

Project Number: 28

Project Title: Stronger Brains: Cross-Platform App for Brain Training & Education

Project Clients: Gelareh Mohammadi, Wenjie Zhang, Wendy Haigh

Project specializations: Software Development; Mobile Application Development; Cloud Computing; Security/Cyber Security; Web Application Development; Computer Science and Algorithms; Human Computer Interaction (HCI);

Number of groups: 2 group

Main contact: Gelareh Mohammadi, Wenjie Zhang, Wendy Haigh

Background:

Stronger Brains is an Australian not-for-profit organization dedicated to breaking the cycle of intergenerational disadvantage through brain-based education and training programs. Research in neuroscience, led by Dr. Michael Merzenich, has shown that the brain can be trained and strengthened, particularly for youth affected by trauma and toxic stress.

Currently, Stronger Brains has a web-based program that provides brain training and educational support for disadvantaged youth. To expand accessibility and impact, the organization aims to develop a cross-platform mobile application that integrates with its existing online portal and Brain Training App.

Requirements and Scope:

Below is the full scope of the project, but given the short duration of the project, this scope could be adjusted:

- Develop a Cross-Platform Mobile App
- The app should be available on iOS and Android.

Enable Offline Access

- The workbook content (100 lessons across 20 weeks) should be accessible without an internet connection.

Secure Online Brain Training

- Internet-based brain training exercises should be available, but with a firewall restricting general internet access.

Support Student & Teacher Functionality

- Students can engage with lessons and brain training activities.

- Teachers/Administrators can track student progress, including hours spent, exercises completed, and responses to daily questions.

- Seamlessly Integrate with Existing Backend

- The new app must connect to the current web portal and database.

Required Knowledge and skills:

1. Platform & Compatibility

- Cross-Platform Support: The app will be developed for both iOS and Android using a cross-platform framework (e.g., Flutter, React Native) replicating the current web application of the stronger brains and should be functional.

- User Interface (UI) & User Experience (UX): A simple, intuitive, and engaging design optimized for students and teachers.

2. User Roles & Access Levels

A) Student Users (Primary Users)

- Access Training Modules: Students should be able to access and complete brain training exercises.

- View Progress: Students can track their own learning progress.

B) Teachers/Administrators (Secondary Users)

- Dashboard & Analytics: Admin users can view student engagement, brain training hours, and exercise completion.

- Monitor Student Progress: Teachers can track individual and group progress, including responses to daily questions.

C) System Administrators (Stronger Brains Team)

- Manage User Access: Ability to assign and modify student/teacher accounts.

- Data Management: Maintain backend data, user progress, and system updates.

3. Offline Functionality

- Workbook Lessons Accessible Offline

4. Online Functionality & Security

- Firewall for Brain Training Component; The app must allow students to access internet-based brain training activities while restricting access to any other parts of the internet.

5. Integration with Existing System

- Data Syncing: All user progress, exercises, and reports should be stored in the existing backend/database.
- API Integration: The app should use APIs to fetch and sync data with the current system.

Expected outcomes/deliverables:

Fully functional Stronger Brains Cross-Platform App

Source Code & Documentation

User Manual for students, teachers, and administrators

Final Report & Presentation to showcase project outcomes