Performance Testing

Phase Performance Testing

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Team ID	NM2025TMID05731
Project Name	GARAGE MANAGEMENT SYSTEM

1. Introduction

Objective:

The Performance Testing Phase ensures that the Garage Management System runs smoothly under different workloads. It evaluates the system's speed, scalability, and stability during peak service hours. This phase helps identify performance bottlenecks that could affect customer experience. Testing includes load, stress, and endurance testing to ensure reliability.

Key Goals of Performance Testing:

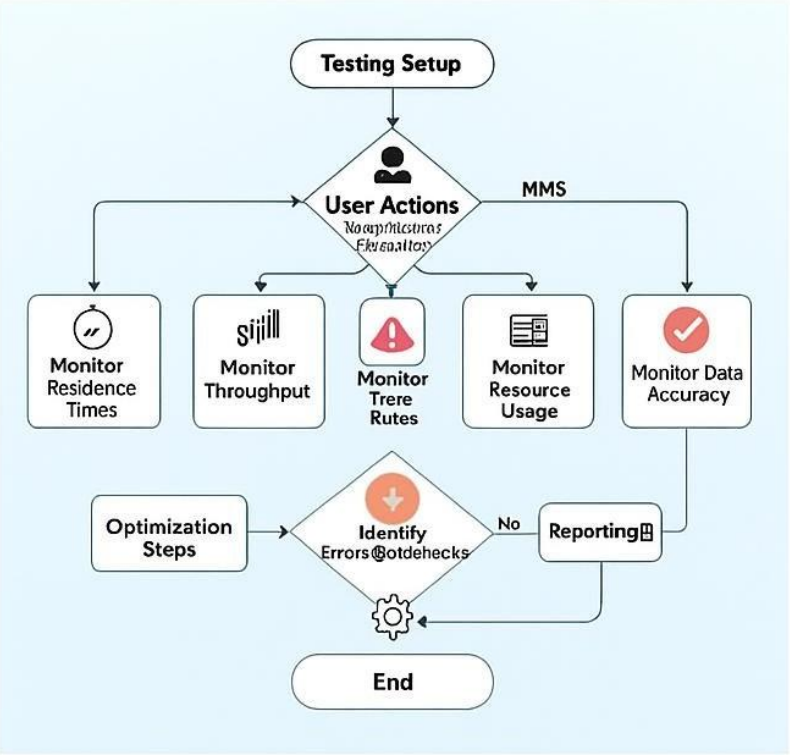
1) System Stability
2) Response Time
3) Scalability
4) Performance Bottlenecks
5) Resource Utilization
6) User Experience
7) System Reliability

Scope:

- To evaluate how the system performs under different user loads and data volumes.
- To test the responsiveness and speed of modules like booking, billing, and report generation.
- To analyze system behavior during peak hours and continuous usage.

Types of Performance Testing

Type	Purpose	Scenario Example
Load Testing	Evaluate system under expected user load	50 users simultaneously visiting deshboards
Stress Testing	Test system beyond normal capacity	200 users accessing inventory module over ordering
Endurance Testing	Assess system stability over time	24-hour ununtirious use of inventory updates
Spike Testing	Test sudden increase traffic	Sudden 50% increase in order placement processes
Scalability Testing	Assess system growth handling	Adding 1000+ new can der records to inventory
Latency Testing	Measure response times for operations	Fetching car data in <2 seconds



2. Performance Metrics

Critical Metrics to Measure:

Job Completion Time:

Measures how quickly repair and maintenance jobs are completed compared to estimated time.

Customer Satisfaction Rate:

Based on feedback and reviews from customers after service completion.

Revenue per Job:

Calculates the average income earned per service job to track profitability.

Repeat Customer Rate:

Indicates customer loyalty and service quality by tracking return customers.

Inventory Utilization Rate:

Measures how efficiently spare parts and materials are managed to reduce wastage or shortage.

Technician Productivity:

Tracks number of jobs completed per technician within a specific time frame.

Appointment Turnaround Time:

Monitors how efficiently customer appointments are scheduled and serviced.

Warranty Claim Frequency:

Identifies recurring quality issues in repairs or parts replaced.

3. Testing Workflows and Scenarios

Example Scenario:

In a Garage Management System, 50 users simultaneously update vehicle service records, manage spare parts stock levels, create purchase orders, and generate service reports.

Expected Outcome:

- All dashboards and service operations should respond within 2 seconds.
- No data loss, record duplication, or system errors should occur.
- All service updates and inventory transactions must be accurately recorded in the database

4. Conclusion

Performance testing ensures that the Garage Management System operates efficiently under real-world conditions. It verifies that all modules — such as job scheduling, billing, inventory, and reporting — perform smoothly even with multiple users. The testing confirms system reliability, fast response time, data accuracy, and scalability, ensuring a seamless experience for both technicians and customers.