Vendomatic Project

System-Wide Requirements Specification

Version 1.0

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Revision History

Version	Description	Author	Date
0.1	• Draft	Tuğçe Sözer	2023-03-26
0.2	• Review • Extend Business Rules section	Kadir Kılıçoğlu	2023-03-27
0.3	• Review • Extend System Documentation section	Ezgi Özkan	2023-03-29
1.0	• Publish draft for review	Ezgi Özkan Kadir Kılıçoğlu Tuğçe Sözer	2023-04-02

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1. Introduction

This document presents the System-Wide Requirements Specification for the Vendomatic project, which aims to provide a comprehensive software solution for vending machine owners, operators, and customers to manage, monitor, and discover vending machines efficiently.

2. System-Wide Functional Requirements

2.1. Authentication and Authorization

Secure user authentication and role-based access control for different user types (vending machine owners, operators, customers).

2.2. Data Storage and Management

Efficient and secure storage and retrieval of data related to vending machines, inventory, sales, and users.

2.3. Alerts and Notifications

Timely and relevant notifications to inform users about inventory levels, maintenance issues, and system updates.

2.4. Reporting and Visualization

Generation of customizable reports and visualizations for sales analytics and inventory management.

2.5. Logging and Auditing

Tracking of user activities and system events for security and troubleshooting purposes.

2.6. Integration and Compatibility

Seamless integration with various vending machine hardware, payment processing systems, and other third-party services.

2.7. System Administration

Tools and features for system administrators to manage users, monitor system performance, and maintain the application.

3. System Qualities

3.1. Usability

- Intuitive user interface for easy navigation and efficient task completion
- Consistent design across platforms (web and mobile)
- Localization support for multiple languages and regions

3.2. Reliability

- High availability to ensure continuous operation
- Failover mechanisms to minimize downtime
- Quick recovery from failures and errors

3.3. Performance

- Fast response times for user interactions

- Efficient handling of large datasets for analytics and reporting
- Scalability to handle increased user base and data volume

3.4. Supportability

- Easy system updates and maintenance
- Compatibility with various devices and operating systems
- Configurability for customization based on user requirements

4. System Interfaces

4.1. User Interfaces

4.1.1. Look & Feel

- Professional and clean design
- Brand-consistent colors and styles
- Interactive and responsive elements for an engaging user experience

4.1.2. Layout and Navigation Requirements

- Clear organization of main functions and features
- Hierarchical structure for easy access to sub-functions
- Consistent and predictable navigation patterns

4.1.3. Consistency

- Uniform design elements across the system
- Consistent terminology and labeling
- Standardized controls and interactions

4.1.4. User Personalization & Customization Requirements

- User profile settings for personal preferences
- Customizable views and data displays

4.2. Interfaces to External Systems or Devices

4.2.1. Software Interfaces

- Integration with payment processing systems
- Compatibility with various vending machine hardware and software

4.2.2. Hardware Interfaces

- Support for various vending machine types and configurations
- Communication with vending machine sensors and controllers

4.2.3. Communications Interfaces

- Secure and reliable data transfer between the system and vending machines
- Support for various communication protocols and standards

5. Business Rules

5.1 Inventory Management Rules

5.1.1. Low Stock Alert (IMR-001)

If the stock level of a product in the vending machine falls below the predefined threshold, the system sends a low stock alert to the vending machine owner/operator.

5.1.2. Reorder Suggestion (IMR-002)

When the stock level of a product reaches the low stock threshold, the system suggests a reorder quantity based on historical sales data and current trends.

5.2. Pricing Rules

5.2.1. Bulk Discount (PR-001)

If a vending machine owner/operator configures a bulk discount for a specific product, customers who purchase a pre-defined quantity of that product will receive a percentage discount on their total purchase of that product.

5.2.2. Time-Based Discount (PR-002)

If a vending machine owner/operator configures a time-based discount for a specific product, customers who purchase the product within the specified time frame will receive a percentage discount on the price of the product.

5.3. Customer Ratings and Reviews Rules

5.3.1. Rating Submission Restriction (CRR-001)

Customers can only submit ratings and reviews for vending machines they have used within the past 30 days.

5.3.2. Review Moderation (CRR-002)

All submitted reviews are subject to moderation by the system administrators before being published on the platform. Reviews that violate content guidelines will not be published.

5.4. Maintenance Rules

5.4.1. Preventive Maintenance Schedule (MR-001)

The system calculates a preventive maintenance schedule for each vending machine based on the machine's usage and historical maintenance data.

5.4.2. Maintenance Alert (MR-002)

If the system detects an issue with the vending machine or if a scheduled preventive maintenance is due, the system sends a maintenance alert to the vending machine owner/operator.

6. System Constraints

- Development using modern programming languages and tools
- Support for major web browsers and mobile operating systems
- Compliance with industry standards and best practices for security and data privacy

7. System Compliance

7.1. Licensing Requirements

- Enforcement of software licenses and user agreements
- Protection of intellectual property and trade secrets

7.2. Legal, Copyright, and Other Notices

- Compliance with applicable copyright, trademark, and patent laws
- Inclusion of necessary legal disclaimers and warranties

7.3. Applicable Standards

- Adherence to industry standards for usability, interoperability, and accessibility
- Compliance with data protection and privacy regulations

8. System Documentation

8.1. User Documentation

The analyst will provide comprehensive user documentation, including a user guide for both the Vendomatic mobile application and web platform. This documentation will cover all features and functionalities of the system and will be available in digital format. The user guide will be written in a clear and concise manner, with step-by-step instructions and visual aids such as screenshots and diagrams to facilitate user understanding.

8.3. Release Notes and Changelog

Release notes and a changelog will be provided by the Project Manager with each new version of the Vendomatic system. These documents will detail new features, enhancements, bug fixes, and any known issues, allowing users to stay informed about updates and changes to the system.

8.4. Developer Documentation

Developer documentation will be provided for the Vendomatic system by developers, including technical details about the architecture, APIs, and coding standards. This documentation will be useful for developers who need to maintain or extend the system in the future.