

# Performance Testing Phase

## Performance Testing

Date	07-11-2025
Team ID	NM2025TMID05637
Project Name	Medical Inventory Management

### 1. Introduction

#### **Objective:**

Performance testing ensures that the Medical Inventory Management System (MIMS) performs reliably, efficiently, and accurately under various operational conditions. In healthcare, slow or unreliable systems can lead to delays, errors, and compliance issues. Therefore, testing is crucial to guarantee system stability and responsiveness.

#### **Key Goals of Performance Testing:**

Validate system response times.

Ensure scalability for multiple users and large datasets.

Measure data accuracy and reliability under load.

Identify potential bottlenecks and optimize system performance.

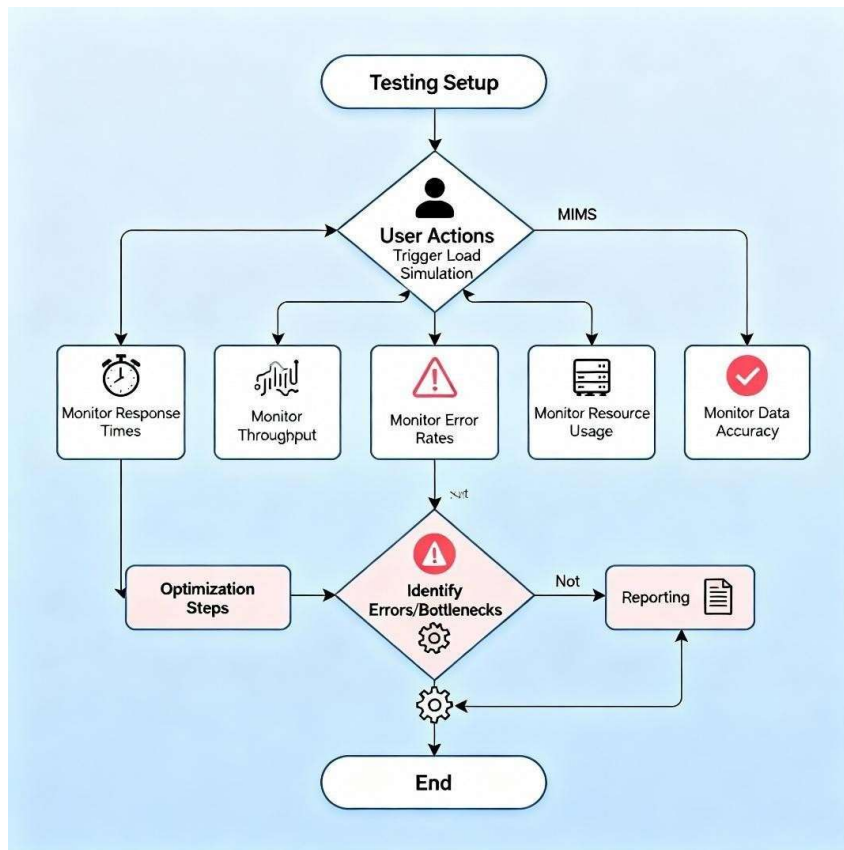
#### **Scope:**

Testing focuses on critical functions of MIMS:

1. Real-time stock updates
2. Purchase order creation
3. Supplier management
4. Expiry monitoring
5. Reporting and analytics

## 2. Types of Performance Testing

Testing Type	Purpose	Scenario Example
Load Testing	Evaluate system under expected user load	50 users simultaneously accessing dashboards
Stress Testing	Test system beyond normal capacity	200 users accessing inventory module during peak hours
Endurance Testing	Check system stability over time	24-hour continuous use of inventory updates
Spike Testing	Test sudden surge in traffic	Sudden 50% increase in purchase order submissions
Scalability Testing	Assess system growth handling	Adding 1000+ new product records to inventory
Latency Testing	Measure response times for operations	Fetching product data in <2 seconds



### **3. Performance Metrics**

#### **Critical Metrics to Measure:**

##### **1. Response Time**

Average time to fetch inventory data.

Expected benchmark: <2 seconds per query.

##### **2. Throughput**

Number of transactions processed per second.

Example: 100 purchase orders processed per minute without delay.

##### **3. Error Rate**

Percentage of failed operations under load.

Target: <1% failure rate.

##### **4. Resource Utilization**

CPU, memory, and database usage under load.

Aim for balanced usage to prevent server crashes.

##### **5. Scalability**

System must handle increasing products, suppliers, and users without degradation.

##### **6. Data Accuracy**

Stock levels, expiry dates, and supplier records must remain accurate under load.

#### **4. Testing Workflows and Scenarios**

##### **Example Scenario:**

- 50 users simultaneously update stock levels, create POs, and generate reports.
- Measure response times and identify any bottlenecks in Salesforce Apex classes or database queries.

##### **Expected Outcome:**

- All dashboards and operations respond within 2 seconds.
- No data loss or errors in inventory records.

#### **5. Conclusion**

Performance testing ensures that MIMS:

- Handles high concurrent users efficiently.
- Maintains real-time inventory data accuracy.
- Generates alerts and reports without delays.
- Scales as the organization grows.