Project Proposal on AI Customized Learning Recommendation Chatbot

1. Problem Background

Students frequently struggle to discover study materials or tests that are appropriate for their present knowledge level, both in official education and self-learning. Traditional quiz platforms usually present predetermined sets of problems without taking into account the learner's preferred level of difficulty or past performance. This mismatch can result in time wastage, dissatisfaction, and a loss in motivation.

The rise of AI-powered tools provides an opportunity to create adaptive learning experiences that adjust to the learner's level in real time, enhancing engagement and learning efficiency.

2. Problem Definition

Core Problem

There isn't a simple, flexible quiz tool that offers tailored content without requiring a lot of setup or enrollment.

Impact

- Learners sift through irrelevant or mismatched material
- Receive generic feedback
- Lose interest when content is too easy or too difficult

Opportunity

To provide a quick-access chatbot experience that:

- Instantly determines the learner’s level
- Delivers relevant quizzes
- Offers meaningful, AI-generated feedback

3. Customer Analysis

Target Users:

- Students preparing for exams
- Self-learners aiming to practice specific skills

- Professionals seeking quick knowledge refreshers

User Needs:

- Instant access to level-appropriate quizzes.
- Simple, distraction-free interface.
- Feedback that helps identify strengths and weaknesses.

4. Hypothesis Setting

Learners will learn more effectively and stay motivated for longer if they can quickly interact with a chatbot that recognizes their chosen level of difficulty and offers customized quizzes with targeted feedback.

5. Design Thinking Implementation

Empathize

- Understand learner frustration with generic quiz platforms.
- Focus on minimal interaction before receiving content.

Define

- Build a no-login chatbot that adapts to difficulty preference.
- Keep quizzes short (5 problems per unit) for quick study sessions.

Ideate

Planned Features:

a. Friendly greeting and onboarding conversation.
b. Difficulty level selection: Beginner / Intermediate / Advanced.
c. Quiz recommendations based on chosen level.
d. AI-generated feedback after each attempt.

Prototype (MVP Scope)

- One unit containing 5 problems.
- Rule-based branching to select questions per difficulty level.
- AI feedback using GPT API (OpenAI or LangChain).
- Simple Python + Streamlit chatbot interface.
- No user accounts or data storage for MVP.

Test

Conduct a pilot with 3–5 users.

Gather feedback on: Clarity of instructions, Appropriateness of difficulty levels, Usefulness of AI-generated feedback.

6. Expected Outcome

A functional prototype of an AI-powered quiz chatbot that:

- Adapts to the user's preferred level of difficulty
- Provides meaningful feedback
- Paves the way for a future adaptive learning platform which is more advanced and data driven