# Project Design Phase-II

# Solution Requirement (Functional & Non-functional)

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| Date | 03 November 2025 |
| Team ID | NM2025TMID01909 |
| Project Name | Medical Inventory Management |
| Maximum Marks | 4 Marks |

**Solution Requirements – Medical Inventory Management System (MIMS)**

**Functional Requirements**

Functional requirements describe *what the system should do* — the specific operations and features that ensure it fulfills its purpose.

| No. | Functional Requirement | Description / Expected Functionality |
|---|---|---|
| **FR1** | **User Authentication & Role Management** | The system should allow secure login for different user roles (Admin, Pharmacist, Supplier, Nurse/Doctor) with specific permissions. |
| **FR2** | **Medicine Registration** | The pharmacist or admin should be able to add new medicines with details like name, batch number, manufacturing date, expiry date, and supplier info. |
| **FR3** | **Inventory Tracking** | The system should maintain real-time tracking of medicine quantity, usage rate, and stock levels. |
| **FR4** | **Expiry Monitoring** | The system should automatically identify medicines that are close to expiry and alert the pharmacist/admin. |
| **FR5** | **Low Stock Alerts** | The system should trigger notifications when stock levels fall below the defined reorder threshold. |
| **FR6** | **Purchase Order Generation** | The system should automatically generate purchase orders and send them to suppliers when restocking is needed. |
| **FR7** | **Stock In/Out Management** | The pharmacist should be able to record medicine received from suppliers and issued to departments or patients. |
| **FR8** | **Barcode Scanning (Optional)** | The system should support barcode or QR scanning to make stock entry and retrieval faster and more accurate. |

**Non-Functional Requirements**

Non-functional requirements define *how the system should perform* — focusing on quality, security, reliability, and usability.

| No. | Non-Functional Requirement | Description / Expected Performance |
|---|---|---|
| **NFR1** | **Performance** | The system should process transactions (like adding or searching inventory) within 3 seconds on average. |
| **NFR2** | **Scalability** | The system should handle an increasing number of medicines, users, and transactions without performance degradation. |
| **NFR3** | **Security** | The system should use secure authentication, encrypt sensitive data, and restrict access based on user roles. |
| **NFR4** | **Availability** | The system should be available 24/7 with minimal downtime (<1% annually). |
| **NFR5** | **Reliability** | The system should maintain data integrity and ensure accurate updates to inventory records even during concurrent operations. |
| **NFR6** | **Usability** | The interface should be user-friendly, with clear navigation, search filters, and intuitive dashboards for different roles. |
| **NFR7** | **Maintainability** | The system architecture should allow easy updates, module replacement, and integration with future technologies (e.g., IoT sensors, RFID). |
| **NFR8** | **Portability** | The application should work across devices (desktop, tablet, mobile) and major browsers. |
| **NFR9** | **Data Backup & Recovery** | The system should perform automatic backups and allow restoration of inventory data in case of system failure. |
| **NFR10** | **Compliance** | The system should comply with healthcare data handling regulations and institutional policies for inventory management. |

**Conclution**

- **Functional Requirements** ensure that the MIMS fulfills its primary purpose: *efficient inventory tracking, expiry monitoring, and automated purchasing*.
- **Non-Functional Requirements** ensure that it's *secure, reliable, scalable, and user-friendly* — suitable for hospital environments.