LastMin AI - Web Version Feature & Implementation Plan

This document outlines how LastMin AI can be built as a web-based platform so that multiple users

Core Features & Components:

1. File Upload & Parsing: PDF, DOCX, TXT parsing using pdf-parse & mammoth.js.
2. AI Notes & Question Bank Generation: Hugging Face API (free tier) or local AI model.
3. Quiz & Flashcard Mode: Auto-generate MCQs, 2/5/10-mark questions, true/false, fill-in-the-blank
4. Resource Finder: YouTube API for tutorials, DuckDuckGo Search for relevant websites.
5. Doubt-Solving Chatbot: Rasa/Botpress or Hugging Face for conversational QA.
6. Multi-User Support: Authentication via Firebase Auth / Supabase Auth.
7. Data Storage: Firebase Firestore / Supabase for storing generated content.
8. PDF Export: html2pdf.js to allow users to download notes & questions.
9. Sharing: Link or QR-based sharing of generated study materials.
10. Scalability: Host backend on Render/Vercel, frontend on Vercel/Netlify.

Implementation Plan:

1. Set up React + Tailwind frontend for file upload, display, and chat UI.
2. Create Node.js + Express backend with endpoints for parsing, AI generation, search, and chat.
3. Integrate Hugging Face API for generation tasks.
4. Connect YouTube API & DuckDuckGo search for resource links.
5. Implement Firebase Auth for multi-user login/signup.
6. Store generated notes, questions, and user data in Firebase Firestore.
7. Deploy backend on Render (free tier) and frontend on Vercel.
8. Add html2pdf.js for exporting generated materials.
9. Test with multiple users for performance & load handling.
10. Release public beta for feedback and scaling.

LastMin AI - Phase Two Roadmap

Core Purpose: To supercharge last-minute exam preparation using AI by making it more collaborative, personalized, accessible, and engaging.

1. Real-Time Collaborative Study

Purpose: Enable students to co-create notes, solve doubts, and quiz each other in real-time.

Impact: Brings peer learning to the platform, replacing WhatsApp/Google Docs chaos.

Feature: Shared workspaces, live note editing, comment threads.

2. Subject-Specific AI Tutors (Personas)

Purpose: Build trust and familiarity by simulating a "human-like teacher" for each subject.

Impact: Makes explanations feel more relatable and less robotic.

Feature: E.g., Prof. Sharma (Physics), Dr. Iyer (Biology), etc.

3. Gamified Quizzes & Leaderboards

Purpose: Motivate students with rewards, competition, and streaks.

Impact: Boosts engagement and helps track improvement through fun.

Feature: Daily quiz battles, XP points, rank boards.

4. Offline Mode & PWA Support

Purpose: Allow studying without internet access.

Impact: Perfect for remote areas or travel situations.

Feature: Downloadable notes, flashcards, and quizzes with local cache.

5. Voice Interaction (Speech-to-Text / TTS)

Purpose: Add accessibility and convenience for all users.

Impact: Helpful for visually impaired or students on the move.

Feature: Voice commands, audio answers, dictation support.

6. Predictive Study Recommendations

Purpose: Make LastMin AI truly smart by learning user patterns.

Impact: Boosts retention by focusing on weak topics first.

Feature: AI suggestions, adaptive difficulty, next-topic prediction.

7. Visual Learning Enhancements

Purpose: Support diagram-based subjects like Biology, Geography, etc.

Impact: Makes abstract content clearer and more engaging.

Feature: Diagram analysis, image-based flashcards, drag-and-label practice.

8. Note Versioning & History

Purpose: Track changes, recover older notes, and allow branching ideas.

Impact: Promotes organized and error-proof study material.

Feature: Version tree, compare versions, rollback feature.

9. Mobile App (React Native / Flutter)

Purpose: Expand reach and accessibility on the go.

Impact: Improves user retention and push-notification-driven learning.

Feature: Native mobile interface for both Android and iOS.