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PROJECT SYNOPSIS

ON

“MentorMind – AI Powered Tutoring System”

Submitted in partial fulfillment of the requirement for the award of degree of

Master of Computer Applications (MCA)

Submitted by:

Rukaya Maqbool (Roll No: 2307001010)

Rutba Bashir (Roll No: 2307001004)

Batch: 2023

Project Guide:

Dr. Junaid Lateef Shah



P.G. Department of Computer Applications

**Government College for Women, Moulana Azad Road, Srinagar -
190001, Jammu and Kashmir, India.**

Introduction:

The integration of artificial intelligence into education has opened new avenues for personalized learning experiences. This project proposes the development of an AI-powered tutoring system, specifically designed to assist 10th-grade Physics students. The system aims to enhance conceptual understanding, track academic progress, and foster student motivation through interactive and adaptive learning tools.

Problem Statement:

Traditional classroom environments often struggle to cater to the individual learning needs of students, especially in subjects like Physics that require conceptual clarity and consistent practice. Teachers face challenges in tracking each student's progress, identifying weak areas, and maintaining engagement. Moreover, parents often lack visibility into their child's academic performance until formal assessments are conducted. There is a pressing need for an intelligent, accessible, and personalized learning assistant that can support students outside the classroom, reinforce concepts, and keep parents informed in real time.

Scope of the Project:

This project focuses on developing an AI-powered tutoring system which is specifically tailored for 10th-grade Physics. The system will automate lesson planning, monitor student progress, assess understanding through quizzes and exercises, and provide motivational feedback. It will also generate weekly performance reports for parents, enhancing transparency and involvement.

Objectives:

- To design an AI-powered tutoring system capable of generating customized lesson plans aligned with curriculum standards.

- To implement automated assessment tools that identify student strengths and weaknesses.
- To promote student engagement through gamified elements such as badges and reminders.
- To ensure parental involvement through weekly progress reports summarizing key metrics.

System Features:

- **Lesson Plan Generation:** Automatically creates structured learning paths based on syllabus and student performance.
- **Progress Tracking:** Monitors study time, quiz scores, and topic completion.
- **Gamification:** Encourages consistent learning through achievement badges and timely reminders.
- **Assessment Engine:** Conducts quizzes and interactive exercises to evaluate comprehension.
- **Weakness Analysis:** Highlights areas requiring additional focus.
- **Parental Reporting:** Sends weekly reports and performance summaries.

Methodology:

The development of the MentorMind (AI-powered tutoring system) will follow a modular and phased approach, combining custom-coded components with selective use of no-code tools to optimize development time and expand functionality.

The project will begin with a detailed analysis of the 10th-grade Physics curriculum to define learning objectives and content structure. Core modules such as lesson planning, quiz generation, progress tracking will be developed using conventional programming techniques to ensure flexibility, control, and performance. These components will form the foundation

of the tutoring system and will be designed to support personalized learning paths and adaptive feedback.

Certain auxiliary features such as automated email reporting, badge-based motivation systems, and data visualization dashboards will be implemented using no-code platforms. This hybrid approach allows the project to deliver a broader feature set without compromising on quality or feasibility.

Expected Outcomes:

- Improved academic performance and conceptual clarity among students.
- Increased learner engagement and motivation.
- Enhanced transparency and communication between students, educators, and parents.
- A scalable model for subject-specific AI tutoring across various educational levels.

Conclusion:

This project demonstrates the potential of AI solutions in transforming traditional education. By combining adaptive learning, real-time feedback, and parental involvement, the MentorMind aims to create a holistic and effective learning environment for students.