

Roll No: 16014022048

Batch: B-2

1. AI-Powered Personalized Learning Platform

Abstract:

In the evolving landscape of education, personalized learning has emerged as a pivotal approach to addressing individual learning needs and enhancing educational outcomes. This project proposes the development of an **AI-Powered Personalized Learning Platform**, designed to provide tailored educational experiences based on each student's performance, preferences, and skill gaps.

The platform utilizes cutting-edge technologies in Artificial Intelligence (AI) and Machine Learning (ML) to analyze user data, including quiz results, activity patterns, and progress metrics. By leveraging these insights, it delivers adaptive recommendations, such as customized learning materials, quizzes, and exercises, to support efficient and targeted learning. Key features include real-time progress tracking, skill gap analysis, and an intuitive interface for educators to monitor performance and intervene when necessary.

The system integrates **React.js** for the user interface, **Node.js** for backend services, and **MongoDB** for managing user and content data. AI models developed using **TensorFlow** or **PyTorch** power the recommendation engine, ensuring dynamic and precise content delivery. The platform also incorporates scalability and security through cloud-based hosting solutions like AWS.

This project addresses the growing need for innovative educational tools in schools, corporate training, and self-learning environments. By fostering personalized and adaptive learning experiences, it enhances engagement, improves knowledge retention, and bridges skill gaps effectively.

2. Real-Time Weather Dashboard

Abstract:

The **Real-Time Weather Dashboard** is a user-friendly platform designed to provide accurate and up-to-date weather information for any location worldwide. By leveraging APIs like OpenWeatherMap or Weatherstack, the application retrieves real-time weather data, including temperature, humidity, wind speed, and precipitation. The dashboard also features a 7-day weather forecast, offering users valuable insights into upcoming weather conditions.

To enhance user experience, the application includes a location search feature, allowing users to easily check weather updates for their desired city or region. Data visualization tools, such as interactive charts and graphs, present weather trends over time, making complex data easy to understand. Additionally, the dashboard integrates responsive design to ensure seamless functionality across web and mobile devices.

This project addresses the growing need for accessible and reliable weather data, catering to individuals, travelers, and outdoor enthusiasts. Its real-time capabilities and intuitive design make it an essential tool for making informed decisions based on weather conditions.

3. Expense Tracker

Abstract:

The **Expense Tracker** is a web application designed to help users manage their personal finances by

tracking their expenses and budgets. It allows users to log their daily or monthly expenses, categorize them (e.g., food, transportation, entertainment), and monitor spending patterns. The application is built using the **MERN stack** (MongoDB, Express.js, React.js, Node.js), providing a modern, full-stack solution for efficient financial management.

Key features of the **Expense Tracker** include user authentication, enabling secure sign-ups and log-ins, and personalized expense tracking for each user. The system also provides detailed views of user expenses, including summaries of total spending per category, as well as the ability to set and monitor budgets to prevent overspending. Interactive charts and graphs visualize spending trends over time, offering valuable insights for better financial planning.

The app is responsive and works across various devices, allowing users to track their expenses on the go. Through this application, users can gain greater control over their finances by understanding their spending habits and making informed decisions about their budgets and future expenditures.

This project addresses the growing need for personal finance management tools, making it a valuable solution for individuals looking to improve their financial awareness and budgeting skills.