# Performance Testing Phase

## Performance Testing

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| **Team ID** | NM2025TMID06114 |
| **Project Name** | Medical Inventory Management |

## 1. Introduction

### Objective:

Performance evaluation confirms that the Medical Inventory Management System (MIMS) operates smoothly, swiftly, and precisely across different usage scenarios. In the healthcare environment, sluggish or unstable systems may cause disruptions, mistakes, and regulatory breaches. Hence, thorough testing is essential to ensure the platform's consistency, speed, and dependability.

### Key Goals of Performance Testing:

Check how quickly the system responds.

Confirm it can handle many users and extensive data smoothly.

Assess the correctness and consistency of data under heavy usage.

Detect performance slowdowns and enhance overall system efficiency.

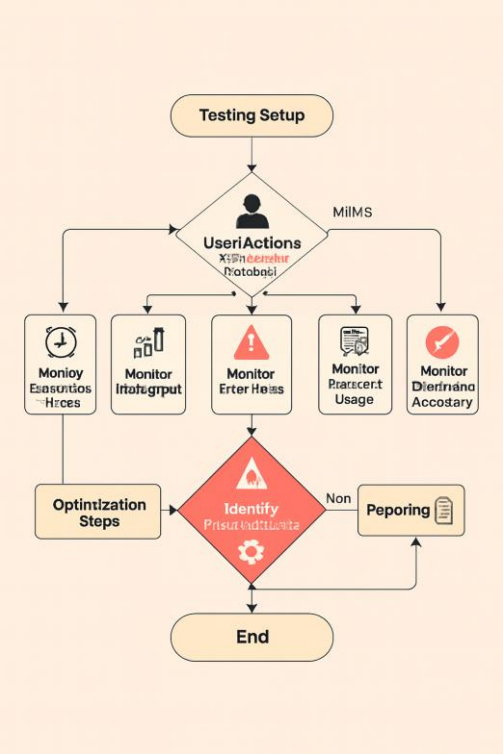
### Scope:

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:**
• 100 users concurrently access inventory, process orders, and view dashboards.

• Track system latency and pinpoint slowdowns in Apex triggers, workflows, or SOQL 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:

• Supports a large number of simultaneous users seamlessly.
• Keeps inventory information accurate in real time.
• Produces notifications and reports instantly.
• Expands smoothly to accommodate organizational growth.