

Ideation Phase

SmartSDLC – AI-Enhanced Software Development Lifecycle

Date: 26 June 2025

Team ID: LTVIP2025TMID34234

Project Name: SmartSDLC: AI-Enhanced SDLC Automation Platform

Maximum Marks: 4 Marks

Brainstorm & Idea Prioritization Template

SmartSDLC reimagines the Software Development Lifecycle by automating key stages such as requirement classification, code generation, bug fixing, testing, and documentation using IBM Watsonx.

Step-1: Team Gathering, Collaboration and Select the Problem Statement

Team Members:

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Selected Problem Statement:

How might we use IBM Watsonx to automate and optimize the Software Development Lifecycle phases, reduce manual effort, and enhance development speed and software quality using Generative AI?

Step-2: Brainstorm, Idea Listing and Grouping

Brainstormed Ideas:

- Use PyMuPDF to extract requirements from PDF documents.
- Classify sentences into SDLC phases using Watsonx prompt engineering.
- Generate Python code from user stories using IBM Granite.
- Auto-detect bugs in pasted code and suggest corrections.

- Generate unit test cases from code or descriptions.
- Summarize existing code to improve onboarding and documentation.
- Offer a floating chatbot to answer general SDLC queries.
- Support multi-turn conversations using Streamlit session state.

Step-3: Idea Prioritization

Top Priority Ideas for Implementation:

1. Requirement Extraction and Classification via PDF
1. AI Code Generator using Natural Language
1. Bug Detection and Auto-fix module
1. Test Case Generation using Watsonx

Secondary Priority Ideas:

- Code Summarization and Explanation
- Floating Chatbot for SDLC Assistance
- Prompt templating for better AI performance