**Project Design Phase-II**

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

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| Date | 31 January 2025 |
| Team ID | LTVIP2025TMID34195 |
| 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.

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| **FR No.** | **Functional Requirement (Epic)** | **Sub Requirement (Story / Sub-Task)** |
| FR-1 | User Registration | Registration through Form  Registration through Gmail  Registration through LinkedIN |
| FR-2 | User Confirmation | Confirmation via Email  Confirmation via OTP |
| FR-3 | Google Classroom Integration | OAuth login using Google credentials Sync enrolled courses and class rosters Retrieve assignments and subject topics |
| FR-4 | AI-Powered Quiz Generation | Diagnostic quiz on first login Personalized quiz generation via Granite LLM Real-time quiz evaluation using Watsonx |
| FR-5 | Real-Time Feedback | Feedback on quiz completion Explanation of incorrect answers Topic-based recommendations |
| FR-6 | Educator Dashboard | View student performance and quiz history Filter by topic, class, or time range Identify low-performing students |
| FR-7 | Student Dashboard | Visual progress tracker by subject Access previous quizzes and feedback Receive AI-generated learning suggestions |

**Non-functional Requirements:**

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

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| **FR No.** | **Non-Functional Requirement** | **Description** |
| NFR-1 | Usability | The platform should have an intuitive and responsive UI for both students and educators, optimized for desktops and tablets. |
| NFR-2 | Security | Secure login via OAuth 2.0; role-based access; encryption of stored data; secure API gateways to protect user data. |
| NFR-3 | Reliability | System must ensure uninterrupted service during active quiz sessions; auto-retries for failed model/API responses. |
| NFR-4 | Performance | Average quiz generation and feedback response time must remain under 2 seconds; concurrent sessions must not degrade performance. |
| NFR-5 | Availability | The system should have 99.5% uptime; failover mechanisms in place for model and database services. |
| NFR-6 | Scalability | Designed to scale horizontally; microservice-friendly; should handle increasing users, courses, and content volume with minimal reconfiguration. |