University of the Armed Forces ESPE

Topic: SRS and Overview

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Group #4

1. Introduction

This document presents the requirements specification of the **Minimarket Online Sales and Delivery Management System (Tatylu)** , a web development project oriented to optimize the process of online sales, stock management, and product delivery for a local minimarket

1.1 Purpose

The purpose of this document is to specify the functional and non-functional requirements of the **Minimarket Online Sales and Delivery Management System(Tatylu)**. This web application is intended to provide the minimarket with a digital storefront to facilitate online product browsing, ordering, real-time inventory management, and coordinating local deliveries.

This document will serve as a guide for both the project team and stakeholders, ensuring a common understanding of the objectives and functionalities of the system.

1.2 Scope

The **Minimarket Online Sales and Delivery Management System** (Tatylu) will allow customers to view available products , place orders online, and track them until delivery. The system will generate sales and inventory reports and allow administrators to manage products, inventory, and promotions in real time. It will also include administrative functionalities for managing services, users, and reports

1.3 Personnel involved

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Name	Josué Daniel Guayasamín Heredia
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Responsibility	Supports the collection and documentation of requirements. Coordinates with stakeholders.
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Name	Mrs. Tatiana Villacres
Role	Customer
Professional category	Minimarket owner
Responsibility	Business stakeholder, provides requirements.
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Responsibility	Monitor project progress
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1.4 References

Minimarket Online Sales and Delivery Management System project documentation: problem statements, and requirements gathering forms (2025)

Backlogs (2025)

IEEE Std 830-1998. IEEE Recommended Practice for Software Requirements Specifications. Institute of Electrical and Electronics Engineers, 1998

1.5 Summary

This document specifies the requirements for the development of the **Minimarket Online Sales and Delivery Management System (Tatylu)**. This web platform will allow customers to shop conveniently online while helping administrators and delivery personnel efficiently manage products, stock, orders, and deliveries. Both functional and non-functional requirements are included, as well as a general description of the system, its interfaces, involved users, and constraints

2. General Description

2.1. Product perspective

The **Minimarket Online Sales and Delivery Management System (Tatylu)** is a web application developed as a stand-alone system, oriented to customers looking to purchase minimarket products online in a fast, clear, and personalized way. The system will be integrated only with the client's web browser and will require integration with a payment processing service. It will use technologies such as HTML, CSS,JavaScript, **Node.js, and Express**, as well as a **MongoDB** database for data storage.

2.2 User characteristics

User type	Visitor
Training	No technical training required. Basic knowledge of web browsers.
Activities	View available products, promotions, and prices. Browse categories. Search and filter products. *Cannot* place orders or access a shopping cart without creating an account.

User type	Customer
Training	No technical training required. Basic knowledge of web browsers.
Activities	View available products, promotions, and prices. Create an account and log in. Place orders online. Save addresses and view order history. Track order status (Pending, Out for Delivery, etc.).

User type	Administrator
Training	Basic computer training or experience in web platform management.
Activities	Manage products, inventory, and promotions in real time. Manage (CRUD) products, update stock, mark "Out of Stock". Monitor sales and performance via dashboard. Manage user accounts. View sales and inventory reports.

User type	Delivery Personnel
Training	Basic smartphone/web application usage.
Activities	View assigned orders. Update order status in real time (e.g., "Out for Delivery", "Completed").

2.3 Restrictions

Browser compatibility: The system will be accessible only through modern web browsers with support for HTML5, CSS3, and JavaScript (e.g., Google Chrome, Firefox, Microsoft Edge).

Specific languages and technologies: The system will be developed using a specific MERN-like stack (MongoDB, Express, Node.js, and a frontend library), which limits the development and execution environment.

Dependence on internet connection: The system requires an internet connection to access all its functionalities, since it will be hosted on a cloud server.

Restricted access to administrative functionalities: Only users with an administrator profile can modify content, prices, services, and manage users.

Geographic limitation: The delivery service is restricted to customers within the city.

3. Specific requirements
    3.1 Functional Requirements

Identification of the requirement:	**RF-C.1, C.2, C.3**
Name of the requirement:	Secure Registration and Authentication (Login) for Customers
Characteristics:	Functional (User CRUD), Role: Customer
Description:	Enables customers to create a personal account, log in securely, and manage their profile information and saved addresses.
Priority:	High

Identification of the requirement:	**RF-C.4**
Name of the requirement:	Product Catalog Browsing and Display
Characteristics:	Functional (Display), Role: Customer
Description:	Allows customers to visually browse all available products, organized by category, with details like images, price, and stock status.
Priority:	High

Identification of the requirement:	RF-C.5
Name of the requirement:	Search and Filter System
Characteristics:	Functional (Search), Role: Customer
Description:	Provides tools for customers to find specific items by name, or narrow down results by category, price, or promotional status.
Priority:	High

Identification of the requirement:	RF-C.6
Name of the requirement:	Shopping Cart Management
Characteristics:	Functional (Process), Role: Customer
Description:	Allows customers to add products to a virtual cart, adjust the quantity of items, or remove them before purchasing.
Priority:	High

Identification of the requirement:	RF-C.7
Name of the requirement:	Online Ordering and Intuitive Checkout
Characteristics:	Functional (Process), Role: Customer
Description:	Guides the customer through a streamlined checkout process to confirm their order, delivery address, and payment method.
Priority:	High

Identification of the requirement:	RF-C.8
Name of the requirement:	Payment Processing Integration
Characteristics:	Functional (Integration), Role: Customer
Description:	Integrates with secure payment gateways to process credit/debit card transactions, and also supports a cash-on-delivery option.
Priority:	High

Identification of the requirement:	**RF-C.9**
Name of the requirement:	Customer Order History and Status Viewing
Characteristics:	Functional (Tracking), Role: Customer
Description:	Gives logged-in customers access to a list of their past purchases and the real-time status of any current orders.
Priority:	Medium

Identification of the requirement:	**RF-C.10**
Name of the requirement:	Customer Product Reviews
Characteristics:	Functional (Feedback), Role: Customer
Description:	Allows customers to submit star ratings and write text reviews for products they have purchased.
Priority:	Medium

Identification of the requirement:	**RF-C.11**
Name of the requirement:	Customer Loyalty Points
Characteristics:	Functional (Rewards), Role: Customer
Description:	Implements a rewards system where customers accumulate points from purchases, which can be exchanged for future discounts.
Priority:	Medium

Identification of the requirement:	**RF-C.12**
Name of the requirement:	Automated Customer Notifications
Characteristics:	Functional (Communication), Role: Customer
Description:	Automatically sends email or in-app alerts to customers to confirm their order, notify them of shipment, or share promotions.
Priority:	Medium

Identification of the requirement:	**RF-A.1**
Name of the requirement:	Admin Login and Management of User Accounts
Characteristics:	Functional (User CRUD), Role: Administrator
Description:	Provides a secure login portal for administrators and allows them to manage all user accounts in the system (customers, delivery).
Priority:	High

Identification of the requirement:	**RF-A.2, RF-D.1**
Name of the requirement:	Management (CRUD) of Products
Characteristics:	Functional (Product CRUD), Role: Administrator
Description:	Provides full control over the product catalog, including adding new items, editing details (price, image), and managing stock levels.
Priority:	High

Identification of the requirement:	RF-A.3
Name of the requirement:	Promotions and Discounts Module
Characteristics:	Functional (Management), Role: Administrator
Description:	Enables administrators to create and manage various promotional campaigns, such as percentage discounts or "Buy 1 Get 1 Free" offers.
Priority:	Medium

Identification of the requirement:	RF-A.4, RF-D.2
Name of the requirement:	Order Tracking (Admin/Delivery)
Characteristics:	Functional (Process/Update), Roles: Administrator, Delivery Personnel
Description:	Allows administrators and delivery staff to update an order's status (e.g., 'Processing', 'Out for Delivery', 'Completed') in real-time.
Priority:	High

Identification of the requirement:	RF-A.5
Name of the requirement:	Real-time Stock Alerts
Characteristics:	Functional (Alerts), Role: Administrator
Description:	Automatically notifies administrators (e.g., on the dashboard) when a product's inventory level falls below a preset threshold.
Priority:	Medium

Identification of the requirement:	RF-A.6
Name of the requirement:	Sales and Performance Dashboard
Characteristics:	Functional (Reporting), Role: Administrator
Description:	Displays key performance indicators (KPIs) in real-time, such as total sales, top-selling products, and active orders, using visual charts.
Priority:	High

Identification of the requirement:	RF-A.7
Name of the requirement:	Generation of Sales and Inventory Reports
Characteristics:	Functional (Reporting), Role: Administrator
Description:	Allows the administrator to generate, view, and export detailed reports on sales, inventory turnover, and average order value.
Priority:	Medium

Identification of the requirement:	RF-A.8
Name of the requirement:	Admin Moderation of Reviews
Characteristics:	Functional (Moderation), Role: Administrator
Description:	Gives administrators the ability to approve, hide, or delete customer-submitted reviews and publicly respond to feedback.
Priority:	Medium

Identification of the requirement:	RF-A.9
Name of the requirement:	Admin Management of Loyalty Program
Characteristics:	Functional (Management), Role: Administrator
Description:	Provides tools to configure the loyalty program, such as setting point values, defining reward tiers, and managing redemption options.
Priority:	Medium

Identification of the requirement:	RF-A.10
Name of the requirement:	Automatic Demand Forecasting
Characteristics:	Functional (Analytics), Role: Administrator
Description:	Uses historical sales data to predict future product demand, helping administrators make smarter inventory decisions.
Priority:	Low

Identification of the requirement:	RF-A.11
Name of the requirement:	Supplier Management
Characteristics:	Functional (Supply Management), Role: Administrator
Description:	A module for storing supplier information and streamlining the restocking process, potentially by generating purchase orders.
Priority:	Low

Identification of the requirement:	RF-A.12
Name of the requirement:	Admin Control of Notification Templates
Characteristics:	Functional (Automation), Role: Administrator
Description:	Allows administrators to create and edit the content of automated emails and notifications (e.g., order confirmations) sent to customers.
Priority:	Medium

Identification of the requirement:	RF-A.13
Name of the requirement:	Admin View of Delivery Zones
Characteristics:	Functional (Visualization), Role: Administrator
Description:	Provides a map-based visualization of delivery zones and analytics on delivery efficiency and order volume per route.
Priority:	Medium

Identification of the requirement:	RF-A.14
Name of the requirement:	Manage User Roles and Security
Characteristics:	Functional (Security), Role: Administrator
Description:	Allows a super-administrator to define different role permissions (e.g., admin, manager) and manage password security policies.
Priority:	High

Identification of the requirement:	RF-A.15
Name of the requirement:	Monitor System Activity Log
Characteristics:	Functional (Logging), Role: Administrator
Description:	Tracks and displays a log of significant system events and administrator logins for security auditing purposes.
Priority:	High

Identification of the requirement:	RF-D.3
Name of the requirement:	Real-time Route Optimization
Characteristics:	Functional (Integration), Role: Delivery Personnel
Description:	Integrates with a mapping API (like Google Maps) to calculate the most efficient delivery route for multiple orders.
Priority:	Medium

3.2 Non-functional Requirements

Identification of the requirement:	RNF-01
Name of the requirement:	Performance
Characteristics:	Fast response, low latency
Description:	The system must load product pages and search results in less than 3 seconds.

Identification of the requirement:	RNF-02
Name of the requirement:	Usability
Characteristics:	Intuitive interface, easy navigation
Description:	The interface must be easy to use for non-technical customers to find products and check out.

Identification of the requirement:	RNF-03
Name of the requirement:	Compatibility
Characteristics:	Modern browsers (HTML5, CSS3, JS)
Description:	The system must be accessible from all current major browsers (Chrome, Firefox, Edge).

Identification of the requirement:	RNF-04
Name of the requirement:	Availability
Characteristics:	High availability (minimum 98%)
Description:	The system must be available for sales 24/7, avoiding prolonged downtime.

Identification of the requirement:	**RNF-05**
Name of the requirement:	Security
Characteristics:	Authentication, access control, secure payments
Description:	The system must restrict administrative functions by secure login. All payment and personal data transmission must use HTTPS.

Identification of the requirement:	**RNF-06**
Name of the requirement:	Scalability
Characteristics:	Support for multiple simultaneous users
Description:	Must support at least 100 active users browsing or ordering simultaneously without loss of performance.

Identification of the requirement:	**RNF-07**
Name of the requirement:	Maintainability
Characteristics:	Modular and documented code
Description:	The system must allow for easy modifications and upgrades, especially for adding new payment methods or features.

Identification of the requirement:	RNF-08
Name of the requirement:	Portability
Characteristics:	Compatible with mobile devices
Description:	The system must work correctly on different screen sizes (responsive), including tablets and smartphones, for both customers and delivery personnel.

4. Interface Requirements

4.1 User Interface

The system will have a modern, responsive web interface, accessible from current browsers. It will have the following views:

Customer's public view: Home page, product catalog (by category), search results, shopping cart, and checkout.

Customer's private view: Account login, user profile, saved addresses, and order history/status.

Administration panel: Accessible only with login, it allows management of products, stock, promotions, orders, and viewing the sales dashboard.

Delivery Personnel view: A simplified mobile-friendly interface to view assigned orders and update their status (e.g., "Out for Delivery", "Completed").

The interfaces will be intuitive, with clear buttons, validated forms, and smooth navigation.

4.2 Hardware Interfaces

The system will be designed to run on personal computers, laptops, tablets, and smartphones. It does not require specialized hardware, although delivery personnel will require a smartphone with internet access to update order statuses in real time. The server shall be

hosted on a cloud platform like Render, which supports Node.js applications and MongoDB databases.

4.3 Software Interfaces

The system will be developed with:

- Frontend: HTML5, CSS3, JavaScript (and likely a framework like React).

- Backend: Node.js, Express.js.

- Database: MongoDB.

- Third-party libraries: An API for a secure payment gateway (PayPal). And Google Maps API.

- Supported browsers: Google Chrome, Firefox, Edge (latest versions).

- Server Environment: Cloud hosting platform (e.g., Render).