# Data Flow Diagram & User Stories

Date: 26 June 2025

Team ID: LTVIP2025TMID31968

Project Name: Sustainable Smart City Assistant Using IBM Granite LLM

Maximum Marks: 2 Marks

## Data Flow Diagrams:

**Level 0 DFD:**

The user interacts with the Sustainable Smart City Assistant via a Streamlit web interface. Uploaded files (e.g., PDFs for policy summarization, CSVs for KPI analysis) and text inputs (queries, feedback, keywords) are received by backend logic written in Python. Prompts are dynamically constructed and passed to IBM Watsonx Granite LLM. The LLM responses are parsed and rendered to the user via various UI components. Session data such as chat history and inputs are maintained using Streamlit’s session\_state/

**Level 1 DFD:**

Each module (Policy Summarizer, Feedback Reporter, KPI Forecaster, etc.) accepts specific types of user input (PDF, text, CSV), then formats that input into a domain-specific prompt. The prompt is sent to the Watsonx API, and the response is processed and displayed in the appropriate format (summary text, forecast results, anomaly reports, tips, or chat reply). All modules are integrated into a navigable, multi-panel Streamlit dashboard..

## User Stories

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| --- | --- | --- | --- | --- | --- |
| **User Type** | **Functional Requirement (Epic)** | **User Story Number** | **User Story / Task** | **Acceptance Criteria** | **Priority / Release** |
| Planner / Officer | Policy Summarizer | USN-1 | As a planner, I can upload a city policy PDF or paste content and receive a simplified summary. | AI returns a readable summary highlighting key policy areas for citizens. | High / Sprint-1 |
| Citizen | Feedback Submission | USN-2 | As a citizen, I can select an issue category, describe my concern, and submit it. | Feedback is stored with a confirmation message. | High / Sprint-2 |
| Analyst | KPI Forecasting | USN-3 | As an analyst, I can upload KPI CSV data and get future trend forecasts. | System returns a plain-language summary of upcoming KPI trends. | High / Sprint-2 |
| Analyst | Anomaly Detection | USN-4 | As a user, I can upload a KPI CSV and detect abnormal usage or patterns. | AI highlights and explains outliers using city-level context. | Medium / Sprint-3 |
| Student / Eco Enthusiast | Eco Tips Generator | USN-5 | As a user, I can input a keyword and receive 5 eco-friendly suggestions. | LLM returns tips in clear, actionable bullet points. | Medium / Sprint-3 |
| Any User | Chat Assistant | USN-6 | As a user, I can ask questions related to city sustainability and get a response. | Chatbot provides relevant, LLM-generated responses with history retained. | Medium / Sprint-4 |