Data Flow Diagram & User Stories

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Team ID: LTVIP2025TMID20299

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

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