AI STUDY PLANNER

Final System Design, UI/UX, AI Architecture & Implementation Specification

Author Role: Senior Software Engineering Architect and UI/UX Expert
Document Type: Final academic and implementation reference

Development Environment

Dart SDK: 3.9.2 (stable) on windows_x64
Flutter SDK: 3.35.4 (stable channel)
Flutter Engine: feee8ee8fb8b975dd9990f86d3bda11e6e75faf3
DevTools: 2.48.0

Problem Statement

Students lack adaptive academic planning tools that respond to real learning performance. Static schedules, absence of diagnostics, and no productivity feedback result in inefficient studying.

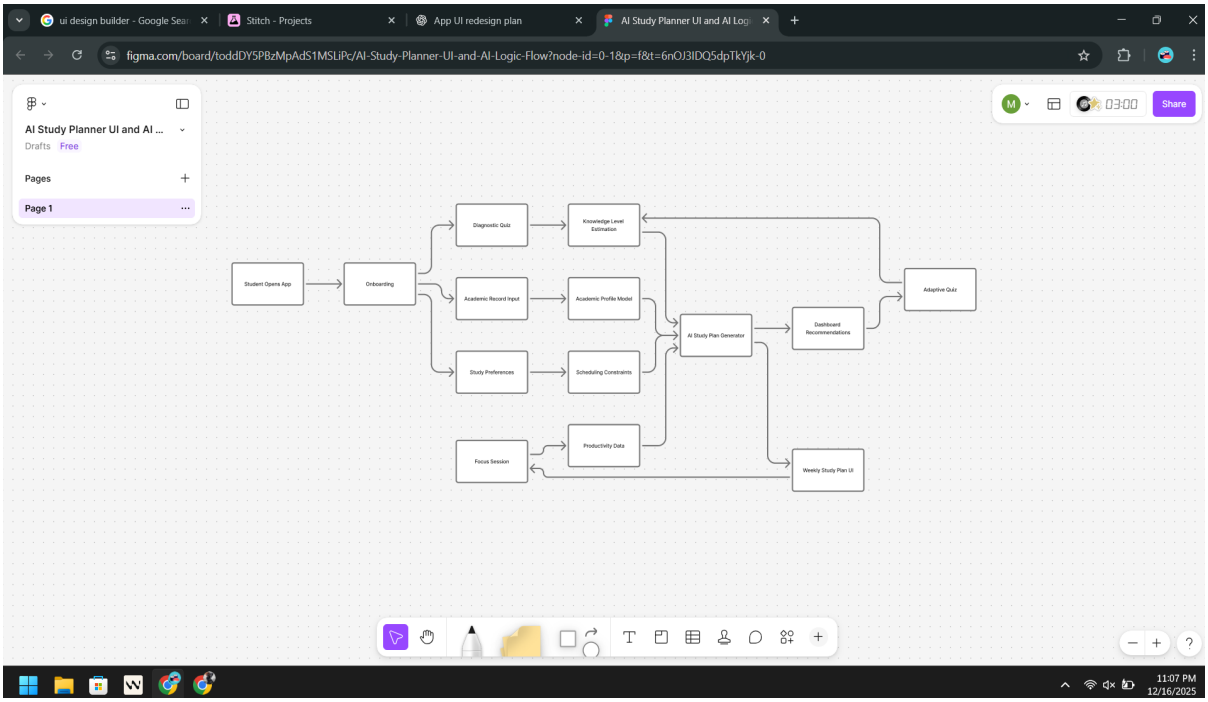
Proposed Solution

The AI Study Planner is an adaptive academic decision-support system that uses onboarding data, diagnostic assessment, productivity tracking, and AI reasoning to continuously optimize study plans.

Clean Architecture and MVVM

The system follows Clean Architecture with MVVM. UI renders state only, ViewModels manage logic, Domain layer contains core intelligence, and Data layer handles persistence and inference results.

AI Logic and UI Flow Diagram



This diagram shows the closed feedback loop connecting onboarding, diagnostic quizzes, AI study plan generation, dashboard intelligence, productivity tracking, academic risk analysis, and adaptive quizzes.

UI/UX Design Principles

- Academic and minimal visual language
- Explainable AI decisions in UI
- No gamification or decorative elements
- Consistent spacing, typography, and iconography

Iconography Strategy

The application uses Line-MD icons via Iconify for a clean, technical, and academic look. Icons are SVG-based, scalable, and consistent across Figma and Flutter. PNG icons and mixed styles are avoided.

Dashboard UI and AI Mapping

- Academic Status Card → Knowledge Estimation + Risk Analyzer
- AI Recommended Tasks → Study Plan Generator
- Focus Session → Productivity Analyzer
- Adaptive Quiz → Knowledge Estimation Update

Final Copilot Implementation Prompt

You are a senior Flutter engineer implementing an AI-powered student study planner using Flutter 3.35.4 and Dart 3.9.2. Follow Clean Architecture and MVVM strictly. Implement onboarding, diagnostic quizzes, AI-driven weekly study plans, dashboard intelligence, focus session tracking, academic risk analysis, adaptive quizzes, and consistent Line-MD icon usage via Iconify. Ensure UI contains no business logic and ViewModels expose immutable state.