

Software Requirements Specification

for

Smart Phone Selling and Management System

Version 1.0

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1. Introduction

1.1 Purpose

This document specifies the **System Requirements Specification (SRS)** for the **Smart Phone Selling Website**, a web-based e-commerce system designed to support the online sale and management of smartphones.

The purpose of this document is to clearly define the **functional and non-functional requirements** of the system for developers, stakeholders, and testers to ensure successful design, implementation, and validation of the website.

1.2 Document Conventions

The following conventions are used throughout this document:

- **Bold text:** Indicates key system features, modules, or important terms.
 - **REQ-XX:** Unique identifiers used to label individual system requirements.
 - **Admin:** Refers to authorized users who manage products, orders, and system settings.
 - **Customer/User:** Refers to end-users who browse and purchase smartphones.
 - **High-priority requirements** are explicitly indicated within the relevant sections.
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1.3 Intended Audience and Reading Suggestions

This document is intended for the following audiences:

- **Developers:** To understand system requirements for implementing frontend, backend, database, and payment modules.
- **System Administrators:** To manage product listings, orders, payments, and user accounts through the admin dashboard.
- **Testers:** To verify system functionality against the specified requirements.
- **Project Supervisors / Evaluators:** To assess the completeness and feasibility of the system design.

Readers are advised to review the **overall description** before proceeding to detailed functional and non-functional requirements.

1.4 Product Scope

The Smart Phone Selling Website will provide an online platform that allows customers to browse, select, and purchase smartphones efficiently. The system will:

- Display smartphones categorized by **brand, price range, storage capacity, and condition**.
- Provide detailed product information including **images, specifications, price, and availability**.
- Support **shopping cart and checkout functionality**.
- Integrate **multiple payment methods** such as Cash on Delivery and online payment gateways.
- Offer an **admin dashboard** for managing products, categories, orders, and payments.
- Maintain a secure database for storing **user, product, and transaction data**.

The system aims to improve accessibility, sales management, and customer experience for smartphone retail businesses.

1.5 References

- IEEE Std 830-1998 – *IEEE Recommended Practice for Software Requirements Specifications*.
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Available at: <https://www.w3schools.com/>
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- PayHere Sri Lanka (2025). *Payment Gateway Documentation*.
Available at: <https://support.payhere.lk/>
(Referenced for online payment integration)

2. Overall Description

2.1 Product Perspective

The **Smart Phone Selling Website** is a **web-based e-commerce system** designed to operate as a standalone platform for smartphone retail businesses.

The system will integrate with external services such as **online payment gateways**, **email/notification services**, and **database servers** to support secure transactions and order management.

The website can be accessed through standard web browsers on **desktop, tablet, and mobile devices**. All critical data such as product listings, user accounts, and orders are stored in a centralized database. In the event of temporary network interruptions, limited functionality such as browsing cached pages may remain available through browser caching.

2.2 Product Functions

The primary functions of the system include:

- Displaying a **catalog of smartphones** with categories such as brand, price range, storage capacity, and condition.
- Providing **detailed product pages** including specifications, images, and availability.
- Allowing users to **add products to a shopping cart** and proceed to checkout.
- Supporting **multiple payment methods**, including Cash on Delivery and online payments.
- Enabling **user registration and login** for order tracking.
- Providing an **admin dashboard** to manage products, categories, orders, and payment status.
- Generating basic sales and order reports for administrative review.

2.3 User Classes and Characteristics

User Class	Description
Customers	General users who browse smartphones, add items to the cart, and place orders. Basic computer and internet literacy is assumed.
Administrators	Authorized users who manage product listings, categories, pricing, inventory, and customer orders through the admin dashboard.
System Administrator	Technical personnel responsible for system maintenance, backups, security updates, and server configuration.

2.4 Operating Environment

The system will operate in the following environment:

- **Client Side:**
 - Web browsers (Google Chrome, Mozilla Firefox, Microsoft Edge)
 - Devices: Desktop computers, laptops, tablets, and smartphones
 - **Server Side:**
 - Operating System: Linux or Windows Server
 - Backend: PHP (Laravel) or Node.js
 - Frontend: HTML, CSS, JavaScript (Bootstrap / React.js)
 - Database: MySQL or PostgreSQL
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2.5 Design and Implementation Constraints

The system design and implementation are subject to the following constraints:

- The system must comply with **secure payment gateway standards**.
 - Only **authorized administrators** can access the admin dashboard.
 - The system must support **responsive web design** for mobile and desktop devices.
 - Development must adhere to the **project timeline and academic guidelines** set by the institution.
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2.6 User Documentation

The following user documentation will be provided:

- **User Guide:** Instructions for browsing products, placing orders, and completing payments.
 - **Admin Manual:** Guidelines for managing products, categories, orders, and system settings.
 - **Online Help Section:** Basic FAQs and support information accessible through the website.
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2.7 Assumptions and Dependencies

The system is developed under the following assumptions and dependencies:

- Users will have access to a stable internet connection.
- Online payment functionality depends on the availability of third-party payment gateways.
- Product information and pricing will be accurately maintained by administrators.
- The hosting server will provide sufficient uptime and performance for concurrent users.

3. System Features (Functional Requirements)

3.1 User Registration and Authentication

Description

The system shall allow customers and administrators to securely register and log in to the website.

Functional Requirements

- **REQ-01:** The system shall allow users to create an account using a valid email address and password.
- **REQ-02:** The system shall allow registered users to log in and log out securely.
- **REQ-03:** The system shall validate user credentials before granting access.

- **REQ-04 (High Priority):** The system shall restrict access to the admin dashboard to authorized administrators only.
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3.2 Product Browsing and Categorization

Description

The system shall provide users with the ability to browse smartphones categorized by multiple criteria.

Functional Requirements

- **REQ-05:** The system shall display a list of available smartphones.
 - **REQ-06:** The system shall categorize smartphones by brand, price range, storage capacity, and condition.
 - **REQ-07:** The system shall allow users to filter and search smartphones based on categories and keywords.
 - **REQ-08:** The system shall display product images, price, and brief specifications in the product listing view.
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3.3 Product Details Management

Description

Each smartphone shall have a detailed product page containing complete information.

Functional Requirements

- **REQ-09:** The system shall display detailed specifications for each smartphone.
 - **REQ-10:** The system shall display product availability and stock status.
 - **REQ-11:** The system shall allow administrators to add, update, or remove product details.
 - **REQ-12 (High Priority):** The system shall prevent customers from ordering out-of-stock products.
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3.4 Shopping Cart Management

Description

The system shall allow customers to select and manage products before checkout.

Functional Requirements

- **REQ-13:** The system shall allow users to add smartphones to a shopping cart.
 - **REQ-14:** The system shall allow users to update product quantities or remove items from the cart.
 - **REQ-15:** The system shall automatically calculate the total cost of items in the cart.
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3.5 Order Placement and Checkout

Description

The system shall support a secure and user-friendly checkout process.

Functional Requirements

- **REQ-16 (High Priority):** The system shall allow users to place an order from the shopping cart.
 - **REQ-17:** The system shall collect delivery details during checkout.
 - **REQ-18:** The system shall generate a unique order ID for each order.
 - **REQ-19:** The system shall display order confirmation after successful checkout.
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3.6 Payment Processing

Description

The system shall support multiple payment methods for customer convenience.

Functional Requirements

- **REQ-20 (High Priority):** The system shall support Cash on Delivery as a payment method.
- **REQ-21 (High Priority):** The system shall integrate with an online payment gateway for card payments.
- **REQ-22:** The system shall validate payment status before confirming an order.
- **REQ-23:** The system shall record payment details securely in the database.

3.7 Order Management (Admin)

Description

Administrators shall manage customer orders through the admin dashboard.

Functional Requirements

- **REQ-24:** The system shall allow administrators to view all customer orders.
- **REQ-25:** The system shall allow administrators to update order status (Pending, Shipped, Completed).
- **REQ-26:** The system shall allow administrators to view payment status for each order.

3.8 Inventory and Category Management

Description

Administrators shall manage smartphone inventory and categories.

Functional Requirements

- **REQ-27:** The system shall allow administrators to add, edit, or delete product categories.
- **REQ-28:** The system shall allow administrators to update product stock quantities.
- **REQ-29:** The system shall automatically update stock levels after an order is placed.

3.9 Reporting and Dashboard

Description

The system shall provide a summary view of system activity to administrators.

Functional Requirements

- **REQ-30:** The system shall display sales and order summaries on the admin dashboard.
- **REQ-31:** The system shall allow administrators to view recent transactions and orders.

4. Non-Functional Requirements

4.1 Performance Requirements

- **NFR-01:** The system shall load product listing pages within **3 seconds** under normal network conditions.
 - **NFR-02:** The system shall support at least **100 concurrent users** without significant performance degradation.
 - **NFR-03:** The system shall process order placement and payment confirmation within **5 seconds**.
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4.2 Security Requirements

- **NFR-04 (High Priority):** The system shall ensure that all user authentication data is securely stored using encryption.
 - **NFR-05 (High Priority):** The system shall use **HTTPS** to secure data transmission between client and server.
 - **NFR-06:** The system shall restrict admin dashboard access to authorized users only.
 - **NFR-07:** The system shall protect the system against common web vulnerabilities such as SQL injection and cross-site scripting (XSS).
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4.3 Usability Requirements

- **NFR-08:** The system shall provide a **user-friendly and intuitive interface** suitable for non-technical users.
 - **NFR-09:** The system shall support **responsive design** to function correctly on mobile, tablet, and desktop devices.
 - **NFR-10:** The system shall display clear error messages and user guidance when invalid actions occur.
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4.4 Reliability Requirements

- **NFR-11:** The system shall be available **24/7**, excluding scheduled maintenance periods.
 - **NFR-12:** The system shall ensure data consistency during unexpected system failures.
 - **NFR-13:** The system shall perform regular automated database backups to prevent data loss.
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4.5 Scalability Requirements

- **NFR-14:** The system shall allow future expansion to support additional product categories beyond smartphones.
 - **NFR-15:** The system shall support an increase in users and products without major architectural changes.
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4.6 Maintainability Requirements

- **NFR-16:** The system shall be developed using a modular architecture to simplify maintenance and updates.
 - **NFR-17:** The system shall allow developers to easily update product features and payment methods.
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4.7 Compatibility Requirements

- **NFR-18:** The system shall be compatible with modern web browsers including Google Chrome, Mozilla Firefox, and Microsoft Edge.
 - **NFR-19:** The system shall support integration with third-party services such as payment gateways and email services.
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5. External Interface Requirements

5.1 User Interfaces

- The system shall provide a **web-based graphical user interface (GUI)** accessible via standard web browsers.
 - The **customer interface** shall include:
 - Home page with featured smartphones
 - Product listing and filtering options
 - Product detail pages
 - Shopping cart and checkout pages
 - The **admin interface** shall include:
 - Secure login page
 - Dashboard with sales and order summaries
 - Product, category, and inventory management pages
 - Order and payment management pages
 - The user interface shall follow **responsive design principles** to ensure usability across desktops, tablets, and mobile devices.
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5.2 Hardware Interfaces

- The system does not require any specialized hardware.
- The website shall operate on:
 - Desktop computers
 - Laptops
 - Tablets
 - Smartphones

- The server hosting the system shall support sufficient storage and processing capacity to handle product images, user data, and transaction records.
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5.3 Software Interfaces

- **Web Browser:**
 - Google Chrome, Mozilla Firefox, Microsoft Edge (latest versions)
 - **Database Management System:**
 - MySQL or PostgreSQL
 - **Payment Gateway:**
 - Integration with third-party payment services such as **PayHere** or **Stripe**
 - **Server Environment:**
 - Web server (Apache / Nginx)
 - Backend framework (Laravel / Node.js)
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5.4 Communication Interfaces

- The system shall use the **HTTP/HTTPS protocol** for client-server communication.
 - Secure communication shall be ensured using **SSL/TLS encryption**.
 - The system shall communicate with payment gateways using **secure APIs** provided by third-party services.
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6. Other Requirements

6.1 Legal and Regulatory Requirements

- The system shall comply with applicable **e-commerce regulations** and **consumer protection laws**.
- Customer personal and payment data shall be handled in compliance with **data privacy and protection standards**.
- The system shall display terms and conditions and a privacy policy for users.

6.2 Data Management Requirements

- The system shall securely store user data, product information, and transaction records.
 - The system shall maintain **data integrity and consistency** across all operations.
 - Only authorized administrators shall have permission to modify sensitive system data.
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6.3 Backup and Recovery Requirements

- The system shall perform **regular automated database backups**.
 - Backup data shall be securely stored to prevent data loss.
 - The system shall support data restoration in case of system failure.
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6.4 Audit and Logging Requirements

- The system shall log critical activities such as:
 - User login attempts
 - Order placements
 - Payment confirmations
 - Admin actions (product updates, order status changes)
 - Logs shall be accessible only to authorized system administrators.
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7. Appendices

Appendix A: Glossary

Term	Description
Admin	Authorized user responsible for managing products, orders, and system settings
Customer	User who browses and purchases smartphones from the website

Term	Description
SRS	Software Requirements Specification
Payment Gateway	Third-party service used to process online payments
HTTPS	Secure version of HTTP using encryption

Appendix B: Requirement ID Summary

- **REQ-01 to REQ-31:** Functional Requirements
 - **NFR-01 to NFR-19:** Non-Functional Requirements
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Appendix C: Future Enhancements (Optional)

- Integration of customer reviews and ratings
 - Mobile application version of the system
 - Advanced sales analytics and reporting
 - AI-based product recommendations
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