**AI Voice Lesson Scheduler: Current Version Overview**

This project is a **web-based scheduler** designed for students to book voice lessons with their teacher, integrated with **Google Calendar**. The system simplifies lesson scheduling through **AI-driven time suggestions** and provides flexibility for private and conservatory students, while ensuring that the teacher has the final say in confirming lesson times.

**Problem Statement:**

The manual scheduling of one-on-one lessons between students and teachers is time-consuming and prone to conflicts. Teachers struggle to manage student preferences, enforce lesson limits, track missed lessons, and reschedule make-ups all at the same time. Moreover, my survey has found that teachers and spend more of their time dealing with administrative issues, especially scheduling, than actually helping or teaching students. An automated solution that integrates with Google Calendar and provides AI-driven scheduling suggestions would simplify this process, ensuring flexibility for both conservatory and private students while reducing administrative burdens.

**Current Features and Structure:**

**1. No Registration or Accounts:**

* Students can access the scheduler via a shared link, without the need to create accounts.
* Instead of registering, students simply provide:
  + **Full Name**
  + **Lesson Category** (e.g., Curtis, MSM, Bard, Private Studio, Consultation)
  + **Top 3 Preferred Time Slots** (for their lessons)

**2. Language Selection (English and Mandarin):**

* The scheduler allows students to select their **preferred language** (English or Mandarin) at the start.
* All interface text and email notifications will be displayed in the chosen language.

**3. Student Input Form:**

* Students enter their **basic information** using a form:
  + Name
  + Lesson Category (e.g., Curtis, MSM, Bard, Private Studio, Consultation)
  + Preferred time slots (top 3 choices)
  + For **private studio students**, they can also choose lesson frequency:
    - **Once**
    - **Weekly**
    - **Biweekly**
    - **Monthly**

**4. AI-Driven Time Slot Suggestions:**

* Once a student submits their preferences, the system will use **AI** to suggest **weekly schedules** that optimize the teacher’s availability based on all student submissions.
* The AI considers each student’s preferred time slots and prioritizes earlier submissions (first-come, first-served).

**5. Teacher Finalization:**

* The **teacher reviews the suggested schedules** generated by the AI.
* The teacher has the final say on which schedule to confirm.
* Once the teacher finalizes the schedule, the lesson times are locked in.

**6. First-Come, First-Served Scheduling:**

* Students who submit their preferences first are given priority for their preferred time slots.
* If a time slot is taken by an earlier submission, the system suggests the next best available slot to later students.

**7. Swapping Time Slots:**

* The teacher can manually **swap time slots** between two students if a conflict arises or if the students agree to switch times.

**8. Google Calendar Integration:**

* Once the teacher finalizes the schedule, all confirmed lesson times are automatically synced with **Google Calendar** for both the teacher and the students.
* Any changes to the schedule (such as cancellations) are also reflected in Google Calendar in real-time.

**9. Cancellations with Optional Messages:**

* Students and teachers can cancel lessons if needed.
* When canceling, the system allows for an **optional message** to be included, providing context for the cancellation (e.g., “I have a conflict this week, can we reschedule?”).
* The cancellation is sent via email to the other party along with the optional message.

**10. Missed Lesson Tracking:**

* After each lesson, the system sends a **notification** to both the student and teacher asking whether the lesson took place.
* If the lesson is marked as missed (by either party), the system logs this as a **missed lesson**.
* The teacher receives a notification when a lesson is missed, allowing them to follow up with the student to arrange a make-up session manually.

**11. Post-Lesson Confirmation:**

* After the lesson, both the student and teacher are asked to confirm whether the lesson took place.
* If there’s a conflict (e.g., one party says “Yes” and the other says “No”), the system flags the lesson and notifies both the student and teacher to resolve the issue.

**12. Post-Confirmation Error Handling:**

* If an error is discovered after the schedule has been finalized and synced with Google Calendar, the teacher can **reopen the schedule** to correct the mistake.
* Once the error is corrected, the system automatically updates **Google Calendar** and sends updated confirmation emails to the affected students.

**13. Private Student Features:**

* **Private students** follow the same **Fall and Spring semester structure** as conservatory students but have no lesson cap (unlike conservatory students, who have 14-15 lessons per semester).
* Private students can schedule lessons with different frequencies:
  + **Once**
  + **Weekly**
  + **Biweekly**
  + **Monthly**

**Current System Workflow:**

1. **Accessing the Scheduler**:
   * A student accesses the scheduler via a shared link and is presented with an interface to choose their **preferred language** (English or Mandarin).
2. **Submitting Lesson Preferences**:
   * The student provides their **name**, **lesson category**, and **preferred time slots**.
   * For private students, they also select how frequently they want lessons (once, weekly, biweekly, monthly).
3. **AI-Driven Time Slot Suggestions**:
   * The system processes the submission in real-time and suggests lesson times based on availability and student preferences, giving priority to students who submit first.
4. **Teacher Finalization**:
   * The teacher receives the AI-generated suggestions and reviews the schedule.
   * The teacher finalizes the schedule, locking in the lesson times.
5. **Google Calendar Sync and Confirmation**:
   * Once finalized, the lesson times are added to both the teacher’s and students’ **Google Calendar**.
   * The student receives a confirmation email with the lesson details.
6. **Missed Lesson Tracking**:
   * After each lesson, the system asks both the student and teacher to confirm whether the lesson took place.
   * Missed lessons are logged, and the teacher is notified to arrange make-ups if needed.
7. **Cancellations with Optional Messages**:
   * Either party can cancel lessons, with the option to include a message explaining the reason for cancellation.
   * The system automatically updates Google Calendar and sends an email notification to the other party with the cancellation details.

**Summary of Key Features:**

* **Language Selection**: English and Mandarin options.
* **Student Input Form**: Simple, no-registration form for student details and lesson preferences.
* **AI Scheduling**: Real-time AI-driven time slot suggestions based on student preferences and availability.
* **Teacher Finalization**: The teacher reviews and finalizes the schedule.
* **Google Calendar Integration**: Syncs lesson times with Google Calendar.
* **Cancellations**: Includes an optional message when canceling, with email notifications.
* **Missed Lesson Tracking**: Logs missed lessons and notifies the teacher.
* **Post-Lesson Notifications**: Confirms whether lessons took place and flags conflicts.
* **Post-Confirmation Error Handling**: Allows the teacher to reopen and fix schedules if needed.
* **Could be used for anytime of one-on-one lesson types**: Specifically Voice Lessons for now.

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**Next Steps for Implementation:**

1. **Set up the basic Flask app** (with the student input form).
2. **Implement AI-driven scheduling logic** and **Google Calendar integration**.
3. Add the **teacher finalization feature**, allowing the teacher to review and lock in the schedule.
4. Develop the **cancellation system with optional messaging** and **post-lesson notifications** for missed lessons.
5. Ensure the system logs **missed lessons** and handles **post-confirmation errors** through manual reopening and corrections.

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