Project Name: DOST STARBOOKS: Whiz Challenge

Scope Statement

Project goal and objectives

The main goal of the STARBOOKS Whiz Challenge project is to build an improved, gamified version of the original STARBOOKS quiz app to make Science and Math learning more fun, interactive, and accessible, especially for students in underserved areas. It's designed as an offline-first learning platform that runs on existing DOST kiosks, so students can play and learn even without internet.

The app includes four game modes, a rewards and badge system, player progress tracking, and a redesigned admin dashboard with helpful tools like AI-powered quiz generation and learning analytics. We also aim to make the app more user-friendly and exciting, so that more students are encouraged to explore STEM topics through STARBOOKS.

One of our key goals is to keep everything fully functional offline, while still allowing optional features like cloud syncing and multiplayer battles for schools with internet access. The final target is to fully deploy the system by June 2026, in partnership with DOST-STII, starting with selected STARBOOKS kiosks.

Project Boundaries

Within scope:

- User registration and login system for tracking individual player progress
- Four game modes available:
    - Whiz Challenge (Solo Quiz – offline)
    - Whiz Memory Game (offline)
    - Whiz Puzzle (offline)
    - Whiz Battle (1v1 Quiz Showdown – requires internet for game code matchmaking)
- Science and Math subject categories with three difficulty levels (Easy, Average, Difficult)
- Badge and reward system to recognize player achievements and boost motivation
- Player statistics dashboard showing earned

badges, scores, best time, accuracy, battle history, win rate, and more

- Admin panel with functionalities to:
    - Manage player and admin lists
    - Manage quiz questions with AI-assisted question generation using OpenAI
    - Set number of questions, scores, and timer for each difficulty level
    - Manage badges and reward claiming
- View and export game analytics
    - Total registered players
    - Player Registration Trend
    - Most Played Game Mode
    - Most Played Level Per Game Mode
    - Top Category
    - Average Session Duration
    - Reward Claims Summary
- Data is stored locally first and syncs to the cloud when internet becomes available

Out of scope:

- No integration with the main STARBOOKS digital library system
- No mobile or tablet version; limited to kiosk deployment only
- No topic-specific categories for Whiz Memory Match; only default STARBOOKS-related icons are used

- Only jigsaw-type puzzles are supported in Whiz Puzzle; other puzzle formats (e.g., word games) are not included
- No image customization for memory and puzzle games; game assets and settings are fixed and cannot be modified by admins
- Whiz Battle is limited to 1v1 public matchmaking via game code; private rooms and other multiplayer formats are not yet supported
- No player-specific analytics; the admin dashboard displays only overall trends and summary statistics across all users

Project Deliverables

- **Gamified Learning App (Kiosk Version):** This is the main educational app we're developing for STARBOOKS kiosks. It includes four fun and interactive game modes: Whiz Challenge (solo quiz), Whiz Memory Game, Whiz Puzzle, and Whiz Battle (1v1 multiplayer quiz).
- **Offline-First Setup:** The system is designed to run completely offline, which is perfect for areas with little or no internet. Online features like multiplayer battles, AI-generated questions, and syncing only activate when internet is available.
- **Player Module:** This part handles everything for the students, like registration, managing their profiles, tracking their progress, collecting badges and rewards, and saving their data locally with automatic syncing when possible.
- **Admin Dashboard (Kiosk-Based):** A simple, easy-to-use panel for admins where they can manage quiz questions, monitor how the games are being used, track badge progress, and even auto-generate new questions using AI tools.
- **Database Structure:** We'll use PostgreSQL through Supabase to manage player records, game results, rewards, and content.
- **Testing and Documentation:** We'll provide complete documentation, including user guides, and setup instructions so that DOST-STII and other partners can easily install and manage the app.
- **Deployment Package:** Everything needed to install and run the app on STARBOOKS kiosks.

Success Criteria

- **All Game Modes Working Smoothly:** All four game modes should work properly on the STARBOOKS kiosks, with smooth gameplay, correct scoring, and reliable offline support.
- **Offline-First with Syncing:** The app should fully function offline, except for multiplayer battles and admin AI tools, which will automatically sync or activate when internet becomes available.
- **Easy-to-Use Admin Dashboard:** The admin panel should be simple enough for non-technical users to

manage quizzes, view game analytics, and use the AI-powered question generator without problems.

- **Compatible with Current Kiosks:** The app should run well on the existing STARBOOKS kiosk hardware.
- **Good Feedback from Users:** During pilot testing, students and teachers should give positive feedback, saying the app is fun, easy to use, and helps them learn.
- **Stable and Bug-Free Deployment:** When we install the final version, everything should work without major bugs, crashes, or data issues.
- **Approval from DOST-STII:** The DOST-STII team should review the final product and confirm that it meets their standards, goals, and fits well into the STARBOOKS environment.
- **Delivered On Time:** All development stages from coding to testing and deployment should follow the timeline, with the full system ready and launched by June 2026.

Project Assumptions

- The existing STARBOOKS kiosks can run the new app smoothly and already meet the basic hardware requirements.
- DOST-STII will continue to support the project by giving us access to important documents, technical guidance, and feedback as we go through each phase.
- Students and admins using the system are expected to have basic digital skills, so they can navigate the app without needing heavy training.
- The free and open-source tools we're using for development will remain stable and supported at least until the system is officially launched.
- While full-time internet may not be available, we assume there will be occasional internet access to allow syncing, updates, and multiplayer gameplay when needed.

Project Constraints

- **Time:** We need to stick to our planned schedule and make sure the project is fully finished and ready to launch by June 2026.
- **Technology:** All the tools, platforms, and frameworks we use must be free or open-source, and they should run well on the current STARBOOKS kiosk hardware.
- **Connectivity:** The system has to be offline-first, meaning it should work without internet. Only a few features, like multiplayer battles and AI tools, will need internet access.
- **Collaboration:** Since DOST-STII is supporting us as technical consultants, we'll need to work around their availability and office schedule when it comes to meetings and feedback.
- **Team Capacity:** Our team is made up of students who also have other academic responsibilities, so our progress depends on how much time and manpower we have outside of schoolwork.