

Project Design Phase-II

Data Flow Diagram & User Stories

Date	28 JUNE 2025
Team ID	LTVIP2025TMID60817
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.

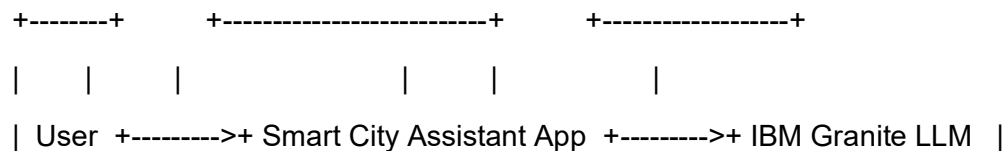
Entities & Process

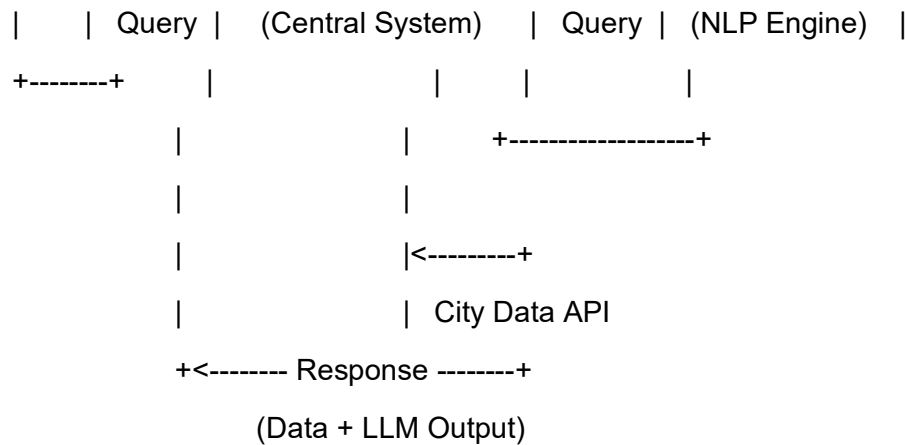
- **User** → interacts with the assistant
- **City Services Database** → provides real-time data (waste, traffic, water, etc.)
- **IBM Granite LLM** → processes user queries and generates responses
- **Smart City Assistant System** (main system process)

▣ Diagram – Level 0

plaintext

CopyEdit





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

CopyEdit

+-----+

| User |

+---+---+

|

v

+-----+

| 1. Registration/Login |<-----+

+-----+

|

| Valid Credentials

|

v

|

+-----+ +-----+ |

| 2. Query Handling Interface +---->+ 5. Feedback Log |<--+

+-----+

+-----+

|

v

+-----+

| 3. Granite LLM Processor |

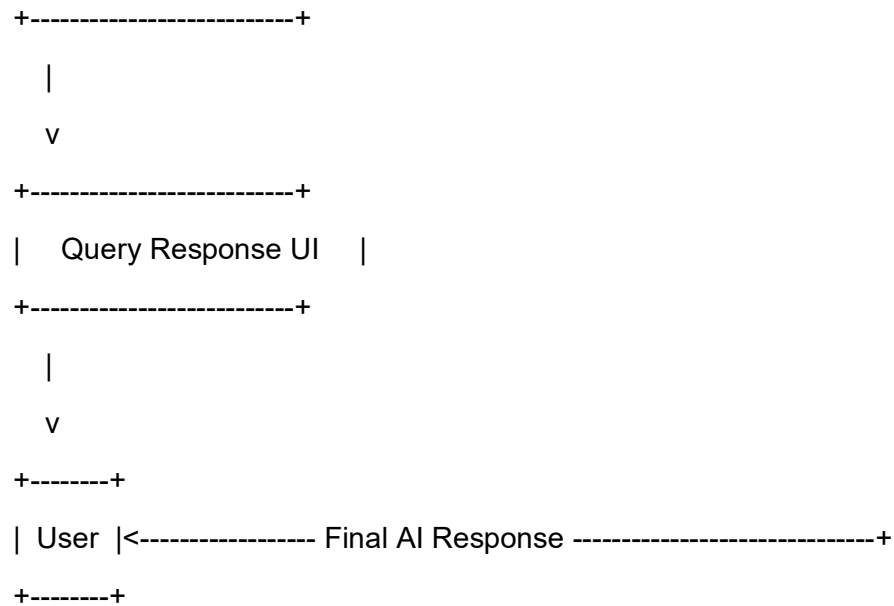
+-----+

|

v

+-----+

| 4. City Services Database |



✅ 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

✅ 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)
-