

Project Design Phase

Solution Architecture

Date	20 JUNE 2025
Team ID	LTVIP2025TMID37665
Project Name	SMART SDLC
Maximum Marks	4 Marks

Solution Architecture:

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

- Find the best tech solution to solve existing business problems.
- Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.
- Define features, development phases, and solution requirements.
- Provide specifications according to which the solution is defined, managed, and delivered.

Solution Architecture :

- Frontend: A single-page application with buttons mapped to each backend endpoint.
- Backend: FastAPI application that loads the model and handles HTTP requests.
- Model Layer: Granite model loaded via llama-cpp with GPU acceleration for faster performance.
- Interaction Flow: User -> Frontend -> Backend Endpoint -> LLM Inference -> Output Display

The architecture is modular and can easily be scaled to support new features like login systems, additional models, or analytics modules.

Solution Architecture Diagram:

