**Project Design Phase**

**Proposed Solution**

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| Date | 28 June 2025 |
| Team ID | LTVIP2025TMID36180 |
| Project Name | **Personalised learning with generative AI and Lms Integration** |
| Maximum Marks | 2 Marks |

**Proposed Solution :**

**EduTutor AI** leverages the power of artificial intelligence to address the key challenges faced by both **students** and **educators** in traditional learning environments. By offering a highly personalized, efficient, and seamless experience, EduTutor AI aims to transform how education is delivered, assessed, and optimized. Below is an outline of the proposed solution:

**Key Features of EduTutor AI:**

1. **AI-Generated Personalized Quizzes**
   * **For Students:** The platform uses AI models (IBM Watsonx and Granite) to automatically generate quizzes tailored to each student’s knowledge level, learning pace, and subject mastery.
   * **For Educators:** Teachers can quickly assign personalized quizzes based on individual student progress or class-wide needs, saving time and effort in content creation.
2. **Real-Time Feedback & Adaptive Testing**
   * **For Students:** EduTutor AI provides instant feedback on quiz answers, helping students understand mistakes and improve in real-time. The system adapts the quiz difficulty and content based on student performance, ensuring an appropriate level of challenge.
   * **For Educators:** Teachers receive detailed analytics on student performance, highlighting areas where students excel or struggle, enabling data-driven decisions and more targeted support.
3. **Integration with Google Classroom**
   * **For Educators and Students:** EduTutor AI seamlessly integrates with Google Classroom, syncing course data and automatically generating quizzes aligned with the curriculum. This ensures consistency and removes the need for duplicate effort across platforms.
4. **Dynamic Learning Pathways**
   * **For Students:** Based on diagnostic tests and performance history, EduTutor AI suggests personalized learning paths that guide students through relevant topics and materials. It adjusts content to continuously challenge students at the appropriate level, increasing engagement and improving outcomes.
5. **Comprehensive Educator Dashboard**
   * **For Educators:** A robust, real-time dashboard gives teachers an overview of class performance, quiz history, student progress, and areas that need attention. Insights from the Pinecone vector database help educators track individual and group learning trajectories, so they can tailor instruction effectively.
6. **Automated Student Assessment**
   * **For Teachers:** With automated grading and content generation, EduTutor AI reduces manual work for teachers, allowing them to focus on personalized interaction with students. The system analyzes performance data to suggest next steps in teaching and learning.
7. **Multimodal Learning Support**
   * **For Students:** The platform supports text, video, and interactive learning materials, catering to various learning styles and ensuring content is both engaging and educational.
8. **Diagnostic Testing for Adaptive Learning**
   * **For Students:** Upon registration, students complete a diagnostic test generated by IBM Watsonx models, which helps the system assess their current understanding. Based on this, quizzes are personalized to align with individual strengths and areas for improvement.

**Value Proposition:**

1. **For Students:**
   * Personalized learning experiences that adapt to their unique progress.
   * Immediate feedback and guidance to improve academic performance.
   * Access to a variety of learning resources to support diverse learning styles.
2. **For Educators:**
   * Saves time through automated quiz creation, grading, and feedback.
   * Provides valuable insights into student performance and areas for improvement.
   * Enhances teaching effectiveness with data-driven decision-making.
3. **For Schools/Institutions:**
   * Scalable solution that supports personalized learning at an institutional level.
   * Improves overall student performance and engagement.
   * Aligns with existing tools like Google Classroom for easy adoption and integration.

**How It Works:**

1. **Sign-In & Integration:**  
   Teachers and students log in using their Google Classroom credentials, which automatically syncs course data and enrolls students.
2. **AI-Powered Content Generation:**  
   EduTutor AI analyzes course materials and student data to generate personalized quizzes that match individual learning levels. Students take quizzes, receive instant feedback, and the system adapts future quizzes based on their performance.
3. **Real-Time Insights for Educators:**  
   Teachers access a dynamic dashboard that shows individual and class-wide quiz results, performance trends, and insights from the AI. This helps them quickly identify which students need additional support.
4. **Continuous Adaptation & Improvement:**  
   The system continues to learn from student performance, adjusting quizzes, learning pathways, and content to ensure optimal educational experiences for each student.

**Proposed Benefits:**

1. **For Students:**
   * Increased engagement with personalized, relevant content.
   * Quicker understanding and improvement through immediate feedback.
   * Learning at their own pace, ensuring mastery before moving to more advanced topics.
2. **For Educators:**
   * Less time spent on administrative tasks, more time for teaching.
   * The ability to make data-driven decisions and intervene early.
   * A seamless, integrated solution that works within existing educational systems.
3. **For Schools:**
   * Scalable platform that supports diverse educational needs.
   * Improved student outcomes through personalized, adaptive learning.
   * Future-ready educational infrastructure built on AI and data insights.