RPM Motorcycle Shop Management System – Software Requirements Document

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This document outlines the requirements for the Motorcycle Shop Management System, designed to streamline sales and maintenance operations. It includes the business needs, functional and non-functional requirements, and user stories reflecting the needs of different user roles. Our goal is to enhance operational efficiency, ensure data accuracy, and provide a user-friendly and secure system with Arabic language support compatible with the local working environment. The client was contacted via voice call and email to gather and confirm these requirements.

1. Business Requirements

These are high-level goals and needs of rpm motorcycle shop to be fulfilled by the system:

Efficiently manage motorcycle sales and maintenance operations.
Maintain accurate and up-to-date inventory of motorcycles and spare parts.
Provide seamless customer management including purchase and service history.
Enable role-based system access for admins and technicians.
Generate detailed reports for sales, maintenance, profits, and technician performance.
Ensure system usability for non-technical staff with Arabic language support.
Support future scalability for multiple branches.
Ensure data security, backup, and system reliability.
Support printing of invoices and maintenance reports.
Deploy locally on the shop's computer with possible future web version.

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2. Functional Requirements

2.1 Product Management

- Add, edit, or delete motorcycle entries (model, brand, price, color, condition).
- View all motorcycles available for sale.
- Filter motorcycles by brand, type, or price range.

2.2 Sales Management

- Record motorcycle sales transactions.
- Link sales to customer details (name, phone, national ID).
- Generate and print invoices (PDF or screen preview).
- Automatically update motorcycle status to "sold" upon purchase.

2.3 Maintenance Service Management

- Register new maintenance requests including issue details and customer info.
- Schedule maintenance with date/time and assign technicians.
- Update maintenance status (In Progress, Completed, Not Completed).
- Log spare parts used and associated service costs.

2.4 Customer Management

- Record customer information.
- Display customer purchase and service history.

2.5 User Management

- System login for admins and technicians.
- Role-based permissions (admin vs technician).
- Admins can manage system users (add/edit/delete).

2.6 Inventory Management

- Monitor and update spare parts inventory.
- Auto-update stock levels after usage in maintenance.
- Receive alerts for low-stock spare parts.

2.7 Reporting

- Generate reports for:

Daily, weekly, monthly sales.
Number of maintenance tasks.
Overall profits.
Technician performance metrics

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3. Non-Functional Requirements

Requirement	Description	Measurement / Acceptance Criteria
Usability	User-friendly interface suitable for non-technical staff.	90% of users (non-technical staff) should be able to complete key tasks without assistance after 1 hour of training. Usability testing score ≥ 85%.
Security	Role-based access control, password-protected login.	All users must authenticate with password; role permissions enforced with 0 unauthorized access incidents during testing. Passwords stored securely (hashed + salted).
Reliability	Stable and available throughout working hours.	System uptime ≥ 99.5% during working hours (e.g., 9 AM–6 PM). Mean Time Between Failures (MTBF) ≥ 30 days.
Scalability	Support multiple branches in future expansions.	System supports at least 5 concurrent branch databases and 50 concurrent users without degradation (>90% performance baseline).
Performance	Fast response even with large data volumes.	Average page load time ≤ 2 seconds under peak load (1000+ records). Database queries return results in ≤ 1 second for typical operations.
Backup	Daily automatic backups of the database.	Automatic backup completes successfully once every 24 hours with verification; recovery time objective (RTO) ≤ 2 hours.
Compatibility	Compatible with Windows OS; potential web version later.	System runs without errors on Windows 10 and 11; Web version is planned and documented.
Language Support	Support Arabic interface.	Entire UI translated and displayed correctly in Arabic; 100% of user interface elements support Arabic text and right-to-left alignment.
Printing	Capability to print invoices and maintenance reports.	Invoices and reports print correctly on standard printers; printed output matches on-screen preview with ≤ 5% formatting difference.
Deployment	Installed and operated locally on the shop's computer.	Installation process completes in ≤ 30 minutes; system runs on specified hardware without network dependency; no critical errors on startup.

4. User Stories

The following user stories capture the specific needs and interactions of different user roles within the Motorcycle Shop Management System. They translate the business and functional requirements into practical scenarios, helping the development team understand how each type of user—administrators, technicians, and customers—will use the system. This ensures the final product meets real-world workflows and improves user satisfaction.

4.1 Administrator User Stories

1. Add, edit, delete motorcycles to manage inventory.
2. Record sales linked to customer profiles.
3. Generate and print sales invoices.
4. Register and monitor maintenance tasks.
5. Manage user accounts and permissions.
6. Monitor spare parts inventory with low-stock alerts.
7. Generate sales, maintenance, and profit reports.

4.2 Technician User Stories

1. View assigned maintenance tasks.
2. Update task status and progress.
3. Add repair notes for documentation.
4. Track spare parts used in each repair.

4.3 Customer User Stories (via staff)

1. Receive printed invoice after purchase.
2. Be notified when maintenance is complete.
3. Access full history of past services and purchases for easier future interactions.
