

Data Flow Diagram & User Stories

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Project Name: SmartSDLC: AI-Enhanced Software Development Lifecycle

Level 0 DFD

The user interacts with the SmartSDLC system through a Streamlit interface. Inputs like requirement documents or code are processed using Python backend logic. IBM Watsonx Granite 3.3 model handles classification, generation, and summarization, returning output to the user interface. Temporary data is managed via session state.

Level 1 DFD

Each module—Requirement Classifier, AI Code Generator, Bug Fixer, Test Generator, and Summarizer—sends user input to the Watsonx API, receives output, and updates the UI accordingly. Interactions are session-based and processed in real-time.

User Stories

User Type	Feature	User Story ID	User Story	Priority / Sprint
Developer	Requirement Classification	USN-1	As a user, I can upload a PDF with raw requirements to classify them into SDLC phases.	High / Sprint-1
Developer	AI Code Generator	USN-2	As a user, I can input a prompt and receive Python code.	High / Sprint-1
Developer	Bug Fixer	USN-3	As a user, I can paste buggy code and get a corrected version.	High / Sprint-2
Tester	Test Case Generator	USN-4	As a tester, I can input code	Medium / Sprint-2

			and receive test cases using unittest or pytest.	
Manager	Code Summarizer	USN-5	As a user, I can summarize any code block to understand its function and purpose.	Medium / Sprint-3