**SYSTEM GENERAL LAYOUT**

**PROGRAM STRUCTURE**

**General Structure**

**/ai-teaching-system**

**│── /frontend # User Interface (React/Vue)**

**│ ├── /components # Reusable UI components**

**│ ├── /pages # Pages (e.g., Home, Lessons)**

**│ ├── /assets # Images, sounds, animations**

**│ ├── App.js # Main React/Vue component**

**│ ├── index.js # Entry point**

**│── /backend # Backend API (Node.js/Flask)**

**│ ├── /routes # API endpoints**

**│ ├── /controllers # Business logic**

**│ ├── /models # Database models**

**│ ├── /services # AI services (speech, text, etc.)**

**│ ├── server.js # Main backend entry**

**│── /database # Database configurations**

**│ ├── db.js # Connection to MongoDB/PostgreSQL**

**│── /config # Configuration files**

**│ ├── env.js # API keys & environment variables**

**│── /scripts # Utility scripts**

**│── package.json # Project dependencies**

**│── README.md # Documentation**

**User FrontEnd  
/frontend**

**│── /public # Public assets (favicon, index.html)**

**│── /src # Source code for the frontend**

**│ ├── /components # Reusable UI components**

**│ │ ├── Header.js # Navigation bar**

**│ │ ├── LessonCard.js # Displays lesson topics**

**│ │ ├── MicButton.js # Speech input button**

**│ │ ├── TextToSpeech.js# Handles speech synthesis**

**│ │ ├── Footer.js # Footer section**

**│ │**

**│ ├── /pages # Page-level components**

**│ │ ├── Home.js # Homepage with introduction**

**│ │ ├── Lessons.js # Displays available lessons**

**│ │ ├── LessonDetail.js# Individual lesson view**

**│ │ ├── Settings.js # User preferences (e.g., voice settings)**

**│ │**

**│ ├── /assets # Static files (images, sounds, animations)**

**│ │ ├── logo.png # App logo**

**│ │ ├── background.mp3 # Background sound**

**│ │ ├── animations/ # Animated assets (JSON files for Lottie)**

**│ │**

**│ ├── /utils # Utility functions**

**│ │ ├── speechRecognition.js # Handles voice input**

**│ │ ├── textToSpeech.js # Handles text-to-speech**

**│ │ ├── api.js # API calls to backend**

**│ │**

**│ ├── App.js # Main component (root UI structure)**

**│ ├── index.js # Entry point, renders the app**

**│ ├── styles.css # Global styles**

**│── package.json # Dependencies and scripts**

**│── README.md # Documentation**

**Logout**

/frontend

│── /public

│ ├── index.html # Main HTML file for React/Vue

│ ├── manifest.json # Web app manifest (for PWA support)

│ ├── favicon.ico # App favicon

│── /src

│ ├── /components

│ │ ├── Header.js

│ │ ├── LessonCard.js

│ │ ├── MicButton.js

│ │ ├── TextToSpeech.js

│ │ ├── Footer.js

│ │ ├── Button.js # Reusable button component

│ │ ├── Modal.js # Reusable modal for popups

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│ ├── /pages

│ │ ├── Home.js

│ │ ├── Lessons.js

│ │ ├── LessonDetail.js

│ │ ├── Settings.js

│ │ ├── NotFound.js # 404 Page (if a route is not found)

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│ ├── /assets

│ │ ├── logo.png

│ │ ├── background.mp3

│ │ ├── animations/

│ │ ├── icons/ # Custom icons

│ │

│ ├── /utils

│ │ ├── speechRecognition.js

│ │ ├── textToSpeech.js

│ │ ├── api.js

│ │ ├── helpers.js # Common helper functions

│ │ ├── constants.js # Constants (e.g., API endpoints, settings)

│ │

│ ├── /hooks # Custom React hooks

│ │ ├── useSpeech.js # Custom hook for speech input/output

│ │ ├── useAuth.js # Custom hook for authentication

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│ ├── /context # Global state management

│ │ ├── SpeechContext.js # Context for managing speech state

│ │ ├── UserContext.js # Context for managing user data

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│ ├── /routes # App routing setup

│ │ ├── AppRoutes.js # Handles routing configuration

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│ ├── /store # State management (if using Redux/Zustand)

│ │ ├── speechSlice.js # Redux slice for speech features

│ │ ├── userSlice.js # Redux slice for user state

│ │

│ ├── App.js

│ ├── index.js

│ ├── styles.css

│── .env # Environment variables (API keys, etc.)

│── package.json

│── README.md

│── .gitignore # Files to ignore in Git