Project ID: 24

Project Title
Cross-Platform App For Brain Training & Education With Offline Functionality

Client Name
Client: Stronger Brains Supervisors: Gelareh Mohammadi From Unsw And Wendy Haigh From Stronger Brains

Group Capacity
2 groups

Project Background
Stronger Brains is a pioneering, Australian not-for-profit dedicated to the goal of breaking the cycle of intergenerational disadvantage by identifying youth at risk through brain assessments and empowering them through a brain-based education and training program. Discoveries in neuroscience explain how a brain exposed to trauma and toxic stress is affected, impacting the ability to function effectively on a daily basis. Stronger Brains engaged Capstone students (T1_2025) to commence the design of a specialised App. for the existing online portal and Brain Training App.
The Project is bigger than one Capstone, and to assist in the completion, there is a Phase 2. T1 teams created a cross-platform application using a mobile device management tool. It is anticipated that T2 teams will work on:

- User Interface (UI), User Experience (UX), including modernising graphics and integrating a paper-based workbook into an interactive online program
- Develop Teacher/Administrator tracking of user data, analytics and reporting.
- Continue the work on a secure platform (working offline/online)

Project Scope
In T1, two groups worked on developing an app for the Stronger Brains Brain Training Program. However, due to the time limitation, they could not fulfil all requirements, and the developed app by each team still has some shortcomings in addressing the goals above. We hope that the T2 teams use the developed solutions from T1 and enhance them towards fulfilling the listed goals, and potentially use and combine the best practices from each solution to come up with a better interface that modernises the application's user interface and graphics, improves user experience for both students and educators who use the system, and digitisation of existing paper-based workbook into an interactive online module integrated within the app. Moreover, it is important to ensure secure user data handling and

to develop robust offline/online functionality for usability in low-connectivity environments.

Project Requirements

1. User Interface (UI) Modernisation
- Design and implement a visually modern, intuitive interface consistent across platforms (iOS, Android, web).
- Adopt responsive design principles to ensure accessibility on various screen sizes and devices.

2. User Experience (UX) Enhancement
- Streamline navigation and user flow for both students and educators.
- Include in-app feedback and help features to support independent use.

3. Interactive Digital Workbook Integration
- Convert the existing paper-based workbook into a fully interactive digital module.
- Store workbook progress persistently for each user, synced across devices.

4. Teacher and Administrator Features
- Create dashboards for educators to monitor individual and group student progress.
- Provide exportable reports (PDF, CSV) with insights into user engagement, progress, and completion.
- Include notifications or alerts for teachers when students are inactive or falling behind.
- Role-based access control: different views and permissions for students, teachers, and admins.

5. Offline/Online Functionality
- Enable core features to work offline.
- Design automatic sync mechanisms to upload user progress and data when a connection is restored.

6. System Integration and Code Reuse
- Review and assess the solutions developed by the two T1 teams.
- Select and integrate best practices, reusable components, or architectural elements from each to enhance the final solution.

7. Testing and Documentation
- Perform usability testing with mock users (e.g., role-played students and educators).
- Conduct functional and regression testing to verify core feature stability.
- Deliver technical documentation (codebase, architecture, API references) and user manuals for handover to Stronger Brains.

Required Skills

a. Frontend Development
b. Backend & Database
c. Data Security & Authentication
2. UI/UX and Design Skills

Expected Outcomes

- Source code, report, user guide

Disciplines

Software Development;Web Application Development;Mobile Application Development;Human Computer Interaction (HCI);Security/Cyber Security;Computer Science and Algorithms;Big data Analytics and Visualization;

Other Resources

None