Project Design Phase
Proposed Solution Template

Date	15 February 2025
Team ID	LTVIP2025TMID36326
Project Name	Smart SDLC AI Assistant
Maximum Marks	2 Marks

1 Proposed Solution Template

The project team shall fill the following information in the proposed solution template.

S.No.	Parameter	Description
1	Problem Statement (Problem to be solved)	Software developers, students, and small teams face time-consuming manual SDLC processes (e.g., requirement analysis, coding, testing, debugging, documentation), error-prone coding, and limited resources, leading to reduced productivity and increased errors.
2	Idea / Solution Description	The Smart SDLC AI Assistant is a web-based platform that automates SDLC tasks using AI-driven features: requirement analysis to convert plain English into structured modules, multilingual code generation (Python, Java, C++), automated test case creation, bug detection and fixing, code summarization, and a chatbot for real-time SDLC query resolution.
3	Novelty / Uniqueness	Integrates AI-driven automation across the entire SDLC within a single platform, combining requirement analysis, code generation, testing, and debugging with a user-friendly dark-themed UI, unlike fragmented tools that address only specific phases.
4	Social Impact / Customer Satisfaction	Enhances productivity for developers and small teams by reducing manual effort and errors, enabling focus on creative tasks. Students benefit from simplified learning and project development, fostering skill development and confidence.
5	Business Model (Revenue Model)	Freemium model with basic features available for free and premium features (e.g., advanced AI models, additional language support) offered via subscription. API access for enterprise integration available through xAI's API service (see https://x.ai/api).
6	Scalability of the Solution	Built on a micro-services architecture using Node.js, Express.js, and FastAPI, deployed on Kaggle for cloud scalability. Supports multiple concurrent users with MongoDB for data storage and load balancers for high availability.