

Hackathon Project Phases for the AI Personalized Study Planner project.

Hackathon Project Phases

Project Title:

Studbud: AI Personalized Study Planner

Team Name:

CleverCrafters

Team Members:

1. Almaipet Sathwika
 2. Chenna Keerthana
 3. Asthanaditta Naga Sri Lalitha
 4. Biradar Jijabai
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Phase-1: Brainstorming & Ideation

Objective:

Develop an AI-powered study planner using BERT to create personalized study plans based on students' goals, strengths, weaknesses, and preferences.

Key Points:

1. Problem Statement:

Many students struggle with organizing their study schedules efficiently, leading to ineffective learning and poor time management. A lack of personalized guidance results in suboptimal academic performance.

2. Proposed Solution:

- An intelligent study planner that:
- Uses BERT to analyze students' goals, strengths, and weaknesses.
- Generates customized study schedules to optimize learning outcomes.
- Adapts dynamically based on students' progress and feedback.

3. Target Users:

- High school and college students.
- Competitive exam aspirants.
- Professionals seeking skill enhancement.

4. Expected Outcome:

A functional AI-powered study planner that optimizes time management and improves study efficiency.

Phase-2: Requirement Analysis

Objective:

Define the technical and functional requirements for the Studbud application.

Key Points:

1. Technical Requirements:

- **Programming Language:** Python
- **Machine Learning Model:** BERT for NLP-based personalization
- **Backend:** Flask/Django
- **Frontend:** Tkinter (for desktop app) / Streamlit (for web app)
- **Database:** SQLite / Firebase.

2. Functional Requirements:

- Accepts user inputs on academic goals and subjects.
- Analyzes strengths and weaknesses using NLP.
- Generates adaptive study plans.
- Provides daily/weekly study schedules with progress tracking.
- Allows user feedback to improve recommendations.

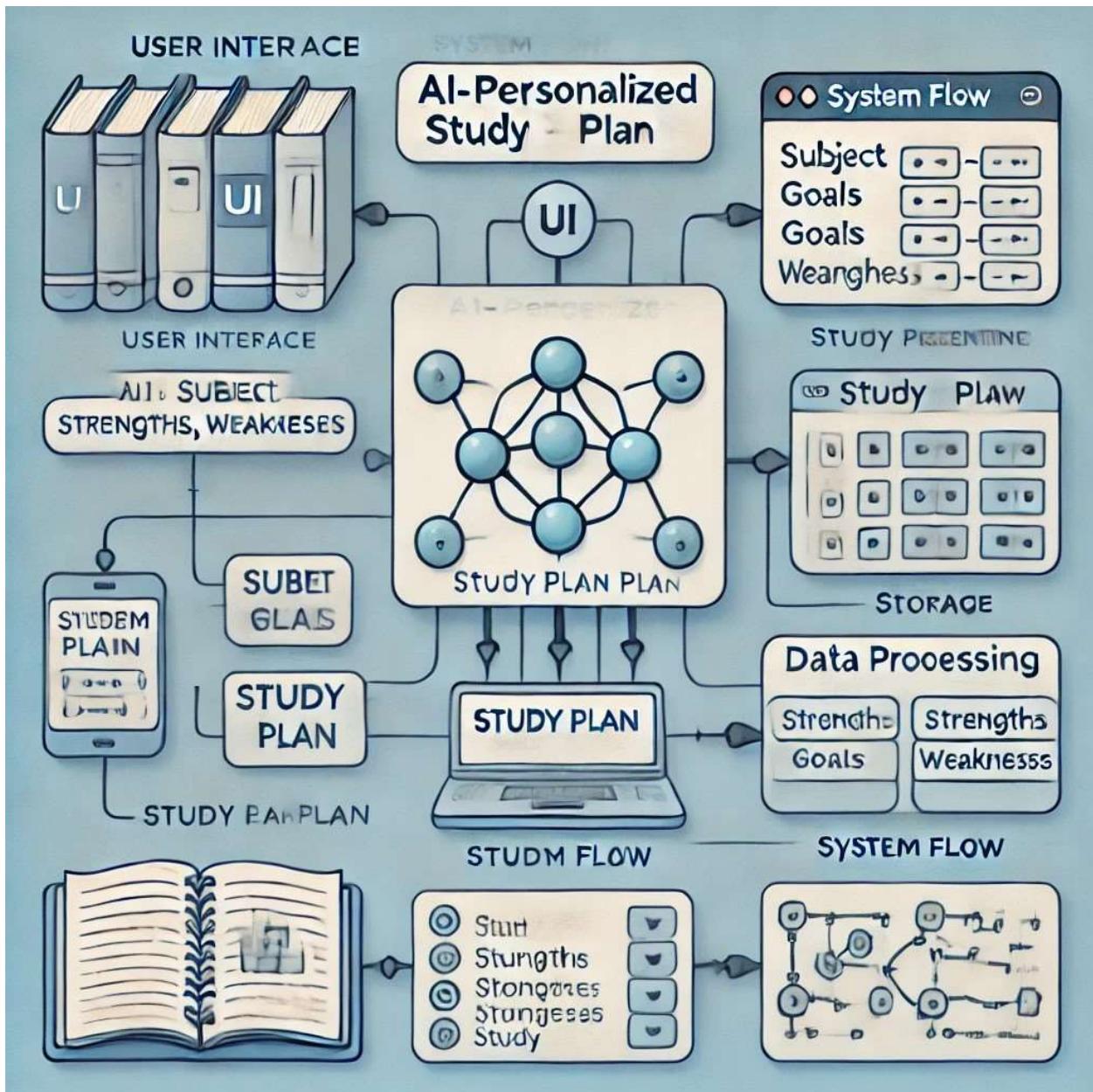
3. Constraints & Challenges:

- Ensuring accurate NLP-based understanding of user input.
 - Handling diverse academic subjects and study patterns.
 - Creating an intuitive and user-friendly UI.
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Phase-3: Project Design

Objective:

Develop the architecture and user flow of the application.



Key Points:

1. System Architecture:

- User enters academic goals and subject preferences.
- BERT processes input and extracts key learning attributes.
- AI generates a personalized study plan.
- Study plan is displayed with scheduling recommendations.
- User can track progress and refine the plan.

2. User Flow:

- Step 1: User inputs study preferences and goals.
- Step 2: System processes data and generates a schedule.
- Step 3: User follows the recommended study plan.
- Step 4: AI adapts based on progress and feedback.

3. UI/UX Considerations:

- Simple and interactive UI for easy navigation.
 - Visual progress tracking dashboard.
 - Dark & light mode for better readability.
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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	Environment Setup & BERT Model Integration	🔴 High	6 hours (Day 1)	End of Day 1	Almaipet Sathwika	Python, BERT, Flask/Django setup	NLP model working
Sprint 1	UI Development	🟡 Medium	3 hours (Day 1)	End of Day 1	Chenna Keerthana	API response format finalized	Basic UI with input fields
Sprint 2	Study Plan Generation & Adaptation	🔴 High	5 hours (Day 2)	Mid-Day 2	Asthanaditta Naga Sri Lalitha	NLP model & UI elements ready	Study schedule generation working
Sprint 2	Error Handling & Debugging	🔴 High	2 hours (Day 2)	Mid-Day 2	Biradar Jijabai	API logs, UI inputs	Improved AI stability
Sprint 3	Testing & UI Enhancements	🟡 Medium	2 hours (Day 2)	Mid-Day 2	Chenna Keerthana, Asthanaditta Naga Sri Lalitha	API response, UI layout completed	Responsive UI, better user experience
Sprint 3	Final Presentation & Deployment	🟢 Low	1 hour (Day 2)	End of Day 2	Entire Team	Working prototype	Demo-ready project

Sprint Planning with Priorities

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)

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- (○ 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.

Key Points:

1. Technology Stack Used:

- Frontend: Tkinter/Streamlit
- Backend: Flask/Django
- **Machine Learning:** BERT NLP
- Programming Language: Python
- **Database:** SQLite / Firebase

2. Development Process:

- Implement AI-driven study plan generation.
- Develop user-friendly interface.
- Optimize NLP for accurate analysis.

3. Challenges & Fixes:

- Challenge: Difficulty in NLP understanding user input
Fix: Fine-tune BERT model with educational datasets
- Challenge: Ensuring real-time plan adaptability
Fix: Implement feedback loop for AI adjustments



Phase-6: Functional & Performance Testing

Objective:

Ensure Studbud works as expected.

Test Case ID	Category	Test Scenario	Expected Outcome	Status	Tester
TC-001	Functional Testing	Input "Prepare for JEE exam"	Generates customized JEE study plan	Passed	Tester 1
TC-002	Functional Testing	User requests updated plan after progress	AI refines schedule dynamically	Passed	Tester 2
TC-003	Performance Testing	NLP processing time under 1s	AI should respond quickly	Needs Optimization	Tester 3
TC-004	UI Testing	Check responsive design	UI should work on multiple devices	Failed – UI misalignment	Tester 4
TC-005	Deployment Testing	Deploy on web	App should be accessible online	Deployed	DevOps

Final Submission

1. Project Report Based on the templates
2. Demo Video (3-5 Minutes)
3. GitHub/Code Repository Link
4. Presentation