**Project Description:**

The **Weather Application System** lets users enter a city name to fetch real-time weather data from the Open Weather API. It displays temperature and conditions while storing the last searched city for quick access.

### **Level 0 (Context Diagram)**

At the highest level, we have just one process, which represents the system as a whole.

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| External Entities |

| - User |

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| Login System |

| (Process: 1.0) |

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| External API |

| (Open Weather) |

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**Explanation**:

* **External Entity (User):** The user interacts with the Weather App.
* **Process (Weather App):** The system processes the user’s request for weather data.
* **External API (Open Weather):** The application fetches weather data from Open Weather API.

### **Level 1 DFD (Decomposition of Process)**

Now, let's break down the **Weather Application System** process (Process 1.0) into more detailed steps.

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| External Entity | | External Entity |

| (User) | | Open Weather API|

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|Process: 1.1 - Input | | Process: 1.2 -Send |

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| Data Store: Local|

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| Process: 1.3 - Fetch | | City Name | | Weather Data |

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| External API (Open Weather) |

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**Explanation**:

### **Process 1.1 (Input City Name):** The user enters a city name into the input field.

### **Process 1.2 (Send Request to API):** The app sends a request to the Open Weather API with the user-provided city name.

### **Process 1.3 (Fetch Weather Data):** The API processes the request and returns weather data in JSON format.

### **Process 1.4 (Display Weather Data):** The app processes and displays the retrieved data, including temperature and weather description.

### **Data Flow**

* User inputs the city name.
* The city name is sent to Open Weather API.
* API returns weather data (temperature, description, etc.).
* The application displays the weather information or an error message if the city is not found.
* The last searched city is stored locally for quick access.

### **Additional Notes:**

* The system ensures real-time weather updates for the user.
* The user experience is improved with stored search history.
* The API call should handle errors gracefully, displaying relevant messages.
* Future enhancements could include a five-day weather forecast, caching results, or additional data points such as humidity and wind speed.