

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

<b>Date</b>	27 June 2025
<b>Team ID</b>	LTVIP2025TMID29288
<b>Project Name</b>	SmartSDLC – AI-Enhanced Software Development Lifecycle
<b>Maximum Marks</b>	4 Marks

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**Functional Requirements:**

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	AI-Powered Requirement Analysis	Upload PDF of requirements Extract and classify into SDLC phases Generate user stories
FR-4	Multilingual Code Generation	Generate Python or other language code from user stories Generate boilerplate code
FR-5	Test Case Generation	Create unit and integration tests from code or prompts
FR-6	Bug Detection and Auto-Fixing	Identify and fix bugs in user-submitted code Return corrected code
FR-7	Code Summarization and Documentation	Summarize uploaded/generated code Generate technical documentation
FR-8	Interactive AI Chatbot	Chat interface for development help and suggestions
FR-9	Feedback Collection	Capture user feedback on AI output and usability
FR-10	GitHub Integration	Push generated code to GitHub Create issues and sync documentation

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## Non-functional Requirements:

NFR No.	Non-Functional Requirement	Description
NFR-1	Usability	Intuitive UI using Streamlit with simple navigation and user-friendly workflow
NFR-2	Security	Secure user authentication; protect API keys and user data
NFR-3	Reliability	Ensure consistent AI response quality; fallback handling in case of failures
NFR-4	Performance	Fast response times for code generation and bug fixing
NFR-5	Availability	Local deployment availability with future support for cloud deployment
NFR-6	Scalability	Modular backend structure supports future scale-out with additional services