### **Data Flow Diagram (DFD) for To-Do List Application**

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

At the highest level, the system involves:

* **External Entity (User)**: The user interacts with the UI by adding and deleting tasks.
* **Process (To-Do List System)**: Manages tasks by storing, adding, and deleting them.
* **Data Store (Task List State)**: Stores the list of tasks in the component's state.
* **Data Flow**:
  + The user enters a task and clicks "Add Task".
  + The system updates the task list.
  + The updated task list is displayed.
  + The user can delete a task, and the system removes it from the list.

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| External Entity |

| (User) |

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| Process: To-Do App |

| (Task Manager) |

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| Data Store: Task List |

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| Output: Task Display |

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

This breaks the To-Do List system into detailed processes:

1. **Process 1.1 (User Input Handling)**
   * The user enters a task in the input field.
2. **Process 1.2 (Add Task)**
   * When the "Add Task" button is clicked:
     + The system validates the input (non-empty).
     + The task is added to the task list.
     + The UI updates to reflect the new task.
3. **Process 1.3 (Delete Task)**
   * When the "Delete" button is clicked:
     + The system removes the task from the task list.
     + The UI updates to reflect the changes.
4. **Process 1.4 (Task Display)**
   * The system dynamically renders the updated task list.

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| External Entity | | External Entity |

| (User) | | (To-Do List System) |

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| Process: 1.1 User | | Process: 1.2 Add Task |

| Input Handling | | (Update Task List) |

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| Process: 1.3 Delete | | Data Store: Task List |

| Task (Update) | | (Tasks in State) |

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| Process: 1.4 Task | | Output: Updated UI |

| Display (Render) | | (Task List Displayed) |

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### **Data Flow Summary:**

1. The **User** enters a task and clicks the "Add Task" button.
2. The **To-Do List System** validates the input and updates the **Task List State**.
3. The **Task List** updates and displays the new tasks in the UI.
4. When a **User** clicks the "Delete" button, the task is removed from the list.
5. The UI updates dynamically to reflect the changes.