# Solution Requirements (Functional & Non-functional)

Date: 05 July 2025

Team ID: LTVIP2025TMID31232

Project Name: SmartSDLC: AI-Enhanced Software Development Lifecycle

## Functional Requirements

| FR No. | Functional Requirement (Epic) | Sub Requirement (Story / Sub-Task) |
| --- | --- | --- |
| FR-1 | Requirement Classification | User uploads PDF, AI returns SDLC classification |
| FR-2 | AI Code Generation | Prompt to code conversion |
| FR-3 | Bug Fixing | Correct buggy Python code |
| FR-4 | Test Generation | Create unittest or pytest cases |
| FR-5 | Summarization & Chat | Summarize or explain code via assistant |

## Non-functional Requirements

| NFR No. | Non-Functional Requirement |
| --- | --- |
| NFR-1 | Usability – Easy Streamlit UI |
| NFR-2 | Security – .env for API key handling |
| NFR-3 | Reliability – Stable Watsonx AI integration |
| NFR-4 | Performance – Fast response, caching |
| NFR-5 | Scalability – Cloud-ready, container support |