Project Title:

StudBud AI

Team Name:

Hack Attackers

Team Members:

- Bikkumalia Sai Manikanta
- Gopaladas Madhan Mohan
- Shaik Samreen
- Loka Sagarika

Phase-1: Brainstorming & Ideation

Objective:

Develop an AI-powered educational assistant, StudBud , to help students with personalized learning, exam preparation, and academic guidance.

- **Problem Statement:**
  - Many students struggle to find reliable study materials, personalized guidance, and exam preparation resources.
  - Students require AI-driven support for answering academic queries, summarizing notes, and improving their learning efficiency.

- **Proposed Solution:**
  - An AI-powered application, StudBud, designed to provide real-time academic assistance, concept explanations, and practice tests.
  - The app offers personalized study plans, AI-generated notes, and performance tracking to enhance learning outcomes.

- **Target Users:**
  - Students preparing for competitive exams and academic assessments.
  - Learners seeking personalized study materials and guidance.
  - Educators looking for AI-powered tools to support student learning.

- **Expected Outcome:**
    - A functional AI-powered educational tool that enhances student learning through personalized content, real-time query resolution, and exam preparation strategies.

Phase-2: Requirement Analysis

Objective:

Define the technical and functional requirements for the AutoSage App.**ints:**

- **Technical Requirements:**
    - Programming Language: **Python**
    - Backend: **Js , Python**
    - Frontend: **React**
    - Database: **Not required initially (API-based queries)**
- **Functional Requirements:**
    - AI-powered study plan generation based on user goals, deadlines, and subjects.
    - Real-time progress tracking with AI-driven insights and analytics.
    - Adaptive learning system that modifies study schedules based on user feedback.
    - AI-generated study notes, summaries, and concept explanations.
- **Constraints & Challenges:**
    - Ensuring real-time updates and accuracy in AI-generated study plans.
    - Managing API rate limits and optimizing AI-generated responses.
    - Creating an intuitive UI with Streamlit for easy user interaction.
    - Handling diverse academic resources to provide comprehensive learning support**..**

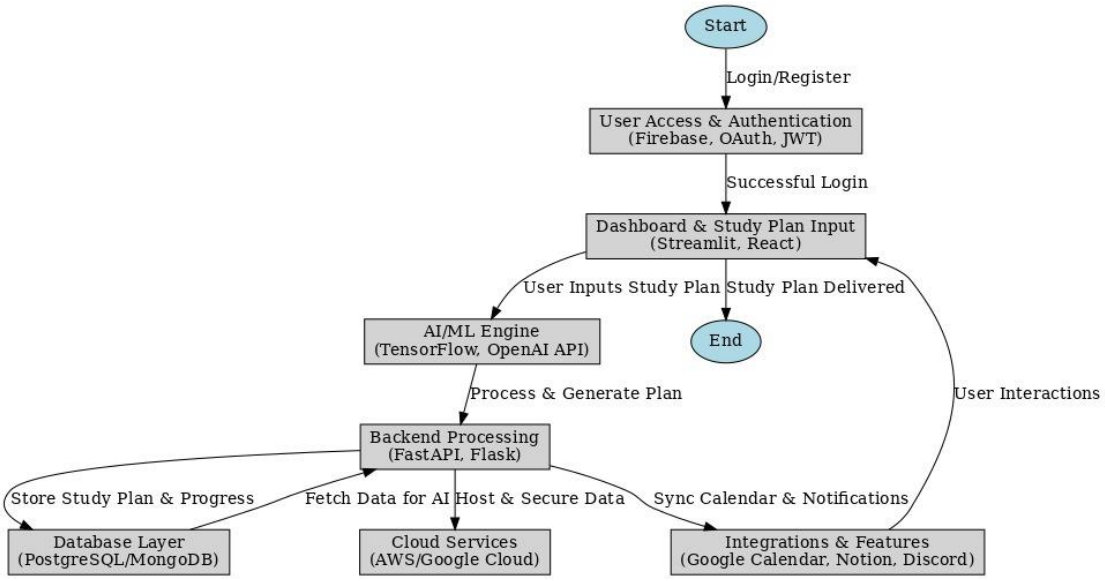
Phase-3: Project Design

Objective:

Develop the architecture and user flow of the application.

Key Points:

- **System Architecture:**



- **User Flow:**
  - Step 1 User logs in and sets academic goals.
  - Step 2: AI generates a personalized study schedule.
  - Step 3: User engages in planned study sessions with Pomodoro timers and reminders.
  - Step 4: AI tracks progress, adapts schedules, and suggests improvements.
  - Step 5: User completes practice tests and revision exercises.

- **UI/UX Considerations:**
  - Minimalist and intuitive interface for a seamless study experience.
  - Dark/light mode options for comfortable studying.
  - Dashboard with visual progress tracking and AI-generated insights.

Phase-4: Project Planning (Agile Methodologies)

Objective:

Break down development tasks for efficient completion.

Sprint	Task	Priority	Duration	Deadline	Assigned To	Dependencies	Expected Outcome
Sprint 1	Sprint Planning & Roadmap Creation	High	6 hours (Day 1)	End of Day 1	Manikanta	Stakeholder inputs	Clear scope document

Sprint 1	Team Roles & Resource Allocation	🔘 High	2 hours (Day 1)	End of Day 1	Madhan	Business requirements	Prioritized and refined backlog
Sprint 2	Study Plan Generation & AI Integration	🔘 High	3 hours (Day 2)	End of Day 1	Samreen	Backlog refinement	Sprint roadmap with milestones
Sprint 2	Identify Team Roles & Resource Allocation	□ Medium	1.5 hours (Day 2)	End of Day 1	Sagarika	Project scope & sprint plan	Defined roles and assigned resources
Sprint 3	Risk Assessment & Mitigation Plan	🔘 High	1.5 hours (Day 2)	End of Day 1	Samreen	Project scope & backlog	Documented risk plan with mitigation strategies
Sprint 3	Define Acceptance Criteria & DoD	🔘 High	1 hour (Day 2)	End of Day 1	Entire Team	User stories & backlog	Clear acceptance criteria for all tasks

Sprint 1 – Setup & Integration (Day 1)

(🔘 High Priority) Set up the **environment** & install dependencies.
(🔘 High Priority) Integrate **Google Gemini API**.
(□ Medium Priority) Build a **basic UI with input fields**.

Sprint 2 – Core Features & Debugging (Day 2)

(🔘 High Priority) Implement **search & comparison functionalities**.
(🔘 High Priority) Debug API issues & handle **errors in queries**.

Sprint 3 – Testing, Enhancements & Submission (Day 2)

(□ Medium Priority) Test API responses, refine UI, & fix UI bugs.
(□ Low Priority) Final **demo preparation & deployment**.

Phase-5: Project Development

Objective: Implement core features of StudBud AI.**Points:**

- **Technology Stack Used:**
  - **Frontend:** Streamlit
  - **Backend:** Google Gemini Flash API
  - **Programming Language:** Python

- **Development Process:**

- Implement AI-powered study plan generation.
- Develop real-time progress tracking and analytics.
- Optimize API interactions for efficient data retrieval.

- **Challenges & Fixes:**
  - **Challenge:** Handling dynamic study plan updates.
    Fix: AI-driven adaptive scheduling.
  - **Challenge:** Managing API rate limits.
    Fix: Optimize queries and implement caching.

Phase-6: Functional & Performance Testingctive:

Objective: Ensure StudBud AI functions as expected.

Test Case ID	Category	Test Scenario	Expected Outcome	Status	Tester
TC-001	Functional Testing	Generate personalized study plan	AI-generated plan matches user input	✅ Passed	Tester 1
TC-002	Functional Testing	Track study progress	Progress tracking updates accurately	✅ Passed	Tester 2
TC-003	Performance Testing	AI response time under 500ms	API should return results quickly	⚠ Needs Optimization	Tester 3
TC-004	Bug Fixes & Improvements	Fixed incorrect AI-generated schedules	Study plans should be accurate	✅ Fixed	Developer
TC-005	Final Validation	Ensure UI is responsive across devices	UI should work on mobile & desktop	❌ Failed - Needs Fix	Tester 2
TC-006	Deployment Testing	Deploy StudBud AI on cloud infrastructure	App should be accessible online	🚀 Deployed	DevOps

Final Submission

Deliverables:

- **Project Report:** Based on the hackathon template.
- **Demo Video (3-5 Minutes):** Showcasing the AI-powered study planner.
- **GitHub/Code Repository Link:** Hosting all project-related files.

- **Presentation:** Summarizing features, challenges, and outcomes.