Group 7 Project Proposal

Title: AI-Powered Tutor for Online Learning

1. Problem Statement

Online learning platforms have made education more accessible, yet many lack essential features that could greatly enhance the learning experience. Significant gaps include the absence of personalized study plans, detailed test feedback, and career-focused tools to better prepare students for the workplace.

Our project aims to bridge these gaps by developing an AI-Powered Tutor that offers tailored learning paths, actionable test feedback, and resources for career preparation. By leveraging advanced techniques, we strive to deliver a personalized and dynamic online learning experience that addresses the unique needs of students and educators. Solving these challenges will improve the accessibility, effectiveness, and overall impact of online education for diverse learners.

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2. Project Objectives

The key goals of our project are:

1. **Personalized Learning Paths:** Create study plans that dynamically update based on user progress, improving knowledge retention by at least 20%.
2. **Detailed Test Feedback:** Provide clear, actionable feedback on quizzes, tests, and exams, with at least 90% accuracy in identifying improvement areas.
3. **Tailored Resources:** Recommend learning materials based on user performance and goals.
4. **Career Preparation Tools:** Include mock interview simulations and career-focused learning modules.
5. **Integrated Workspace:** Develop a platform for note-taking, coding, and brainstorming to improve productivity.

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3. High-Level SDLC Model Selection and Justification

Selected Model: Agile Development Model

Justification:
The Agile model is ideal for this project because it provides flexibility, encourages collaboration, and ensures incremental progress. This approach is particularly suited for a project with multiple interconnected components, such as personalized dashboards, adaptive learning paths, and feedback systems. Agile's iterative process enables early testing and refinement, ensuring the system evolves based on user input and practical needs.

Key Reasons for Choosing Agile:

1. **Incremental Development:**
    - The project is divided into smaller, manageable tasks, such as building the dashboard first, followed by integrating the feedback and learning path features.
    - Each component is tested and improved independently before integration, ensuring steady progress and reducing errors.
2. **Continuous Feedback:**
    - Agile emphasizes regular feedback not only from stakeholders but also from end users.
    - User feedback collected at the end of each sprint ensures that features like dashboards and learning paths are intuitive, user-friendly, and effective in meeting goals.
3. **Flexibility to Adapt:**
    - Agile allows the team to adapt quickly to changes in project requirements or technical challenges.
    - For instance, if user testing highlights issues with a specific feature, adjustments can be made in the next sprint without derailing the overall timeline.
4. **Risk Mitigation:**
    - Frequent testing during each sprint reduces the likelihood of major setbacks by identifying and resolving issues early in development.
    - By involving users in sprint reviews, potential risks related to usability or functionality are addressed promptly.

5. **Team Collaboration and User Involvement:**
    - Agile promotes a collaborative environment, where team members actively communicate and work together to achieve common goals.
    - Regular interaction with users during sprint reviews provides valuable insights, ensuring the project aligns with real-world needs and expectations.
6. **Support for Iterative Refinement:**
    - Agile enables iterative improvements, allowing the team to refine AI models, feedback systems, and dashboards based on user testing results.
    - This ensures that the final product is polished and ready to deliver maximum impact.

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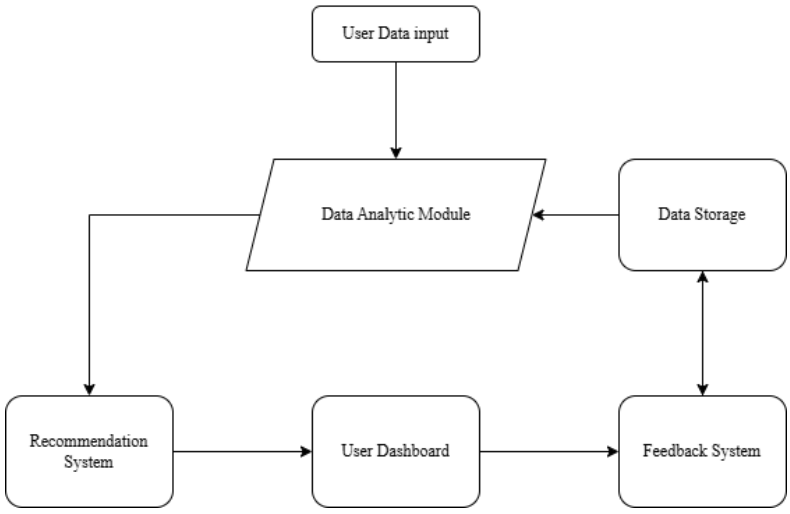
4. System Design Overview

Our system will have the following components:

1) **User Dashboard:** Displays progress, goals, and personalized insights.
2) **AI Feedback Module:** Provides test result analysis and actionable suggestions.
3) **Learning Path Engine:** Adapts study plans based on user performance.
4) **Career Toolkit:** Offers mock interviews and career guidance tools.
5) **Workspace:** A platform for users to take notes, write code, and organize materials.

Data Flow Diagram



5. Example Timeline for Agile Implementation

Sprint	Deliverables	Duration
Sprint 1	Requirements gathering and system design	2 weeks
Sprint 2	Development of the personalized dashboard	3 weeks
Sprint 3	Implementation of the AI feedback module	3 weeks
Sprint 4	Adaptive learning path development	3 weeks
Sprint 5	Career preparation tools and workspace	2 weeks
Sprint 6	Final integration, testing, and user review	2 weeks

Expanded Agile Sprint Timeline

- **Sprint 1 (2 Weeks): Requirements Gathering and System Design**
  Gather system requirements, create use case diagrams and user stories, design the system architecture, and assign team roles.
- **Sprint 2 (3 Weeks): Personalized Dashboard Development**
  Develop the dashboard for tracking progress and goals, with placeholders for feedback and study plans.
- **Sprint 3 (3 Weeks): AI Feedback Module**
  Build and integrate the AI feedback module for test result analysis and actionable insights.
- **Sprint 4 (3 Weeks): Adaptive Learning Paths**
  Create a system for personalized learning paths that adapt to user performance and behavior.
- **Sprint 5 (2 Weeks): Career Tools and Workspace**
  Develop career preparation tools and an integrated workspace for productivity features.
- **Sprint 6 (2 Weeks): Final Integration and Testing**
  Integrate all features into a cohesive system, conduct testing, and refine based on user feedback.

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6. Team Members and Roles

Name	Role	Responsibilities
Nang Shwe Sin 6731503072	Project Manager	Tracks progress, ensures team coordination, and manages deadlines.
Ye Myat Min 6731503094	IoT Specialist	Handles data insights and develops tailored recommendations for learning paths.
Kyaw Hmue San 6731503062	Frontend Developer	Designs an intuitive user interface aligned with project goals.
Aung Kyaw Soe 6731503045	Backend Developer	Build the system's core functionalities and manages AI modules.
Hein Htut Aung 6731503054	Data Analyst	Handles data insights and recommendations for learning paths.

7. Expected Outcomes

This project will provide the following benefits:

1. **Improved Learning Efficiency:**
    - Students will gain tailored recommendations, improving their focus and retention.
2. **Blueprint for AI in Education:**
    - Our system design will serve as a model for integrating AI into learning platforms.
3. **User Benefits:**
    - **Students:** Personalized learning and real-world preparation for their careers.
    - **Educators:** Tools to track student progress and identify improvement areas.
4. **Scalability and Future Growth:**
    - The system will be designed to add more features or support more users as needed.
5. **Contribution to Research:**
    - This project will explore how modern learning systems can bridge gaps in online education, contributing to academic discussions and future innovation.
