# **SpeakEase - Collaborative Language Learning Platform - Documentation**

## **1. Introduction**

### **Project Overview**

The **SpeakEase** platform is an interactive application designed to connect language learners with native speakers, providing structured lessons, quizzes, cultural insights, and real-time communication features like chat and video calls. The platform enhances the language learning experience through social interaction and gamification.

## **2. Features and Functionality**

### **2.1 User Authentication**

* **Google Sign-In** and **Manual Signup** options.
* A user-friendly form capturing:
  + Basic user info (name, phone number, email, profile picture, etc.)
  + Native language
  + Language interests and learning goals
  + Availability for learning sessions

### **2.2 Main Dashboard**

* **Lessons & Progress Tracking**
  + Interactive lessons with points and badge rewards.
  + Personalized learning path based on user goals.
  + **YouTube video recommendations** for deeper learning on specific topics.
* **Quizzes & Assessments**
  + Quizzes after each lesson with a point-based system.
  + Standalone quizzes for deep topic learning.
  + Hints for each question to encourage fast learning.
* **Mentorship & Community Interaction**
  + **Real-time Chat** using **Firebase Firestore**.
  + **Video Calls** via **Google Meet integration** (future integration with Twilio or Daily.co for native calls).
  + **Discussion Forums** per language for peer-to-peer learning.

### **2.3 User Roles & Permissions**

* **Student:**

Can access lessons, participate in quizzes, engage in community discussions, and chat with mentors.

* **Tutor:**
  + Can create new lessons and quizzes.
  + Can provide video references, Books and presentations.
  + Can add additional content to existing lessons.
  + Cannot delete lessons or admin content.
  + Can provide feedback and recommendations for lesson improvement.
* **Admin:**
  + Has full access to the platform.
  + Can approve tutor feedback and integrate suggested changes.
  + Manages users, content, and platform-wide settings.

### **2.4 Special Features**

* **Fast Learning** for travelers (Learn core words for survival).
* **Video classes** with worldwide tutors.
* **YouTube video references.**
* **Books, Presentations and Worksheets.**
* **Rating System** for lessons and tutors.
* **Gamification Elements**: Achievements, Leaderboards, Progress bar.
* **Questions of the day (**A random questions from learned topics**)**

## **3. Technical Implementation**

### **3.1 Technology Stack**

| **Component** | **Technology** |
| --- | --- |
| **Frontend:** | HTML, CSS, JavaScript |
| **Backend:** | Python (Flask) |
| **Database:** | Firebase Firestore |
| **Version Control:** | Git |
| **Deployment:** | AWS or Render |

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### **3.2 Real-Time Features**

* **Chat:** Firebase Firestore for instant messaging.
* **Video Calls:** Google Meet API for instant meeting link generation.
* **Gamification & Progress Tracking:** Firestore database updates with real-time synchronization.

### **3.3 Google Meet Integration**

* Uses Google Calendar API to create & share meeting links.
* Automatically schedules video calls with mentors.
* Users receive Google Meet links via email or in-app notifications.

## **4. Future Enhancements**

* Integration of **Twilio Video API** or **Daily.co** for in-app video calling.
* AI-based **Personalized Learning Recommendations**.
* AI-based **Chat**.
* Speech recognition for **Pronunciation assessments**.
* Expanding language learning materials with **AI-generated quizzes**.
* Monthly / Yearly **Subscription-based model**.

## **5. Project Goal**

The **SpeakEase** platform aims to revolutionize language education by blending structured learning with real-time communication and gamification. With its interactive approach, learners can engage with native speakers, track their progress, and stay motivated through a dynamic learning experience.