protection
  - Prepared statements
  - Rate limiting and CAPTCHA
  - Session hardening and logging
- Supports legacy password migration while improving overall security
- Provides a secure-by-default foundation for authentication systems
- Identifies clear improvements needed for production deployment

THANK YOU