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FANTOMCODE '25

24-Hour National Level Hackathon

EnginSync: Cognitive Nexus

Team Name: RCB

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PROBLEM STATEMENT

Engineering education faces fragmentation, inefficiency, and a gap between academic learning and industry demands.

Key Issues:

- Scattered Resources: Students juggle multiple platforms for notes, textbooks, videos, practice, and career prep.
- One-Size-Fits-All Learning: Traditional methods often fail to cater to diverse learning styles and paces.
- Passive Textbook Engagement: Dense textbooks are often underutilized; understanding deep concepts is challenging.
- Theory-Practice Gap: Academic knowledge isn't always directly mapped to required job skills.
- Declining Engagement: Maintaining motivation throughout rigorous engineering programs is difficult.

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EnginSync: Cognitive Nexus

An Integrated AI-Powered Solution for Academic Excellence and Career Readiness

EnginSync:Cognitive Nexus is a unified web platform integrating all aspects of an engineering student's journey.

Core Features:

- Multimodal Academic Assistance: Which allows students to learn through different modes based on their personal style of learning.
- Job Search Integration: Connects with job search APIs to help students find relevant opportunities based on their skills and interests.
- Adaptive Placement Training: Customized modules (technical, aptitude, soft skills, interviews) based on tracked academic skills and career goals, along with an Interview Preparation System, which generates personalized technical interview questions based on user supplied resume.
- AI integrated Planner - Get customized study plans based on your goals.
- DSA Preparation Module: Allowing for students to enhance their DSA skills based on their interests.

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How EnginSync Addresses the Problem

- **Scattered Resources -> Unified Platform:** Integrates learning, tracking, help, textbook interaction, and placement prep.
- **One-Size-Fits-All -> AI Personalization:** Tailors content format, pace, and path to individual style & skill level.
- **Passive Textbooks -> Interactive Textbook Bot:** Enables active learning via chat, summaries, and analysis.
- **Theory-Practice Gap -> Adaptive Placement Training:** Directly links academic skills to job requirements and provides targeted prep.

Innovation & Uniqueness:

- **Holistic Integration:** Combines academic support AND career readiness in ONE adaptive system.
- **Deep Personalization Engine:** Uses a multi-factor approach (style, skill, progress, goals) for dynamic adaptation.
- **AI-Powered Textbook Interaction:** Moves beyond simple search to deep comprehension and analysis.
- **Skill-Bridging Placement Prep:** Uniquely maps academic progress to necessary industry skills for targeted training.
- **Multimodal Content Synthesis:** Potential to auto-generate summaries/audio based on uploaded materials and user preference.

Future Enhancements

1. Gamification & User Engagement - Including achievement systems, leaderboards, and streak rewards
2. Advanced AI Capabilities - Such as personalized learning paths and real-time interview feedback
3. Collaboration Features - Including study groups and peer review systems
4. Content Expansion - Such as interactive coding environments and expanded learning resources

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Monetization Strategy

Multi-Tier Subscription Model

- **Free Tier**

- Limited PDF processing (5 documents per month)
- Basic summarization features
- Access to DSA practice problems (limited selection)
- 3 mock interview sessions per month
- Community access

- **Student Premium (Rs. 200/month)**

- Unlimited PDF processing and summarization
- Full interview preparation system
- Complete DSA practice library
- Unlimited AI study plan generation
- Priority customer support

- **Institution License (Rs. 150/student/month, minimum 50 students)**

- All Premium features for enrolled students
- Administrative dashboard for educators
- Analytics on student progress and engagement
- Customizable content library
- Branded institutional portal
- Bulk user management

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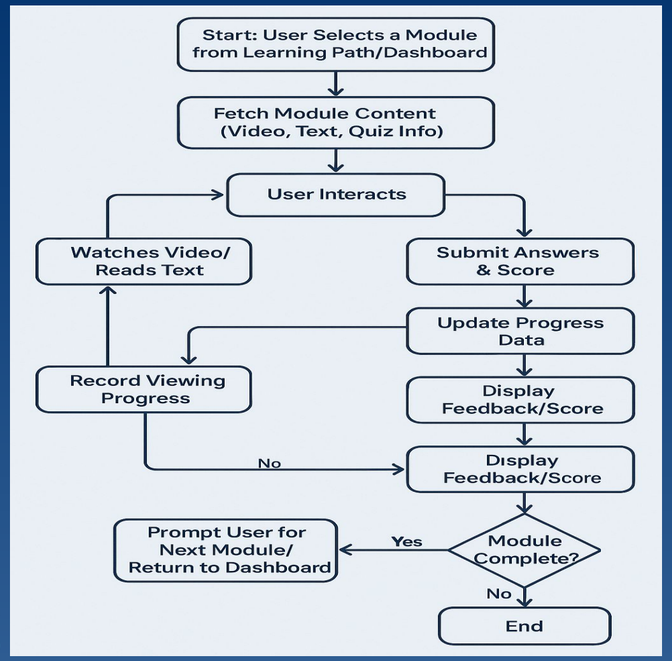
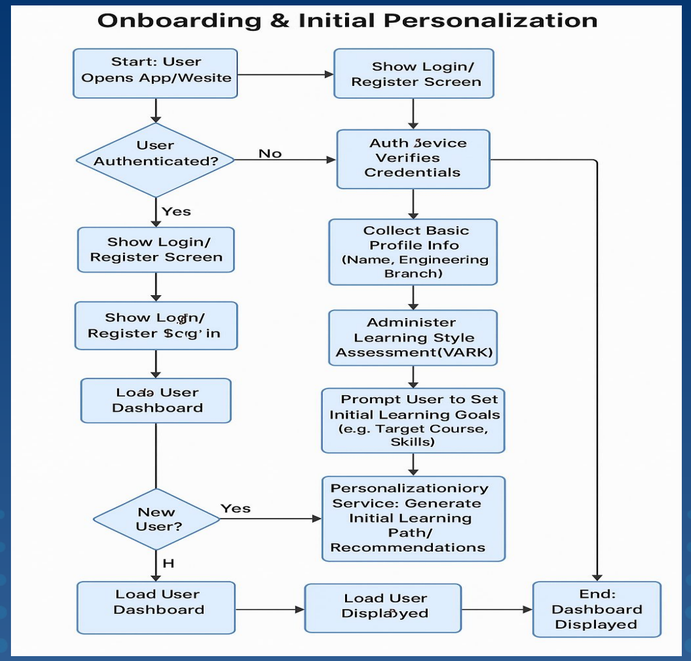
Technical Approach

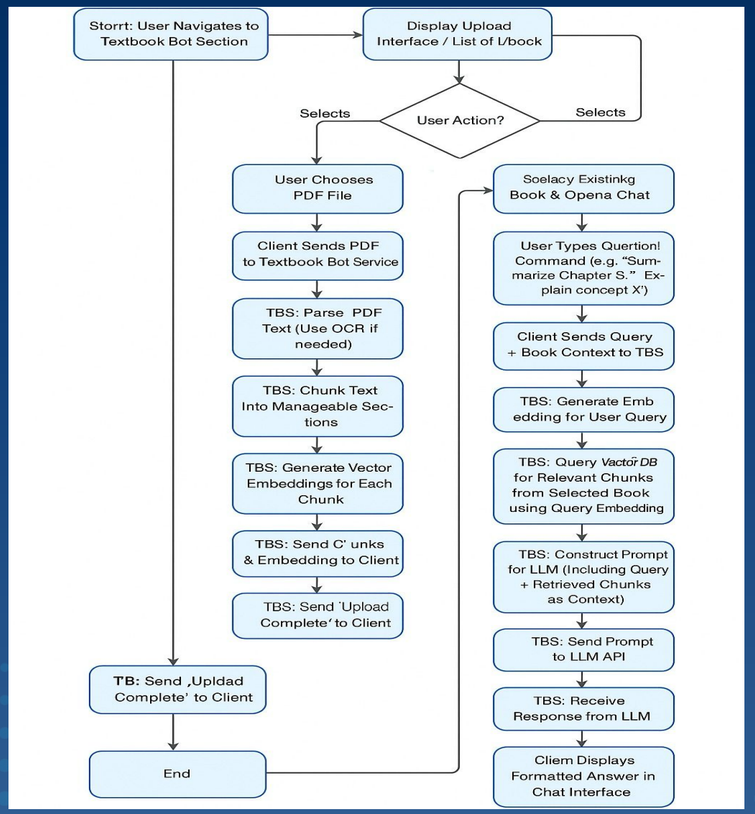
Technologies:

- Frontend: React / Angular / Vue.js (Web), React Native / Flutter (Mobile)
- Backend: Python (Django/Flask) / Node.js (Express)
- AI/ML: Python libraries (TensorFlow, PyTorch, Scikit-learn), NLP models (BERT, GPT variants),
- Other: Text-to-Speech APIs, potentially OCR for textbook visuals.

Methodology and process for implementation:







Dashboard

Training

Game Plan

Coach

The Chase

EnginSync

Strategic ...

All Rounder

PC Pavithra C

Logout

Planner

Tasks & Events

Filter: All | Sort: Due Date | + Add New

- [x] ~~Quiz 2 — Thermodynamics~~
  Apr 9 · 10:00 AM · physics · high
  Scored 8/10

- [ ] **Prepare Presentation Draft**
  Apr 10 · general · medium
  Outline main points.

- [ ] **Physics Study Session - Kinematics Review**
  Apr 10 · 7:00 PM · physics · medium

- [ ] **Submit Calculus Assignment 3**
  Apr 11 · 11:59 PM · calculus · high
  Focus on integration by parts.

Quick Add Task

Add a new task title...

Add Task

Stats

1	3
Due Today	Overdue

Upcoming

Read Chemistry Chapter 5 — Today

Interview Prep with Mr. Nags

Practice your interview skills with our AI interviewer Mr. Nags. Get personalized questions and feedback based on your resume.

Interview Setup

Let's prepare for your mock interview. Start by uploading your resume and defining the target job role.

Upload Resume (PDF)

Drag and drop your resume file here or click to browse

Browse Files

Target Job Role

e.g., Data Analyst

Experience Level

Mr. Nags

AI Interview Specialist

Interview Tips

- Speak clearly and at a moderate pace
- Use the STAR method for behavioral questions
- Provide specific examples from your experience
- Match your answers to the job requirements
- Be concise but thorough in your responses

AI Personalized Planner

This plan is designed to help you grasp the fundamentals of Dynamic Programming (DP) in 5 days. It focuses on both theoretical understanding and practical application through problem-solving. Consistency and dedicated practice are key!

Schedule

Day/Date	Topics	Time Allocation	Activities/Resources
Day 1: Introduction to DP	Fundamentals, Memoization, Tabulation	4-5 hours	• Introduction to DP: What is DP, when to use it? (1 hour) • Read introductory articles and watch videos on DP concepts. (e.g., GeeksforGeeks, MIT OCW). • Memoization (Top-Down): Understand recursive approach + memoization. (1 hour) • Solve 2-3 basic memoization problems (Fibonacci, Climbing Stairs, etc.) on platforms like LeetCode or HackerRank. • Tabulation (Bottom-Up): Understand iterative approach using tables. (2 hours) • Solve 2-3 basic tabulation problems (Fibonacci, Climbing Stairs, etc.)
Day 2: 1D DP Problems	Standard 1D DP Patterns	5-6 hours	• Review: Quickly revise Memoization and Tabulation from Day 1 (30 mins) • Coin Change: Study the Coin Change problem and

Tips For Effective Study

Break it down:	Smaller sessions
Take breaks:	Pomodoro technique
Review regularly:	Spaced repetition
Mix it up:	Varied activities
Practice tests:	Apply knowledge

How To Use

1. Enter your study goal and timeframe in the input field
2. Click "Generate Study Plan" to create your personalized plan
3. Review the generated plan in the table format
4. Download the plan as a text file for offline reference
5. Return to this page anytime to create