**REQUIREMENT ANALYSIS**

|  |  |
| --- | --- |
| Date | 29-05-2025 |
| Team ID | LTVIP2025TMID28829 |
| Project Name | Medical Inventory Management |
| Maximum Marks | 4 Marks |

**3.3 Data Flow Diagram (DFD)**

**Introduction**

The Data Flow Diagram (DFD) is a vital tool used during system analysis to represent the flow of data within the Medical Inventory Management System. It helps visualize how information moves between users, system processes, and data stores.

We have developed two levels of DFD:

* **Level 0 (Context Diagram)**: Offers a high-level overview of the system and its external entities.
* **Level 1**: Breaks down major processes into sub-processes and shows detailed data flow paths.

**3.3.1 Level 0 – Context Diagram**

The **Level 0 DFD (Context Diagram)** depicts the entire inventory system as a single process interacting with external entities such as the Inventory Manager, Procurement Officer, Vendors, and Admin. It shows how external data enters and leaves the system.

**External Entities:**

1. **Inventory Manager** – Enters and monitors stock data.
2. **Procurement Officer** – Handles requisitions and purchase orders.
3. **Vendor** – Supplies inventory items.
4. **Hospital Admin** – Reviews reports, audits, and compliance data.

**Primary Data Flows:**

* Stock requisition
* Vendor quotations & deliveries
* Inventory updates
* Reports and analytics

**Textual Representation of Level 0:**

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| Inventory Manager |

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|

v

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| Inventory |

| Management |

| System (DFD0) |

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v |

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| Procurement | |

| Officer | |

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

| |

v |

+--------+ |

| Vendor |<--+

+--------+

<------ Admin Receives Reports ------>

**3.3.2 Level 1 – Decomposition Diagram**

The **Level 1 DFD** breaks down the system into individual functional modules such as stock monitoring, procurement, vendor management, and reporting. Each process communicates with data stores and/or external users.

**Main Processes in Level 1:**

| **Process ID** | **Process Name** | **Description** |
| --- | --- | --- |
| P1 | Inventory Monitoring | Tracks stock levels, expiry, batch info |
| P2 | Requisition & Approval | Handles stock requests and multi-level approvals |
| P3 | Vendor & Purchase Management | Manages vendor interaction and purchase order lifecycle |
| P4 | Receiving & Stock Update | Logs deliveries and updates stock records |
| P5 | Reporting & Compliance Logs | Generates usage, expiry, audit reports |

**Data Stores:**

| **Store ID** | **Data Store Name** | **Description** |
| --- | --- | --- |
| D1 | Inventory Database | Item name, quantity, expiry, location |
| D2 | Vendor Records | Contact, rating, product category |
| D3 | Purchase Order History | Orders placed, status, received quantities |
| D4 | Audit & Reports Log | System-generated reports and audit trails |

**Textual Flow Representation:**

[Inventory Manager] ---> (P1: Inventory Monitoring) ---> [D1: Inventory Database]

[Inventory Manager] ---> (P2: Requisition & Approval) ---> [D3: PO History]

(P2) ---> [Procurement Officer] ---> (P3: Vendor Management) ---> [Vendor]

(Vendor) ---> (P4: Receiving & Stock Update) ---> [D1: Inventory Database], [D3]

(Hospital Admin) <--- (P5: Reporting & Logs) <--- [D4: Reports & Logs], [D1]

**3.3.3 Process Descriptions**

**P1. Inventory Monitoring**

* Inputs: Stock data from Inventory Manager
* Outputs: Alerts for low stock or expiry
* Data Stores Used: D1

**P2. Requisition & Approval**

* Inputs: Requisition forms
* Outputs: Purchase orders or approval records
* Data Stores Used: D3

**P3. Vendor & PO Management**

* Inputs: Approved POs
* Outputs: Vendor updates, PO dispatches
* Data Stores Used: D2, D3

**P4. Receiving & Stock Update**

* Inputs: Delivery receipts
* Outputs: Updated stock records, discrepancy logs
* Data Stores Used: D1, D3

**P5. Reporting & Compliance**

* Inputs: System logs, inventory history
* Outputs: PDF/Excel reports, audit trail
* Data Stores Used: D4, D1

**Conclusion**

The Data Flow Diagrams provide a clear structural and functional understanding of how the Medical Inventory Management System operates. By breaking down the system into logical components, we can better visualize the flow of information, define system boundaries, and prepare for robust implementation on Salesforce.

These diagrams directly inform the **Solution Architecture**, **Data Model**, and **Automation Design** in the next phase of the report.