**PWA AI Lesson Scheduler Overview:**

The AI Voice Lesson Scheduler helps manage one-on-one lessons by using Google Forms for student input, Google Sheets for data storage, and the Google Calendar API for scheduling and notifications.

We’re switching from a Web App to a Progressive Web App (PWA) for a cost-effective, cross-platform solution. Unlike a traditional web app, the PWA eliminates backend and hosting costs, working seamlessly across iOS, Android, and desktop. It leverages free platforms like GitHub Pages or Netlify for deployment, ensuring easy access and smooth functionality for all users.

**Problem Statement**

Managing one-on-one voice lessons with manual scheduling can be time-consuming. The goal is to create a **lightweight, accessible scheduling system** using a PWA that integrates **Google Forms** for student input and **Google Calendar** for syncing schedules. This eliminates the need for complex backends and ensures access on **any device** (iOS, Android, Desktop).

**Key Features in the PWA Version**

1. **Google Forms for Student Input**:
   * Students submit their **name, lesson category, top 3 preferred time slots, and frequency** through a Google Form.
   * Data is automatically saved to **Google Sheets**.
2. **Google Sheets as the Data Source**:
   * The teacher uses the **Chrome extension or PWA interface** to fetch and view student submissions from Google Sheets.
   * This removes the need for a complex backend or database.
3. **AI-Driven Scheduling Suggestions (Simplified)**:
   * Basic **rule-based logic** or Google Apps Script suggests the best time slots based on student submissions and availability.
   * **Priority is given to earlier submissions** (first-come, first-served).
4. **Teacher Finalization**:
   * The teacher reviews and **finalizes the schedule** via the PWA or extension interface.
   * Once finalized, the schedule is **synced with Google Calendar** for both the teacher and students.
5. **Google Calendar Sync and Notifications**:
   * Finalized lessons are **automatically added to Google Calendar**.
   * Teachers and students receive **notifications** for upcoming lessons and cancellations.
6. **Cancellations with Optional Messages**:
   * Students or teachers can **submit cancellations via the PWA interface** or an additional Google Form.
   * **Optional messages** can be sent along with the cancellation to notify the other party.
7. **Missed Lesson Tracking and Post-Lesson Notifications**:
   * After each lesson, both teacher and student receive **notifications to confirm** if the lesson took place.
   * Missed lessons are **logged in Google Sheets**.
8. **Post-Confirmation Error Handling**:
   * If errors are identified after finalization, the teacher can **reopen the schedule** and make corrections.
   * Changes are automatically synced with **Google Calendar**.

**New System Workflow**

1. **Accessing the PWA**:
   * Students and teachers access the **PWA through a shared link** (hosted on GitHub Pages or Netlify).
2. **Submitting Lesson Preferences via Google Forms**:
   * Students complete the **Google Form**, providing their name, lesson category, top 3 time preferences, and frequency.
3. **Reviewing and Finalizing Schedules**:
   * The teacher accesses the **PWA or Chrome extension** to view submissions from Google Sheets.
   * The teacher finalizes schedules and confirms lessons through the PWA interface.
4. **Syncing with Google Calendar**:
   * Once finalized, the schedule is **automatically synced** with Google Calendar for both parties.
5. **Notifications and Cancellations**:
   * **Post-lesson notifications** ask both parties if the lesson took place.
   * Cancellations and make-ups are managed through the PWA or Google Forms.

**Technical Components**

1. **Google Forms**:
   * Collects student data and stores it in **Google Sheets**.
2. **Google Sheets**:
   * Acts as a **database** for lesson preferences and missed lessons.
3. **PWA (Progressive Web App)**:
   * **Front-end interface** for teachers to manage schedules.
   * Hosted on **GitHub Pages** or **Netlify**.
4. **Google Calendar API**:
   * Syncs lesson schedules and sends notifications.
5. **Service Worker** (for PWA):
   * Ensures offline availability and caching for better performance.