Business Requirements Document (BRD)

1. Project Overview

Project Title: AI-Powered Study Assistant

Description: An intelligent web application that empowers students to organize study materials, generate practice questions, summarize content, and plan optimized study schedules using AI technologies. The platform aims to enhance study efficiency, personalize learning, and improve retention.

2. Business Objectives

- Help students manage and organize their learning resources efficiently.
- Improve knowledge retention using AI-driven study schedules based on spaced repetition.
- Provide quick access to summaries, concept explanations, and practice questions.
- Enable collaborative learning among students by sharing study materials.
- Offer mobile-friendly, distraction-free, and clean user experience.

3. Scope of Work

In-Scope

- User Authentication (Sign up / Login / JWT Tokens)
- Profile Management (User preferences, subjects, goals)
- Study Material Upload (PDF, text, images)
- AI Tools: Summarization of content, Question generation, Concept explanation
- Study Scheduler with calendar view
- Progress Tracking Dashboard
- Responsive Design (Mobile + Desktop)

Out-of-Scope (for now)

- Full offline functionality
- Collaborative features (sharing notes, discussions)

4. Functional Requirements

- User Registration/Login: Secure user authentication using JWT.
- Profile Setup: Users can set subject preferences and study goals.

- Material Upload: Upload and categorize notes (PDF/Text/Images).
- AI Study Tools: Generate summaries, practice questions, and concept explanations from notes.
- Study Scheduler: Calendar integration for optimized study plans based on AI recommendations.
- Dashboard: Show study progress, material status, and learning analytics.
- Mobile Optimization: Fully responsive UI/UX with Dark Mode.

5. Non-Functional Requirements

- Performance: Fast loading pages (under 3 seconds).
- Security: JWT authentication, HTTPS.
- Scalability: Backend architecture designed for scaling with SQL
- Reliability: 99% uptime expected (local deployment or basic cloud).
- Usability: Intuitive UI/UX, clean layouts using Tailwind CSS.

6. Technology Stack

- Frontend: React.js, Tailwind CSS, React Query
- Backend: Spring Boot (Java), Spring Security
- Database: MariaDB
- AI Integration: GEMINI 2.0 FLASH
- Tools : PostMan, FireBase

7. Timeline

- Setup Project Structure: Day 1
- Implement Authentication and Profile: Day 1
- Build Study Material Upload & Management: Day 2
- Integrate AI Features (Summarize, Question Gen, Concept Explain): Day 2
- Implement Study Scheduler + Dashboard: Day 3
- Testing, Demo Video, Documentation: Day 3

8. Risk and Mitigation

- Delay in AI API integration: Keep fallback prompts simple first (Summarization).
- Hosting/Deployment issues: Local demo + GitHub README with setup instructions.
- Limited Time: Prioritize core features first, add bonuses only if time allows.

9. Success Metrics

- Working authentication and material upload flows.

- Successful integration with GEMINI API (Summarization/Question Gen/Explain).
- Proper demonstration of study scheduler and dashboard.
- A good demo video explaining key features.

📌 Conclusion

The AI-Powered Study Assistant will be a smart, lightweight, and user-friendly web app built within 3 days to showcase full-stack development, AI integration, and clean design capabilities.