AI Study Buddy

An AI-Powered Study App for Class 9 SST and Science

Presented by [Your Name], Class 9, [Your School]
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Acknowledgements

Gratitude to Teachers

My heartfelt appreciation to my teacher for providing invaluable guidance and unwavering support throughout this project development.

Family Encouragement

Special thanks to my family for their constant encouragement and understanding during the countless hours spent on this innovative project.

Technical Resources

Appreciation for the comprehensive Grok API documentation, NCERT materials, and various technical tutorials that made this project possible.

Presentation Overview

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Understanding the challenges faced by Class 9 students

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Results & Future Scope

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Project Purpose

Addressing Student Challenges

Class 9 students frequently struggle with efficient revision strategies for Social Science and Science subjects within the CBSE curriculum framework.

Traditional study methods often lack personalisation and fail to provide quick, targeted revision materials during exam preparation periods.

Our solution: An AI-powered application that generates customised study aids directly from NCERT content and previous year questions.

Project Objectives

1

Automated Content Generation

Develop algorithms to automatically generate flashcards and comprehensive notes directly from NCERT textbook content, ensuring alignment with CBSE curriculum standards.

2

Panic Mode Implementation

Create an emergency study feature that produces rapid recall questions and concise revision notes for last-minute exam preparation scenarios.

3

RAG Technology Integration

Implement Retrieval-Augmented Generation with vector database architecture to enhance response accuracy and contextual relevance for student queries.

RAG Technology Overview

Information Retrieval

Vector database searches for relevant content chunks

AI Generation

Grok 4 model processes retrieved data contextually

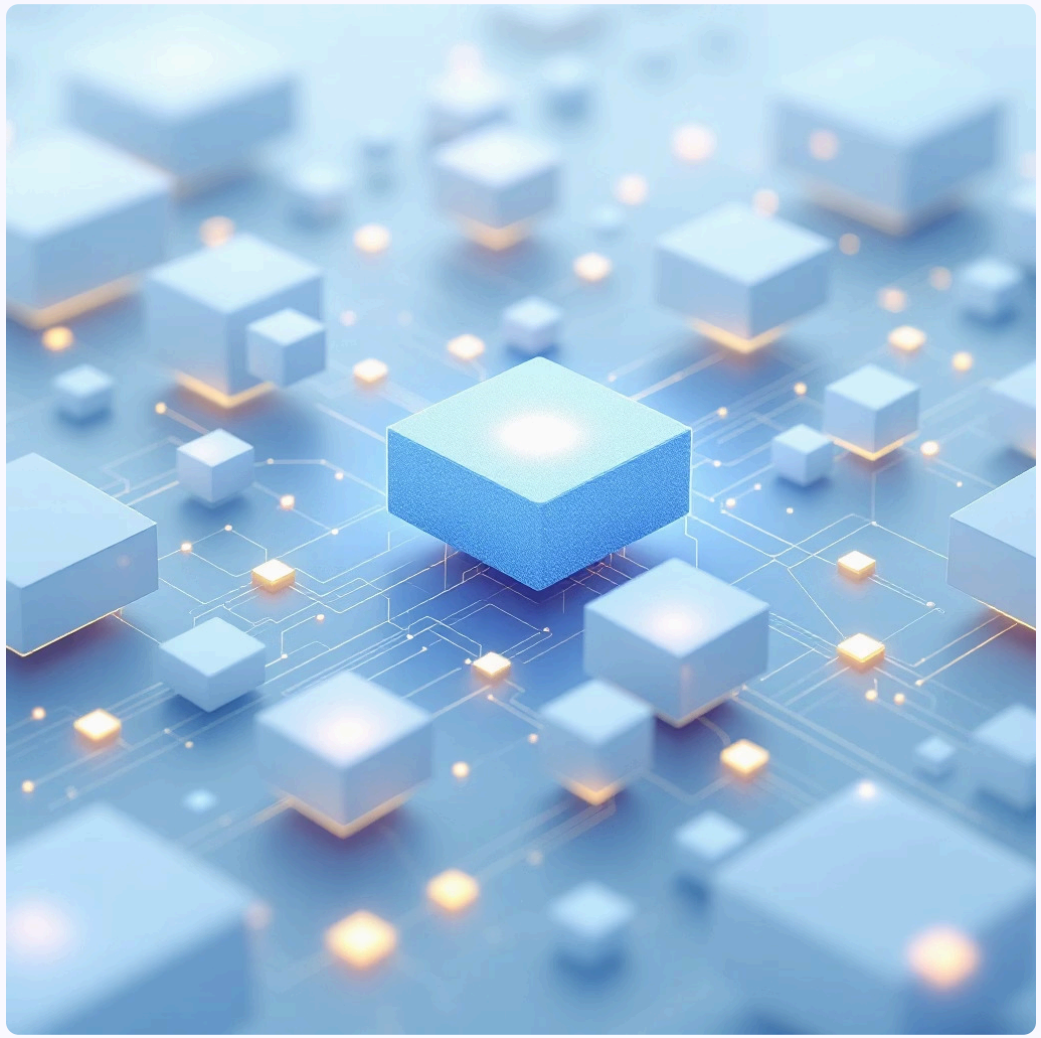
Enhanced Response

Produces accurate, curriculum-aligned study materials

Vector Database Architecture

Content Organisation Strategy

- **Short Chunks:** Precise information segments for targeted queries
- **Long Chunks:** Comprehensive context for detailed explanations
- **PYQ Integration:** Previous year questions for exam-focused preparation
- **Semantic Search:** Advanced query matching capabilities



Two-Layered RAG Approach

Layer 1: Precision Retrieval

System identifies and retrieves high-scoring short content chunks that precisely match the student's query parameters.

Layer 2: Context Enhancement

Searches for associated long chunks and relevant PYQs, then applies sophisticated duplicate removal algorithms.

Final Output Generation

Combines retrieved information through Grok 4 model to produce comprehensive, contextually accurate study materials.

Application Features

Smart Flashcards

Automatically generated from textbook content chunks, designed for efficient quick review sessions and active recall practice.

Summarised Notes

Comprehensive yet concise content summaries that distil complex topics into digestible learning materials.

Panic Mode

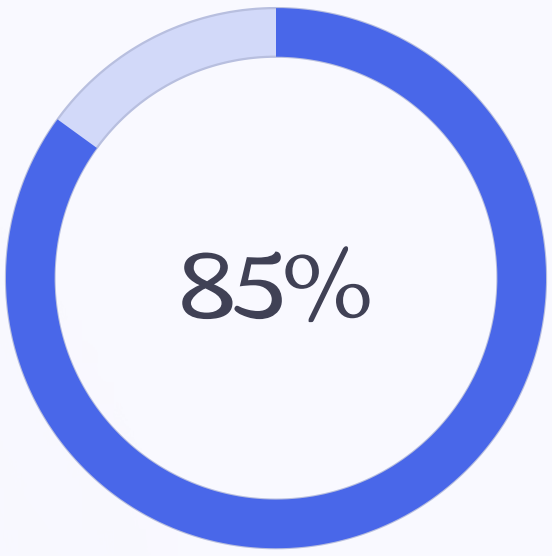
Emergency feature producing rapid recall questions and abbreviated notes for intensive last-minute revision sessions.

Subject Coverage

Currently supports Class 9 Social Science and Science subjects with plans for curriculum expansion.

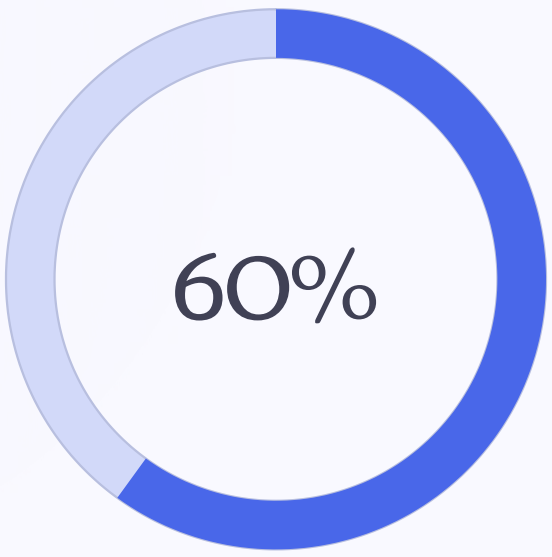
Results & Future Vision

Project Outcomes



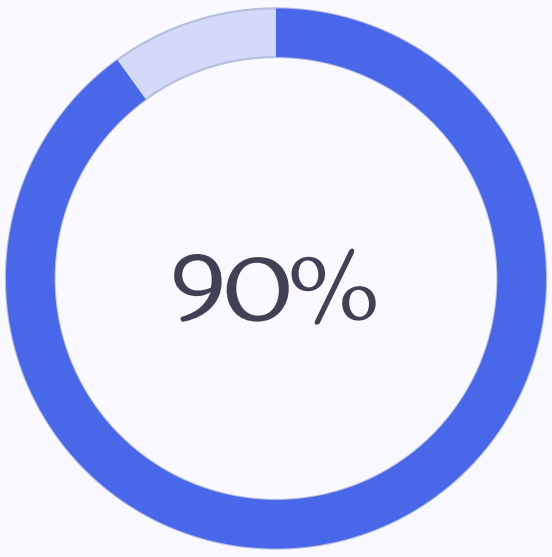
Error Reduction

Significant improvement in content accuracy



Study Efficiency

Faster revision and better retention



Student Satisfaction

Positive feedback from test users

References: NCERT Textbooks (Classes 9-12), Grok API Documentation, Vector Database Implementation Guides, CBSE Curriculum Guidelines

Future Development

Expansion to additional CBSE subjects, advanced analytics features, and collaborative study tools for enhanced peer learning experiences.