Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	27 June 2025
Team ID	LTVIP2025TMID32013
Project Name	SmartSDLC – AI-Enhanced Software Development Lifecycle
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-1	AI Chatbot Assistance	Responds to developer queries during all SDLC phases. Provides code suggestions, bug fixes, and documentation support.
FR-2	Requirement Analysis	AI analyzes and refines user requirements. Suggests missing use cases or ambiguous requirements.
FR-3	Automated Design Support	Generates basic UML diagrams or architecture templates. Recommends design patterns based on requirements.
FR-4	Code Generation	Converts logic or pseudocode into real code snippets (e.g., Python, Java). Follows best practices and coding standards.
FR-5	Test Case Generation	Creates unit, integration, and system test cases automatically. Suggests edge cases and test data.
FR-6	Bug Detection	Analyzes code for possible bugs or performance issues using AI. Recommends fixes and improvements.

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	User-friendly dashboard with minimal learning curve for developers
NFR-2	**Security**	Role-based access control, OAuth2 login, HTTPS, JWT authentication
NFR-3	**Reliability**	Redundant architecture, backup services, fault-tolerant components

NFR-4	**Performance**	Capable of handling 100+ concurrent users; AI services respond within 2s
NFR-5	**Availability**	99.9% uptime via cloud deployment with distributed services and load balancing
NFR-6	**Scalability**	Microservices architecture and Kubernetes orchestration for horizontal scaling