🎯 Project Goal & Scope

Goal

The goal of this project is to enhance and build on the present codebase of an interactive textbook by fixing existing issues, optimizing performance, adding new content, and improving data analysis.

Key Deliverables and Tasks

🔧 Resolve Current Errors

The client would like us to make sure the codebase from last year's development team contains no errors, so users can access the platform as expected. To achieve this, our task is to:

- Review and test the codebase thoroughly to identify and document existing errors
- Debug and fix issues that affect the functionality of the application
- Perform testing under multiple cases to ensure no new issues will be introduced

⚡ Reduce Loading Time

As requested by our client, the current version of the online textbook seems to be operating with a bit of lag, which includes response time and UI flow. Therefore, to achieve the goal of improving performance, our team would:

- Analyze the existing backend code and identify causes of inefficiencies
- Implement query optimization, caching mechanisms to reduce response time
- Assess the need of switching to a different database
- Measure response time changes to ensure improvements are made

🖥️ Improve Usability

The client would like us to include or add any features we could think of that will potentially improve user experience. Therefore, our team should:

- Analyze what user-level improvements could be made from the existing version of the application (Table of content / Dark mode)
- Verify with client for approach with client / collect feedback
- Implement features and ensure compatibility / functionality through testing

📚 Adding Content

The client would also like to add 3 more chapters to the online textbook, which already has around 5 existing chapters. Therefore, our task would be:

- Design new pages by following the structure and style of existing chapters
- Include all requested content (media, text) into the database
- Ensure successful content display, and correct format

📊 Implement User Analytics

The client would like to understand how users interact with their product, which requires implementation of some analytical features and data collection mechanisms. Therefore, our task would be:

- Implement analytics tools to collect user behaviour data (Visit stay time, Number of views, Country accessed from)
- Present analytics collected on the platform

Requirements

💻 Technical Requirements

- The development environment requires an **authentication account to login in to Clerk**.
- The front-end programming language should be written in **TypeScript and JavaScript** while under the framework of **React and Next.js**.
- The interface is implemented with **Tailwind CSS and PostCSS** to create a responsive application.
- The backend development of the application is hosted under **Vercel**, providing a fast and scalable web application.

💭 Non-Technical Requirements

- The videos in the interactive textbook should start playing **as soon as the user presses the "play" button**.
- All the context and images in the interactive textbook should be **well-formatted and displayed completely for readability**.
- The interactive textbook should visualise **data analytics about user behaviour** on the interactive textbook.
- The interactive textbook should be **used conveniently in low-light environments** and **provide additional functions to adjust font size**.