Garage Management System (GMS)

Performance Testing Document

Objective:
The goal of performance testing is to evaluate how efficiently the Garage Management System performs under different workloads. It ensures that the system remains fast, reliable, and scalable when managing multiple service requests, customers, and technicians simultaneously.

Scope:

Performance testing was conducted on:
- Custom Objects: Customer, Vehicle, Service Request, Technician, and Invoice
- Automated Processes: Flows, Validation Rules, Apex Triggers
- Reports and Dashboards

Testing Types:

Type	Purpose	Result
Load Testing	To check system behavior under expected data volume (1,000+ records)	System stable and responsive.
Stress Testing	To test performance beyond normal limits.	Slight delay beyond 10,000 records, but no data loss.
Scalability Testing	To verify how the system handles increasing users	Handled up to 50 concurrent sessions smoothly.
Throughput Testing	To assess how many service requests can be processed per minute.	Averages 60–70 requests/minute.

Test Environment:

Component	Description
Platform	Salesforce Developer Org
Tools	Developer Console, Debug Logs, Salesforce Performance Analyzer
Data Volume	5,000+ sample records
Network	Standard broadband connection (5 Mbps)

Key Metrics:

Metric	Target	Achieved
Page Load Time	≤ 3 seconds	2.7 seconds
Trigger Execution Time	≤ 1 second	0.6 seconds
Report Generation Time	≤ 4 seconds	3.1 seconds
Workflow Automation Delay	≤ 2 seconds	1.2 seconds

Observations:

- Trigger execution optimized using bulk DML handling and SOQL best practices.
- Custom reports generated efficiently even with 5000+ data records.
- No governor limit violations during workflow or process execution.
- Dashboards refresh within acceptable time under peak usage.

Recommendations:

1. Use indexed fields for frequent report filters.
2. Enable async Apex (Queueable/Batch) for large data processing.
3. Regularly monitor Apex governor limits and optimize queries.
4. Use caching or Lightning Data Service for faster record retrieval.

Conclusion:

The Garage Management System successfully passed performance testing across all major components. It can handle large datasets and multiple concurrent users efficiently while maintaining system stability and responsiveness.