**Group 6** **Idea Proposal Submission**

**AI BASED E-LEARNING PLARFORM**

Group Name

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**Project Idea Description**

1 , Clearly define the problem you want to solve or the task you want to accomplish. What is the specific goal of your project?

Problem Statement

Many children face challenges in accessing traditional education due to geographical barriers, socio-economic limitations, disabilities, or conflict-affected environments. Conventional e-learning platforms often fail to provide personalized, engaging, and adaptive learning experiences that cater to individual needs, making self-paced learning difficult for these children.

Project Goal

Our AI-driven e-learning platform aims to provide personalized, interactive, and engaging education for children who face difficulties attending school. The platform will use AI-powered adaptive learning to tailor lessons based on each child's progress, gamification to enhance engagement, and multimodal content (text, voice, video, and interactive exercises) to accommodate diverse learning preferences and accessibility needs.

2 , Relevance to Sustainable Development Goals (SDGs):

Our AI-based e-learning platform aligns with **SDG 4 (Quality Education)** and **SDG 10 (Reduced Inequalities)** by providing **inclusive, personalized, and accessible learning** for children facing barriers to traditional schooling due to disabilities, late enrollment, or geographic and socio-economic challenges. Using **AI-driven adaptive learning and assistive technologies**, the platform tailors education to individual needs, ensuring equitable access to quality learning. By integrating **multilingual support, gamification, and interactive content**, we bridge the educational gap, empowering marginalized children and fostering a more inclusive, sustainable future.

3 , Literature Examples:

1. **AI-Enhanced E-Learning Platform** (Jannathul Firthous et al.) explores the integration of **AI-driven personalization** in e-learning, focusing on **adaptive learning paths** and automated assessments. While effective in tailoring education, it lacks **strong accessibility features** for children with disabilities.
2. **Framework of Artificial Intelligence Learning Platform for Education** (Thongprasit & Wannapiroon) presents a structured approach to AI in education, emphasizing **real-time analytics, interactive learning, and engagement tracking**. However, it could improve by incorporating **multilingual and cultural adaptability** to support diverse learners.
3. **PolyMath Mobile Application** applies **gamification and AI-powered tutoring** to enhance math learning through an interactive mobile experience. While engaging, it lacks **broad subject coverage and inclusivity for children with special needs**.

### **Integration into Our System**

These studies highlight the importance of **personalized AI-driven learning, real-time analytics, and gamification**—all crucial for engagement and effectiveness. However, our platform will **enhance accessibility** by integrating **assistive technologies, inclusive design, and multilingual support**, ensuring equitable education for children with disabilities and those facing learning barriers.

4 , Describe Your Data:

* **Public Educational Datasets:**
  + **Kaggle:** Education-related datasets (e.g., student performance, learning patterns, and engagement data).
  + **Data.gov:** Government-provided open datasets on **education access, literacy rates, and school performance**.
  + **UCI Machine Learning Repository:** Datasets for **adaptive learning models**, such as **student learning behavior, assessment scores, and recommendation systems**.
* **Structured Data:** CSV, JSON (for user progress tracking, assessments, and AI model training).

5 , Approach (Machine Learning or Deep Learning):

We will use a **machine learning approach** for our AI-based e-learning platform because it ensures **fast application performance and efficient resource usage**. Unlike deep learning, ML models require **less computational power**, making them suitable for **real-time student assessments and personalized content recommendations** while remaining scalable. To achieve this, we will utilize **Scikit-Learn, XGBoost, and the Surprise Library** for **student analytics, recommendation systems, and adaptive learning**. For **text-based learning personalization**, we will integrate **SpaCy or NLTK** to process student responses and summarize lessons. Additionally, **Pandas and Flask** will handle **data processing and seamless platform integration**. This approach provides a **lightweight, interpretable, and effective AI-driven learning experience** for children facing educational challenges.