

School of Computing & Information Sciences

Fall 2025 Senior Design Project

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Engineering
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CyberSafeGuard

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Problem

Many people use the internet every day but don't understand basic cybersecurity.

This makes them easy targets for phishing, malware, weak passwords, and other attacks.

There is a need for a simple, beginner-friendly website that teaches cybersecurity in small, interactive steps.



Requirements

Functional Requirements

- Users can view cybersecurity topics in short learning modules.
- Each module has an interactive quiz at the end.
- The system tracks user progress and quiz scores.
- Admin can add, edit, or delete modules and quiz questions.

Non-Functional Requirements

- Website must be easy to use on desktop and mobile.
- Pages should load quickly and be responsive.
- System should handle multiple users at the same time.

System Design

- Architecture:
 - Web application using a three-tier structure:
 - Presentation layer: front-end (HTML, CSS)
 - Application layer: back-end (Javascript)
- Main Components:
 - Learning modules manager (view list, view details).
 - Quiz engine (questions, answers, scoring).
 - Progress tracker (stores completed modules in local storage, scores).
 - Cybersecurity news article API usage to foster information gathering habits for cybersecurity learners.
 - Cyber tips banner

Object Design

Example key objects/classes:

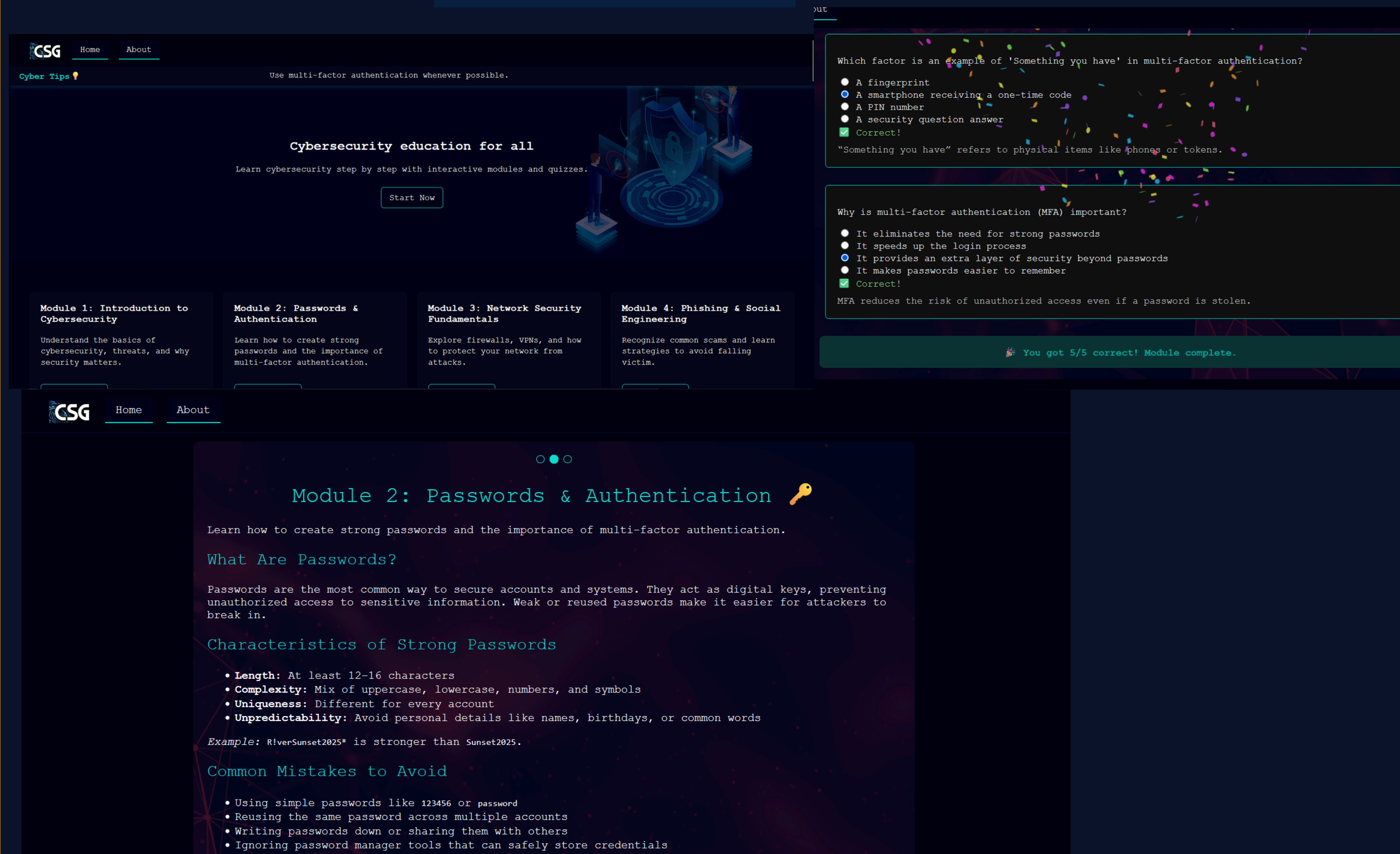
- Class: Module
- Attributes: module_id, title, description, content, difficulty_level
- Methods: getContent, updateContent
- Relationships: One Module can have many Quizzes linked by module_id
- Class: Quiz
- Attributes: quiz_id, module_id, time_limit
- Methods: startQuiz, submitQuiz, calculateScore
- Relationships: Each Quiz belongs to one Module and contains multiple Questions
- Class: Question
- Attributes: question_id, quiz_id, text, options, correct_answer
- Methods: checkAnswer
- Relationships: Each Question belongs to one Quiz
- Class: Progress
- Attributes: progress_id, user_id, module_id, quiz_score, completion_status, date_completed
- Methods: updateProgress, getUserProgress
- Relationships: Each Progress record ties a User to a Module and its Quiz results

Implementation

- Front-End:
 - HTML and CSS for layout and styling.
 - JavaScript for interactive elements (quiz submission, progress bars, validation).
- Security Measures:
 - HTTPS, Data stored in local storage, No use of password or emails.



Screenshots



Summary

CyberSafeGuard is a simple, beginner-friendly website created to help users understand essential cybersecurity topics. It teaches concepts like phishing, safe browsing, passwords, and malware through short modules that are easy to read and follow. Each module includes an interactive quiz so learners can test their understanding and build confidence as they progress. The platform also tracks user completion and scores, allowing people to learn at their own pace and return to lessons whenever they need a refresher.

The project demonstrates key IT skills, including web development, and system architecture. It uses a clean layout, and an organized structure that makes it easy to update modules or add new topics. Overall, CyberSafeGuard is designed to make cybersecurity education accessible, engaging, and practical for everyday users who want to stay safe online.