Project Design Phase
Proposed Solution Template

Date	27 June 2025
Team ID	LTVIP2025TMID29152
Project Name	SmartSDLC – AI-Enhanced Software Development Lifecycle
Maximum Marks	2 Marks

Proposed Solution Template:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Developers and students spend significant time manually performing repetitive software development lifecycle (SDLC) tasks like writing code, generating test cases, debugging, and understanding large codebases. This leads to inefficiencies, delays, and lower productivity.
2.	Idea / Solution description	SmartSDLC is an AI-powered platform that automates major SDLC phases. It uses IBM Watsonx to generate code from task descriptions, auto-generate test cases, detect and fix bugs, summarize source code, and classify PDF documents into SDLC phases—all integrated through a user-friendly Streamlit frontend and FastAPI backend.
3.	Novelty / Uniqueness	Unlike traditional code assistants that focus only on code generation, SmartSDLC offers an **end-to-end SDLC automation suite**—covering code, testing, debugging, summarization, and documentation. It unifies multiple AI services into one seamless platform and uses Watsonx for enterprise-grade reliability.
4.	Social Impact / Customer Satisfaction	SmartSDLC saves time and reduces stress for students, developers, and IT professionals by automating complex development tasks. It supports learning and productivity, making it especially beneficial for educational institutions, freelancers, and startups with limited resources.

5.	Business Model (Revenue Model)	SmartSDLC can adopt a Freemium SaaS model: offer core features for free, and charge for premium features like multi-language support, API access, and cloud-based PDF storage. It can also license to institutions for academic or internal use.
6.	Scalability of the Solution	The architecture is modular and cloud-ready. It can easily be scaled by integrating additional LLMs (like GPT-4, IBM Granite, etc.), supporting more programming languages, or expanding to enterprise APIs. It's deployable on local servers or cloud platforms like AWS, Azure, or IBM Cloud.