

CIRCLE10 STUDY APP

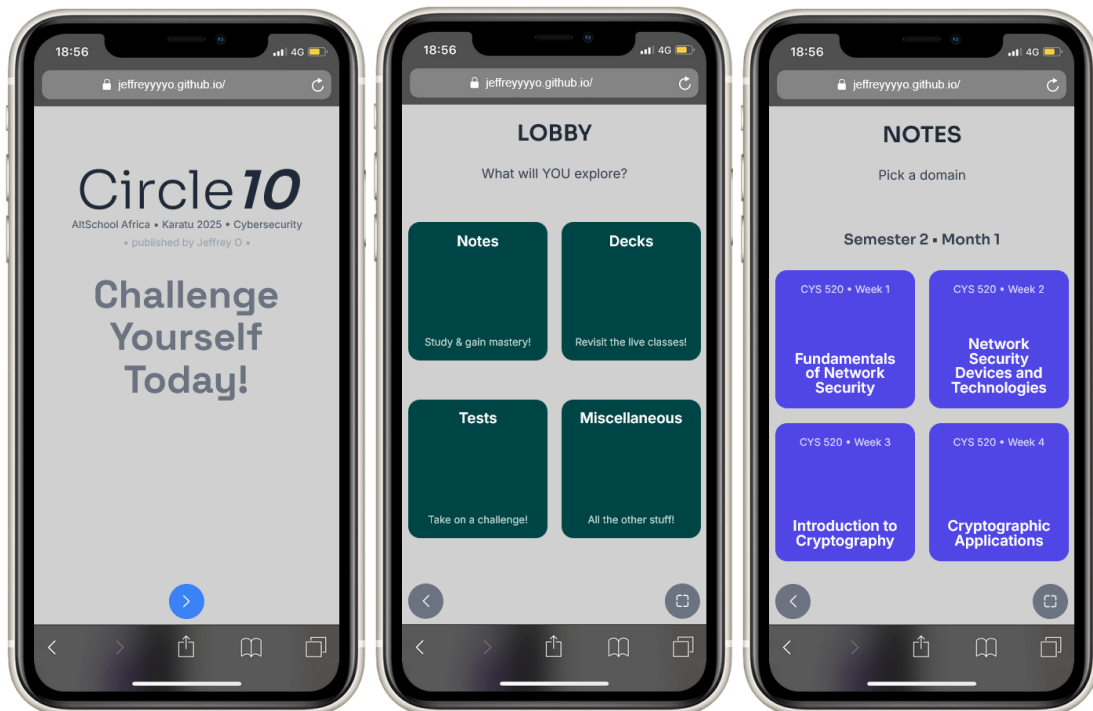
Web App Architecture, Design & Development

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Circle10 Study App Dev

Link: https://jeffreyyygo.github.io/Circle10_v2/

Circle10 is a lightweight, mobile-first, and highly optimized web application designed to help Cybersecurity students at AltSchool Africa access course materials, lecture transcripts, and test quizzes on-the-go—unbound by the limitations of location, resources, or bandwidth.



*From left to right: **1.** The minimalist and welcoming frontpage of the Circle10 Study App, inviting students to challenge themselves today. **2.** The main lobby interface providing structured, quick access to Notes, Decks, Tests, and Miscellaneous study materials. **3.** The Notes Lobby organized by semester and month, making it easy to locate specific domains like Network Security or Cryptography.*

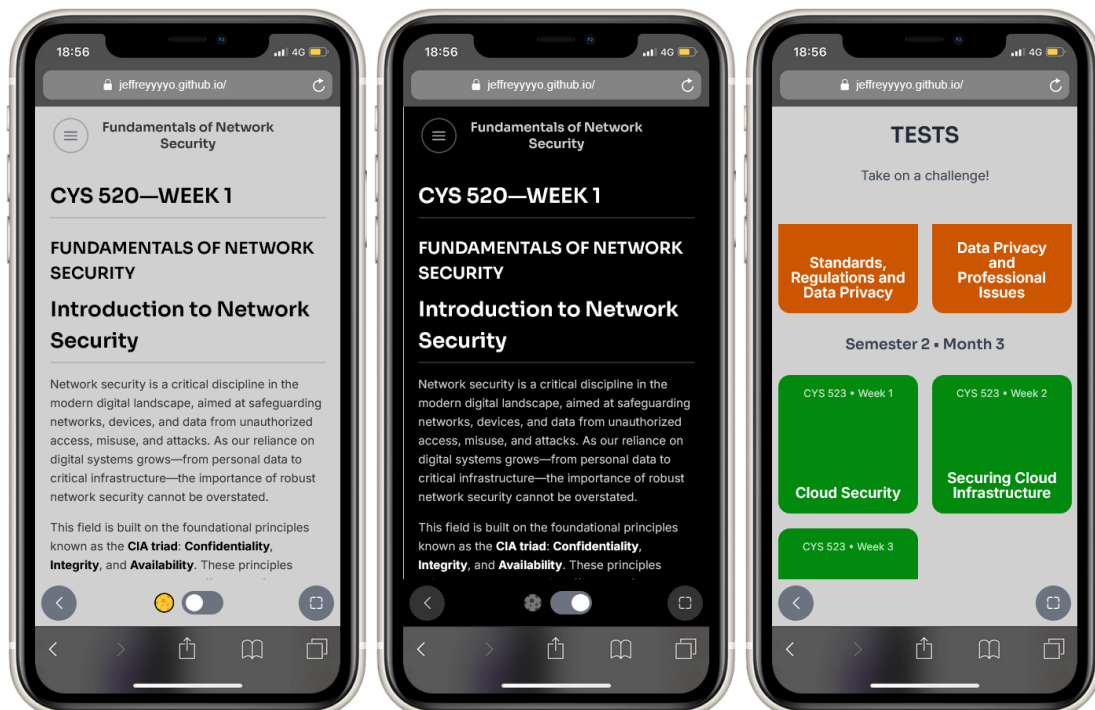
The Backstory: From Problem to Solution

As a Cybersecurity student at AltSchool Africa (Karatu 2025 cohort), I noticed a recurring challenge: the course's Learning Management System (LMS) relied heavily on video lectures. This made studying incredibly difficult when away from a desk or in areas with limited data and network connectivity. Scrubbing through hours of video just to find a specific concept was tedious, and many of my classmates voiced similar frustrations during town hall meetings.

Iteration 1: "Panels" (July 2025) My first solution was manual. I began transcribing the weekly lecture videos and sharing them with my colleagues. Shortly after, I built "Panels"—the very first iteration of this app. It was a basic HTML application that hosted test quizzes for the first two weeks of material. As schoolwork intensified, I paused app development but continued releasing the weekly transcripts.

Iteration 2: Circle10 (October 2025 - Present) I decided to start from scratch, embarking on a self-taught journey through UI/UX design, database management, software architecture, and resource management. Inspired by my background in Architecture, I adopted a philosophy of **Minimalist Modernism**. I prioritized core functionality while engineering the system architecture to severely reduce bloat, weight, and management complexity.

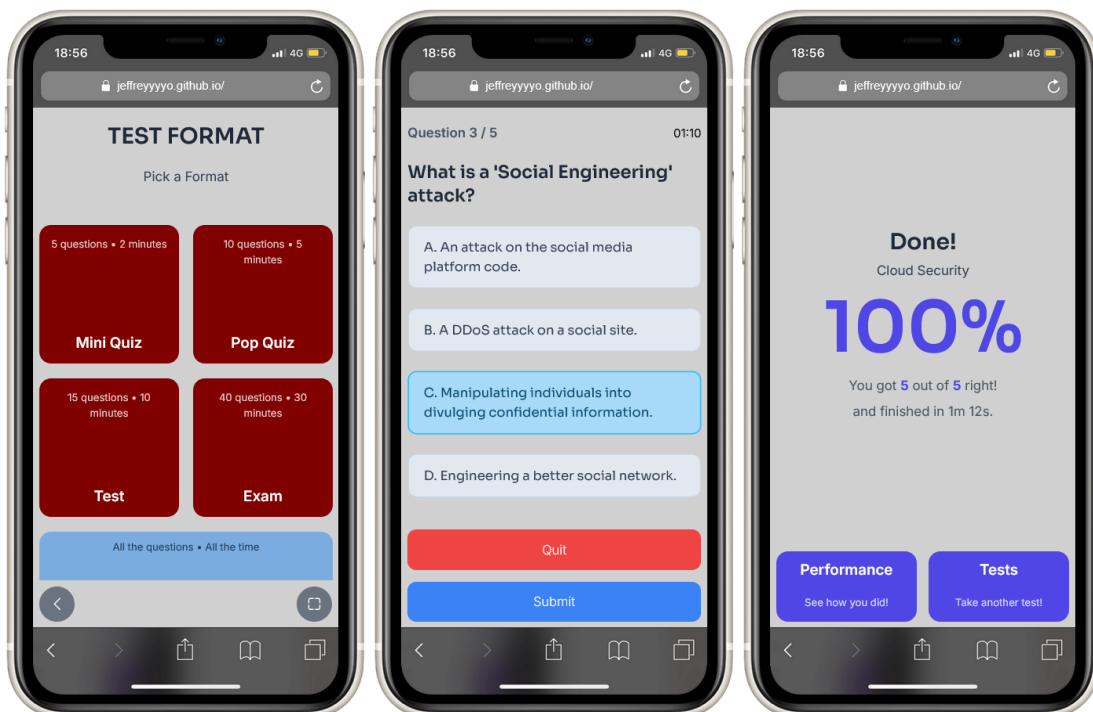
Today, Circle10 serves as a comprehensive study companion that not only helps my current cohort but will remain a valuable resource for future learners.



From left to right: 1. The beautifully formatted Notes Reader page, parsing markdown files dynamically into a clean, highly readable layout. 2. A seamless Dark Mode experience on the Notes Reader page, fully optimized for comfortable late-night study sessions without straining the eyes. 3. The Tests Lobby where users can select specific cybersecurity modules to put their knowledge base to the test.

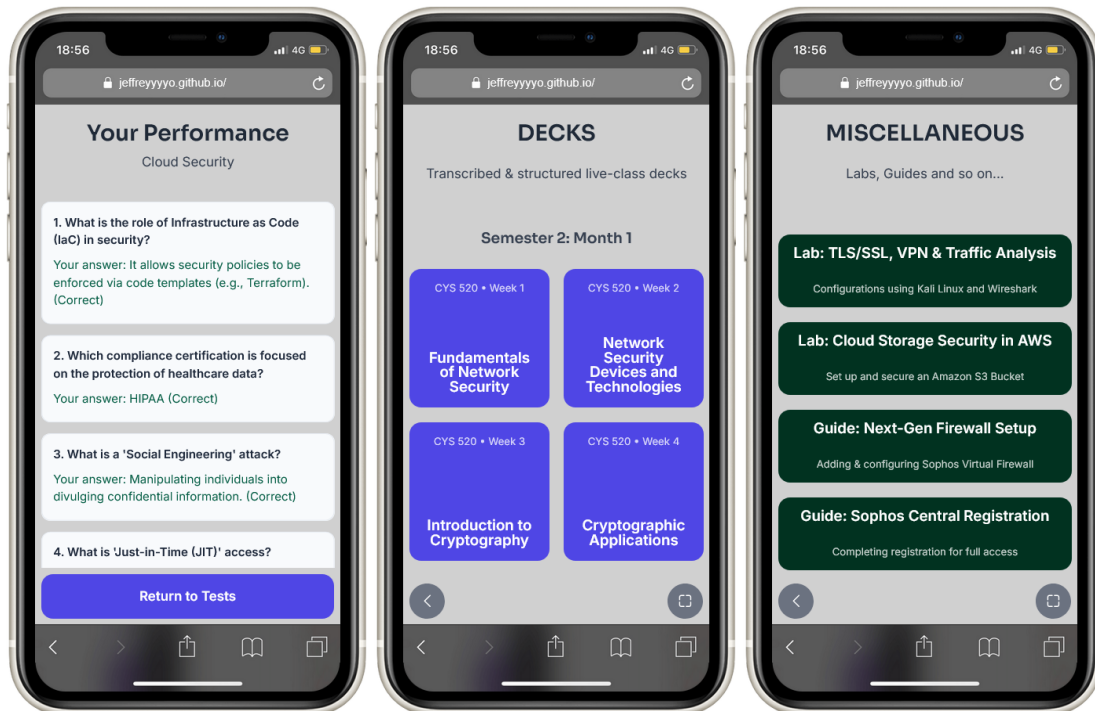
Features

- **Offline-Friendly Architecture:** By migrating away from heavy video files to structured text (Markdown) and local JSON data, the app uses a fraction of the bandwidth, making it accessible anywhere.
- **Rich Markdown Reader:** Seamlessly read through domain-specific notes, live-class deck transcriptions, lab guides, and official checklists. Includes a dynamically generated Table of Contents and a **Dark Mode** toggle for late-night studying.
- **Customizable Quizzes:** Test your knowledge with dynamically loaded question pools. Choose your format:
 - *Mini Quiz* (5 questions / 2 mins)
 - *Pop Quiz* (10 questions / 5 mins)
 - *Test* (15 questions / 10 mins)
 - *Exam* (40 questions / 30 mins)
 - *Surfing Mode* (Unlimited time and questions)



From left to right: **1.** The Test Configuration Page allowing students to tailor their assessment format, from a quick Mini Quiz to a full Exam or an unlimited Surfing Mode. **2.** A clean, distraction-free test screen interface focusing entirely on the current question alongside a built-in timer. **3.** The final Test Score Screen delivering instant performance metrics, including percentage scores, correct answers tally, and total time taken.

- **Performance Tracking:** Get immediate post-quiz breakdowns, showing exactly what you got right, what you missed, and the correct answers.
- **Distraction-Free UI:** A fluid, app-like mobile experience with smooth screen transitions, fullscreen toggles, and zero image bloat (exclusively using SVGs and CSS).



From left to right: **1.** The Your Performance Page showing students the details of their test performance, providing an opportunity for review. **2.** The Decks Lobby where users can select the class decks sorted by Cybersecurity modules. **3.** The Miscellaneous Lobby where students can access documented steps for Cybersecurity labs, guides for project execution, and other helpful school and learning materials.

Technical Architecture & Design Philosophy

Minimalist Modernism

The design eliminates unnecessary weight. Instead of using external image files for icons, the app utilizes inline SVGs. The UI is built with **Tailwind CSS** to maintain a clean, modern aesthetic without the overhead of heavy component libraries.

The Migration from Firebase to GitHub

Initially, Circle10 used Firebase to host external dependencies. This taught me a lot about API keys, Node.js, OOP, and database security (a lesson underscored by the infamous 'Tea' app data breach). However, to prioritize ease of management and rapid content updates, I migrated the entire stack to GitHub.

Data Management

The app functions as a Single Page Application (SPA) that fetches its content dynamically. New weeks of learning transcripts, test question pools, cybersecurity labs, and project

guides can be added simply by dropping `.md` or `.json` files into the local `/data/` directory—requiring zero changes to the core HTML engine.

- **Core Engine:** Pure HTML, CSS (Tailwind), and Vanilla JavaScript.
- **Content Rendering:** [Marked.js](#) for parsing Markdown files into HTML.
- **Hosting:** GitHub Pages.

Impact

As of December 2025, Circle10 has integrated Google Analytics to measure usage and reach. The platform has successfully supported **133 unique users across 9 different countries**, proving its value as a decentralized, low-bandwidth educational tool.

Built with love for the AltSchool Africa Cybersecurity Cohort.