

**DATASET'25**



# LEARNING RAJA

**TEAM NAME:** ROCKET RAJA

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## "PROBLEM STATEMENT"

Most learning platforms follow a one-size-fits-all approach that does not adapt to individual student abilities and performance. This results in low engagement and difficulty in identifying learning gaps. There is a need for an intelligent system that personalizes learning content, assessments, and feedback based on each student's progress.

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## Project Overview

Adaptive AI Learning Platform – “The Learning Raja” is an intelligent, gamified educational web application designed to personalize learning experiences for students from school to undergraduate level. The platform adapts content, quizzes, and feedback based on individual student performance, ensuring that each learner follows a customized learning path rather than a one-size-fits-all approach.

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## Problem Addressed

Traditional learning platforms deliver static content and fixed assessments, which fail to accommodate different learning speeds, strengths, and weaknesses of students. This results in low engagement and inefficient learning. Our solution addresses this by using AI to dynamically adjust learning difficulty, provide instant feedback, and continuously track learner progress.



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## **Core Functionality**

The platform collects basic student details such as grade and subject, then uses AI to act as both a tutor and an examiner. Students can ask doubts, receive AI-generated explanations, attempt dynamically created quizzes, and track their improvement over time. All activities are managed through an interactive, multi-page dashboard.

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## **AI-Powered Personalization**

Using an OpenAI-powered language model, the system generates subject- and topic-specific explanations and multiple-choice questions in real time. Quiz difficulty is automatically adjusted based on previous performance, enabling adaptive learning. This ensures that students are neither over-challenged nor under-challenged.

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15



### **Gamification and Engagement**

To increase motivation and consistency, the platform incorporates gamification elements such as XP points, daily study streaks, leaderboards, and achievement feedback. Humorous AI commentary and visual rewards make the learning experience engaging while encouraging regular study habits.

### **Performance Analytics**

The system continuously analyzes quiz results and study activity to generate subject-wise performance insights. These insights are visualized using graphs and accompanied by AI-generated feedback, helping students identify strengths and areas that need improvement.

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### **Technology Stack**

The application is built using Streamlit for the frontend interface and Python for backend logic. OpenAI's API is used for AI tutoring and quiz generation, while Pandas handles data processing and analytics. Session-based state management ensures personalized experiences for each user.

### **Innovation and Uniqueness**

Unlike conventional learning platforms, this solution combines adaptive AI tutoring, intelligent assessment, real-time analytics, and gamification into a single system. The platform not only teaches but also evaluates, motivates, and guides students based on their individual learning patterns.



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## Scalability and Future Scope

The platform can be extended with machine learning models for long-term learner profiling, predictive performance analysis, and personalized content recommendations. It can also be integrated with existing LMS platforms and expanded into a mobile application for wider accessibility.

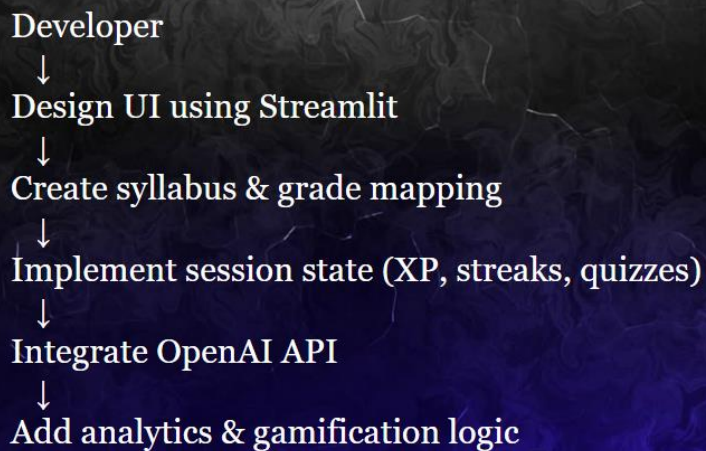
## Impact

Adaptive AI Learning Platform enhances learning efficiency, improves engagement, and supports better academic outcomes by transforming education into a personalized, data-driven, and student-centric experience.

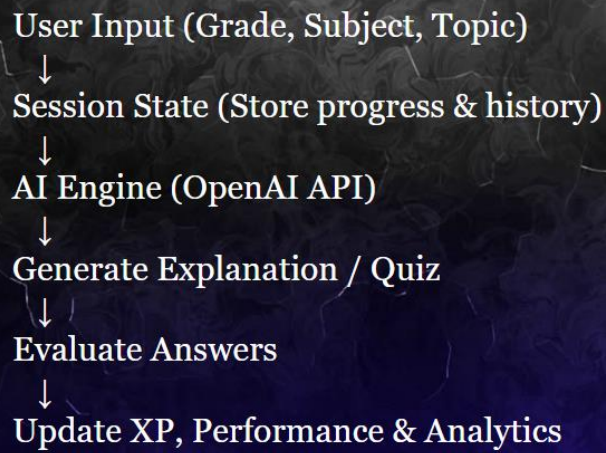
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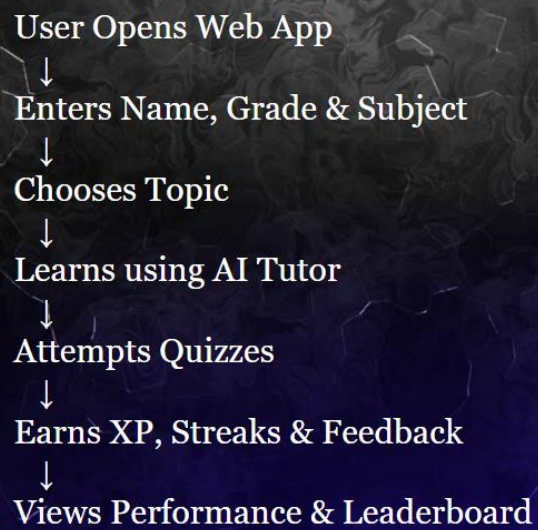
## WORKFLOW DIAGRAM



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