Phase 5 : Performance Testing Phase

Project Title : Medical Inventory Management System

Introduction

The **Performance Testing Phase** ensures that the Medical Inventory Management System functions efficiently under expected workloads and user operations. This phase focuses on testing the speed, stability, scalability, and reliability of the Salesforce-based system. The goal is to confirm that the system performs well even when handling large volumes of medical data and multiple user interactions simultaneously.

Purpose of Performance Testing

The main purpose of performance testing is to verify that the system meets all performance expectations, including response time, processing speed, and data handling capacity. It helps identify and resolve performance bottlenecks to ensure smooth operation in real-world healthcare environments.

Objectives

1. To ensure that all system modules run efficiently without delays.

2. To check system behavior under varying loads and user activity.

3. To validate that automation flows and reports execute within acceptable time limits.

4. To verify that data retrieval and updates in Salesforce are performed quickly and accurately.

5. To ensure system reliability and stability during continuous usage.

Performance Testing Parameters

The following parameters were tested in the Salesforce-based system:

1. **Response Time:**

   o   Measured the time taken for pages such as Medicine Records, Supplier Lists, and Reports to load.

2. **Data Processing Speed:**

   o   Tested how quickly new stock entries or updates reflect in dashboards and reports.

3. **Automation Execution Time:**

   o   Checked how long it takes for Salesforce Flows and Process Builders to trigger alerts for low stock and expiry.

4. **Scalability:**

   o   Verified system performance as the volume of records (medicines, suppliers, purchases) increased.

5. **Concurrent Users:**

   o   Tested system behavior when multiple users performed operations simultaneously.

Tools and Methods Used

1. **Salesforce Developer Console:**
   Used to track execution logs, test triggers, and analyze performance metrics.

2. **Salesforce Lightning Performance Analyzer:**
   Monitored page load times and Lightning component efficiency.

3. **Apex Test Classes:**
   Validated backend logic performance and automation triggers.

4. **Manual Testing:**
   Verified responsiveness and speed through real-time user operations within Salesforce.

Performance Optimization Measures

To further enhance performance:

1. Removed unused fields and components from Lightning Pages.

2. Optimized Apex triggers and flows to minimize processing time.

3. Implemented proper indexing for faster SOQL queries.

4. Scheduled background reports during off-peak hours.

5. Regularly monitored system logs for performance metrics.

Expected Outcome

- The Salesforce system performs smoothly under normal and high-load conditions.

- All workflows, automation, and reports execute efficiently.

- Improved user experience with fast data access and real-time updates.

- A reliable and scalable CRM solution suitable for healthcare inventory operations.

Conclusion

The **Performance Testing Phase** confirms that the **Medical Inventory Management System** built on the **Salesforce platform** operates efficiently, reliably, and within performance standards. The system demonstrates high stability, quick response times, and effective automation, ensuring it is ready for real-world deployment in healthcare environments.