Project Design Phase-II
Data Flow Diagram & User Stories

Date	28 JUNE 2025
Team ID	LTVIP2025TMID34483
Project Name	Sustainable smart city assistant using IBM granite LLM
Maximum Marks	4 Marks

✅ Level 0 DFD (Context Level)

This shows the **overall system** as a single process, its interaction with **external entities** (e.g., users, city databases), and basic data flows.

Entities & Process

- **User** → interacts with the assistant
- **City Services Database** → provides real-time data (waste, traffic, water, etc.)
- **IBM Granite LLM** → processes user queries and generates responses
- **Smart City Assistant System** (main system process)

🔽 Diagram – Level 0

plaintext

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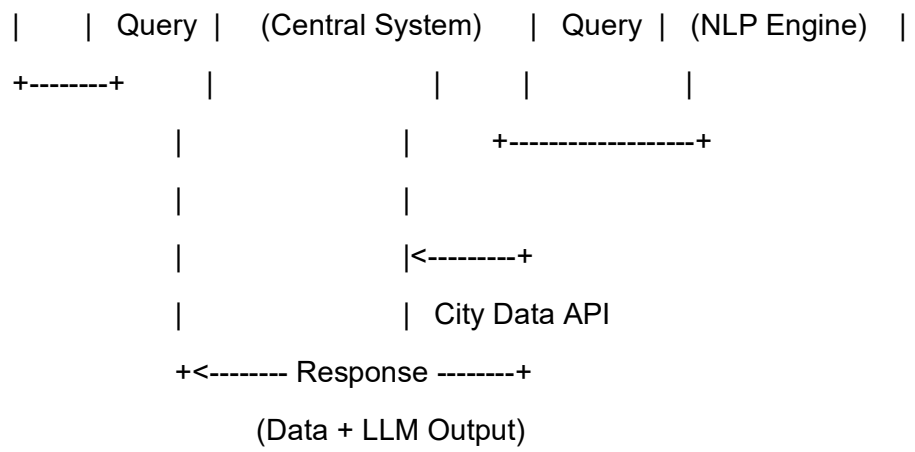

✅ Level 1 DFD (Expanded Functional Components)

This shows the internal **functional processes** of the Smart City Assistant system.

Processes

1. **User Authentication & Registration**
2. **Query Handling Interface**
3. **Granite LLM Query Processing**
4. **City Data Retrieval**
5. **Response Generation & Feedback Logging**

🔽 Diagram – Level 1

plaintext

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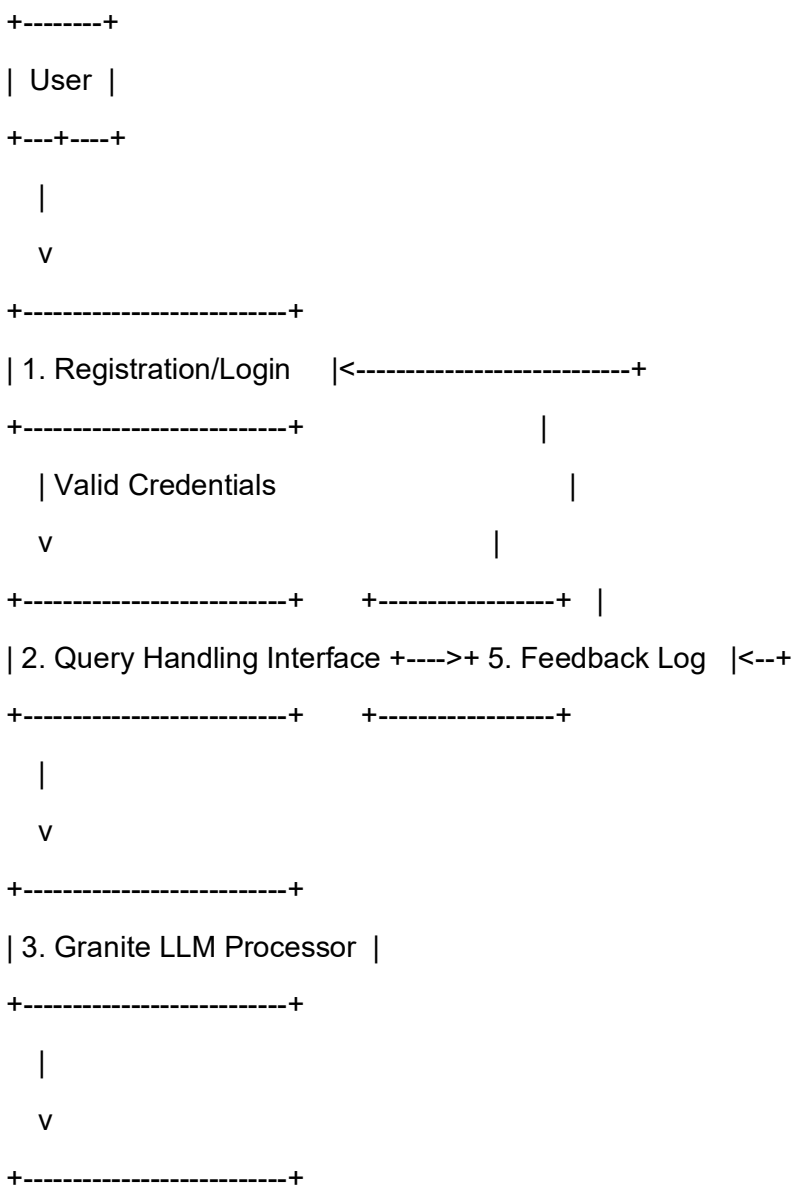
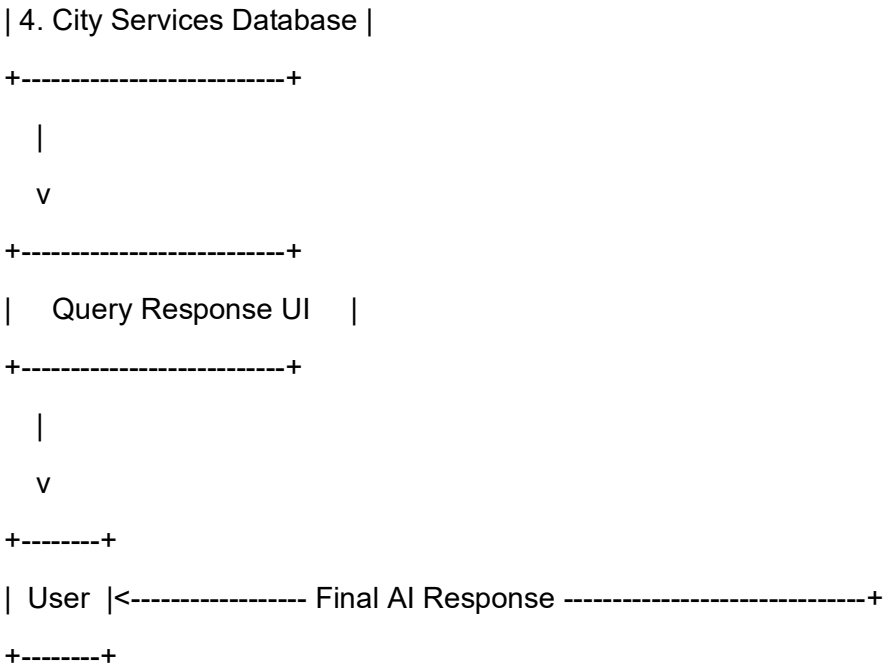

User
1. Registration/Login
Valid Credentials
2. Query Handling Interface
5. Feedback Log
3. Granite LLM Processor



✅ **Key Data Stores**

- **User Database**: Stores login/registration details
- **City Services DB**: APIs/data about transport, energy, water, waste
- **Feedback Log**: Records user queries and assistant performance

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✅ **Data Elements**

- **User Inputs**: Natural language queries
- **LLM Input/Output**: Query passed to Granite → response generated

- **API Results**: Structured city service data
- **Final Response**: Combined insight returned to the user

✅ **Tools to Draw These Diagrams:**

You can use:

- Draw.io (free & easy)
- Lucidchart
- Visual Paradigm Online
- Microsoft Visio or PowerPoint (for academic diagrams)
