

Phase 5: Project Design Phase II - Solution Requirements

Project Title: Garage Management System (Salesforce Platform)

Date: November 09, 2025

Team ID: NM2025TMID02154

Maximum Marks: 4 Marks

Functional Requirements

The following are the functional requirements for the **Garage Management System** Salesforce platform:

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Vehicle Part Registration	Registration through Form; Entry via Barcode/SKU; Batch Import for Multiple Parts
FR-2	Part Verification	Part number validation; Supplier credential verification; Vehicle compatibility confirmation
FR-3	Parts Listing & Catalog	Staff can list vehicle parts (name, code, quantity, units, warranty status, serial number, pricing, image)
FR-4	Service Location Setup	Garage facilities can register storage locations (main warehouse, service bays, technician carts); Define reorder thresholds and minimum stock levels
FR-5	Location Verification	Location credential validation; Capacity assessment (bay size/lift type); Contact person confirmation
FR-6	Supplier Registration	Suppliers can create profiles with availability, service hours, and delivery information
FR-7	Automated Reorder Assignment	System automatically creates purchase orders and assigns delivery tasks to suppliers based on stock levels and reorder points
FR-8	Reorder Notification	Procurement staff receive real-time SMS/email notifications for items below reorder thresholds
FR-9	Job Card Status Tracking	Staff can update inventory receipt and parts consumption status (Ordered, Received, Stocked, Used on Job) via mobile app/web
FR-10	Customer Service Confirmation	System alerts staff of approaching customer service due dates/warranty expiries and confirms customer outreach
FR-11	Data Protection Rules (Parts)	System prevents deletion of vehicle parts assigned to active inventory records or pending purchase orders
FR-12	Transaction Protection (Jobs)	System prevents deletion of inventory transactions linked to completed Job Cards or pending reconciliation
FR-13	Dashboard Reporting	Real-time dashboards show: inventory levels by location, items below reorder points, active Job Status, technician utilization, cost per repair, service completion %
FR-14	Analytics & Insights	Historical reports, repair/parts usage trends by vehicle model, supplier performance, seasonal demand patterns, cost analysis
FR-15	Audit Trail & Compliance	System captures and displays complete audit logs showing all modifications to inventory records, parts serial tracking, and safety/environmental

Non-Functional Requirements

The following are the non-functional requirements for the **Garage Management System** Salesforce platform:

NFR No.	Non-Functional Requirement	Description
NFR-1	Usability	The platform interface should be intuitive and user-friendly for all stakeholders (managers, technicians, service advisors, suppliers). Mobile app must be responsive and accessible for technicians in the bays.
NFR-2	Security	Only authorized admins and assigned staff can access/update inventory records and purchase orders. Customer and vehicle repair information must be secured. Two-factor authentication for sensitive operations.
NFR-3	Reliability	The system must correctly validate all inventory records before preventing deletion. Zero data loss for completed transactions. 99.5% uptime guarantee for the production system.
NFR-4	Performance	Reorder checks and validation must occur within <2 seconds. Dashboard reports must load within <5 seconds. Real-time notifications delivered within <30 seconds of threshold trigger. Barcode scanning response <1 second.
NFR-5	Availability	The platform should be accessible 24/7 for technicians to record consumption and view inventory. Scheduled maintenance windows should not exceed 2 hours/month, preferably during low-usage hours.
NFR-6	Scalability	The system must handle 10x growth in inventory volume (parts, locations, jobs) without performance degradation. Support simultaneous tracking of 10,000+ parts records daily. Auto-scaling cloud infrastructure.
NFR-7	Maintainability	Clean, well-documented code with modular design for easy updates. API-driven architecture for future integrations with booking systems, barcode scanners, and supplier ordering platforms.
NFR-8	Compliance	Adherence to automotive repair standards and environmental regulations (e.g., waste disposal tracking); audit logs for all data modifications; transparent data privacy policy.
NFR-9	Compatibility	Support iOS, Android, Windows, and macOS. Compatible with modern web browsers. Works on devices with limited connectivity (offline mode support for barcode scanning).
NFR-10	Disaster Recovery	Daily automated backups; disaster recovery plan with <4-hour RTO (Recovery Time Objective) and <1-hour RPO (Recovery Point Objective). Geographically redundant backup systems.

Acceptance Criteria

Requirement	Acceptance Criteria
FR-1 to FR-6	All registration forms functional; barcode/SKU verification working; batch import processing 500+ parts successfully
FR-7 to FR-9	Automated assignment of 95%+ reorder tasks; notifications delivered within 30 seconds; Job Card status updates successful via mobile
FR-10 to FR-12	Service/Warranty alerts capture 100% of approaching dates; deletion prevention working 100% for parts in active jobs; no accidental data loss
FR-13 to FR-15	Dashboards load <5 seconds; audit reports accurate within 99.9%; parts serial tracking

complete for regulatory review

NFR-1 to NFR-5 UI SUS (System Usability Scale) ≥ 70 ; zero unauthorized access incidents; <2 sec response time for 95% of requests; 99.5% uptime

NFR-6 to NFR-10 Handle 10,000 simultaneous users; support 1000+ inventory updates/day; clean code with $>80\%$ test coverage; regulatory compliant; 4-hour RTO

System Architecture & Technical Specifications

Technology Stack

Component	Technology
Backend	Salesforce Apex classes and REST APIs
Database	Salesforce SOQL/database with enhanced security
Automation	Salesforce Flows, Process Builder, Business Rules, Validation Rules
Integration	REST APIs for barcode scanners (Zebra, Symbol), Booking Systems, SMS notifications (Twilio), email services (SendGrid)
Security	OAuth 2.0, AES encryption at rest and in transit, SSL/TLS, Field-level security

Data Model & Custom Objects

- **Vehicle_Part:** Part code, name, description, unit of measure, pricing, supplier ID, warranty period, **compatible vehicle models**.
- **Inventory_Location:** Location name, type (warehouse/service bay/cart), capacity, reorder threshold, minimum stock level, contact person, address.
- **Supplier:** Name, contact information, service hours, delivery zones, performance rating, payment terms, delivery lead time.
- **Job_Card (Usage_Record):** Part ID, location ID, quantity consumed, date/time, **technician ID**, lot number, serial number, **vehicle VIN/Service**.
- **Purchase_Order:** Part ID, supplier ID, quantity ordered, unit price, order date, expected delivery date, delivery status, received quantity.
- **Inventory_Transaction:** Part ID, location ID, transaction type (receipt/consumption/adjustment), quantity, date/time, lot number, user, notes.

Key Business Rules

BR No.	Business Rule
BR-1	Prevent deletion of vehicle parts assigned to active inventory records or pending purchase orders.
BR-2	Prevent deletion of inventory transactions linked to completed Job Cards or pending reconciliation.
BR-3	Auto-create purchase orders when stock falls below reorder threshold; auto-notify suppliers.
BR-4	Automatic notification triggers on reorder event, delivery receipt, and customer service due date approaches.
BR-5	Audit log all critical operations (part creation/deletion, stock adjustments, delivery confirmations) with timestamp and user identification.
BR-6	Enforce FIFO (First-In, First-Out) or other defined inventory rotation based on receipt date/part type.
BR-7	Prevent parts consumption if product quantity is insufficient; trigger alert notification to the manager.

Constraints & Dependencies

Category	Item
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Constraints	Budget: Limited for development; leveraging Salesforce native features. Timeline: 27 days for complete development, testing, and deployment. Data Privacy: Protection of customer and vehicle repair history required. System Integration: Must work with existing Booking/Accounting systems.
Dependencies	Salesforce platform availability and API rate limits. Third-party barcode scanner/booking system reliability and integration support. Garage IT infrastructure and network connectivity. Supplier system compatibility and responsiveness for automated ordering. Technician participation and adoption during pilot testing.

Conclusion

Phase 5 establishes comprehensive functional and non-functional requirements for the **Garage Management System** on Salesforce. These requirements ensure the system is secure, scalable, reliable, and compliant with operational standards for all stakeholders including managers, technicians, service advisors, and suppliers. With clear acceptance criteria and technical specifications, the development team has a precise roadmap to deliver a solution that maximizes **parts inventory management efficiency**, ensures **service quality**, minimizes vehicle downtime, and guarantees operational compliance. The defined business rules, data model, and system architecture provide a robust foundation for building an enterprise-grade garage management platform that drives operational excellence.