GitHub Link: https://github.com/jeffsummer08/LearnX/
Audit Trail: https://github.com/jeffsummer08/LearnX/commits/
Web application link: https://safetyhero.onrender.com/
Google Drive link:
https://drive.google.com/drive/folders/1YsNTKHyIQxPQm4tJbVwIAY5UwOFPgBGy

The issue:
With the globalized issue of lacking digital security in children and teenagers throughout, SafetyHero is meant to combat this issue through teaching and allowing for a learning journey with a curriculum tied to engaging in safe online learning. As these issues are consistently overlooked, due to social media and different platforms continuing to leech onto society's devices, we provide an outlet for change and awareness. These issues need to be addressed in a manner that not only provides this awareness but also provides solutions for anyone who remains unaware or in need of guidance.

How we combat this:
Moreover, we use basic knowledge to provide easy understanding and ensure our message and content get across to audiences. Additionally, we made the website open-source to allow anyone and everyone to be able to learn from anywhere. In addition to our cutting-edge website UI, our mobile interface helps users without access to formal computers to access and learn from our learning platform. This accessibility feature remains important for other educational platforms and can provide students with better support. To connect with students and learners of all ages, the website is designed with different content tailored to each subgroup and meant to teach students about the importance of remaining safe online. Utilizing these implementations of tailored curriculum and easy accessibility, Safety Hero can be used in various settings such as schools, workplaces, and homes. By promoting enhanced knowledge and information about cybersecurity, we plan to spread awareness and maintain the rules of online safety for all.

The other initiatives we took:
Additionally, by taking the initiative, we have reached out to elementary and middle schools, who plan to implement our content and learning pathways to continue teaching students about safe online practices. Throughout the experience, we have seen local students transform into more secure users in a, now more than ever, interconnected world, benefiting their daily lives with technology. Further, we look to expand from a localized into a larger scope through social media and outreach programs. Using recent events through blogs and educational writing, we provide support beyond just a website; our Instagram blog and website (@cybersoci3ty and https://www.cyber-society.tech/) have represented other channels to engage with the audience and provide information and support in connective ways and integration with Safety Hero represented a key form of further expansion and creativity to engage with users.

ACCOUNT DETAILS:

- **Administrator credentials**
  - **Email: superuser@super.com**
  - **Password: superuser123**
- **Teacher credentials**
  - **Email: test@teacher.com**
  - **Password: teacher123**
- **Student credentials**
  - **Email: test@student.com**
  - **Password: student123**

***Additional Teacher and Student accounts can be made through the signup forms, however, staff accounts cannot be for security purposes**

Page Design:

- The frontend organization of elements across the screen lays an intuitive design for the end user to use the site.
- Our colorful logo is targeted toward younger audiences and we keep the following colorful theme throughout the rest of the website:
  - #DB27F2
  - #2731F2
  - #35D0F2
  - #F2B705
  - #F21F0C

- Our images and page file size are optimized for performance.
- All grammar, spelling, and punctuation are accurate to normal American grammar conventions.
- Text across the website is easily readable and the contrast between text, images, and the background allows for easy navigation and readability. Additionally, the website is tested to work even for those who are colorblind and have difficulty viewing traditional sites.

Customer Functionality:

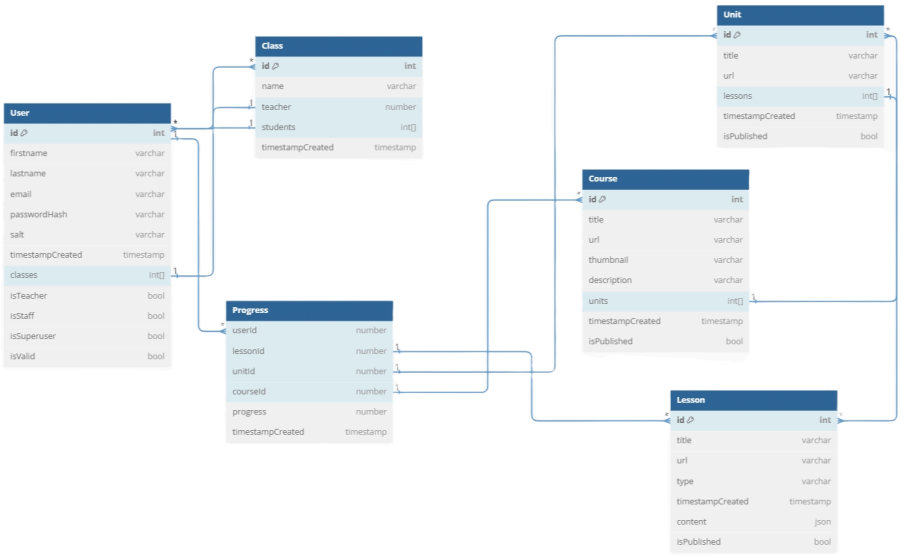
- We use dynamic routing to ensure that routes are automatically created when new courses, units, and lessons are published
- Users are always instructed on what to input for every input form across the site.. The frontend filters for XSS (Cross-site scripting attacks) and the backend revalidates.

- We utilize features of Tailwind CSS to implement responsive design and ensure browser compatibility, consistent styling, and flexibility.
- There is a search feature in the course listings

Database Development:

- We use a PostgreSQL database to store our user and content data, and we utilize Firebase/Google Cloud Storage APIs to store course thumbnails so that our database only has to store the download URL for images and not the entire file.
- We made a conceptual database schema, correctly implemented into the application
- Our database schema is minimally redundant.
- We use the pbkdf2 algorithm set to 15000 iterations hashing with SHA512 and a unique, cryptographically random seed so that even if our database were to leak, attackers would be unable to utilize pre-computed lookup tables as every password is encrypted with a unique seed.

Database Schema



Application Design:

- We use express-session to manage sessions and maintain our application state. Even through application crashes, session data is maintained through the PostgreSQL database
- All form fields across the web application take input validation
- Our application is split into a front-end server running a React application, and a backend server running an Express application. Whenever sensitive data is required, the frontend sends the session token (stored in a cookie) to the backend where the token and associated permissions are validated before returning sensitive data or performing requests that require certain permissions.

- In addition, we catch errors when they occur and use custom error pages appealing to our target users
    - 404: A 404 page means that the web page you were looking for couldn't be found. Just like in online safety, sometimes things don't go as planned, but we're here to guide you in the right direction!
    - 500: Oops! It looks like our server encountered an issue while trying to load this page. Our team of Safety Heroes is on the case to ensure everything runs smoothly.
    - 403: Uh-oh! Access to this page is forbidden, just like some online areas might be off-limits for safety reasons. We'll help you find the right path.

Administration & Application Functions:

- Teachers can see the full progress reports of the students that are in their course. The reports include the score the student received for every attempt at any quiz
- We have a password-protected content management system that staff have access to built off our authentication and session management systems
- Staff can:
    - create/edit/delete courses & upload thumbnails for them
    - create/edit/delete units
    - create/edit/delete lessons
    - Lessons can be of type quiz, text, or video
- Every lesson published to every unit in every course has the option to be published and not published. Proper error reports from the backend are given to the user in the top right-hand corner of the screen with integrated animations in case something fails.
- Staff can add, modify, and delete content (lessons, units, and courses) as they see fit.