# Data Flow Diagram & User Stories

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Team ID: LTVIP2025TMID31232

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 and receive test cases using unittest or pytest. | Medium / Sprint-2 |
| Manager | Code Summarizer | USN-5 | As a user, I can summarize any code block to understand its function and purpose. | Medium / Sprint-3 |