**Project Design Phase-II**

**Solution Requirements (Functional & Non-functional)**

|  |  |
| --- | --- |
| Date | 05 July 2025 |
| Team ID | LTVIP2025TMID35592 |
| Project Name | EduTutor AI: Personalized Learning With Generative AI And LMS Integration |
| Maximum Marks | 4 Marks |

**Functional Requirements:**

Following are the functional requirements of the proposed solution.

|  |  |  |
| --- | --- | --- |
| **FR No.** | **Functional Requirement (Epic)** | **Sub Requirement (Story / Sub-Task)** |
| FR-01 | Personalized Content Generation | Generate customized lesson plans based on student profiles and learning outcomes |
|  |  | Auto-create quizzes, assignments, and explanations using generative AI |
| FR-02 | LMS Integration & Content Delivery | Seamless deployment of AI-generated materials into LMS platforms like Moodle or Canvas |
|  |  | Tagging of content with metadata for searchability and tracking |
| FR-03 | Real-Time Performance Monitoring | Dashboards for educators to track student engagement, progress, and performance trends |
|  |  | Alerts for students at risk or falling behind |
| FR-04 | Adaptive Learning Loop | Adjust pacing and content difficulty dynamically based on real-time learner input |
|  |  | Recommend supplementary materials or remediation paths |
| FR-05 | Instructor Collaboration Tools | Enable manual review, editing, and approval of AI-generated learning assets |
|  |  | Role-based permissions for teachers, content reviewers, and admins |
| FR-06 | AI Feedback & Continuous Improvement Layer | Collect learner interactions and instructor feedback to fine-tune AI outputs over time |
|  |  | Analytics engine to evaluate AI effectiveness and suggest platform improvements |

**Non-functional Requirements:**

Following are the non-functional requirements of the proposed solution.

|  |  |  |
| --- | --- | --- |
| **FR No.** | **Non-Functional Requirement** | **Description** |
| NFR-01 | Performance & Scalability | The platform should handle concurrent users (students, teachers, and admins) without latency, and scale dynamically based on load. |
| NFR-02 | Security & Data Privacy | All personal and academic data must be secured using encryption and access control, adhering to standards like GDPR and FERPA. |
| NFR-03 | Availability & Reliability | The system should maintain 99.9% uptime with automated failover and backup mechanisms to ensure uninterrupted learning access. |
| NFR-04 | Usability & Accessibility | The interface must be intuitive for all users and compliant with accessibility guidelines (e.g., WCAG 2.1) to support diverse learning needs. |
| NFR-05 | Maintainability & Extensibility | The architecture should support modular updates and easy integration of new AI models or LMS plugins without disrupting existing workflows. |
| NFR-06 | Auditability & Compliance | All AI-generated outputs, user interactions, and learning analytics must be traceable and auditable for compliance, feedback, and reporting. |