

Diamond Shop System

Software Requirement Specification

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**FPT University - Ho Chi Minh City, June 6th 2024**

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\*A - Added M - Modified D - Deleted

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| Effective Date | Changed Items | A\* M, D | Change Description | New Version |
| 02/12/2016 | Initial | a | Add project over view |  |
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# Introduction

The Diamond Shop System is a comprehensive software solution designed to streamline the management and operations of diamond retail stores. This introduction provides an overview of the entire SRS, outlining its purpose, scope, definitions, acronyms, abbreviations, references, and an overview of the SRS itself.

## Purpose

The purpose of the Diamond Shop System is to provide a robust platform for diamond retailers to efficiently manage their inventory, sales, customer relationships, and operational processes. By digitizing and automating various aspects of diamond shop management, this software aims to enhance productivity, improve customer service, and optimize business performance.

## Scope

The scope of the Diamond Shop System encompasses the entire lifecycle of diamond shop operations, from inventory management and sales transactions to customer engagement and reporting. It caters to the specific needs of diamond retailers, offering functionalities tailored to the unique characteristics of the diamond industry.

## Definitions, Acronyms, and Abbreviations

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| --- | --- | --- |
| **No** | **Acronym/Abbreviation** | **Description** |
| 1 | **UDD** | User Requirement Document |
| 2 | **DSS** | Diamond Shop System |
| 3 | **FPTU** | FPT University |
| 4 | **SRS** | Software Requirements Specification |

## References

The Diamond Shop System was influenced by two key websites: [Cao Hung Diamond](https://caohungdiamond.com/) and [Kim Cương Đá Quý](https://kimcuongdaquy.info/). These sites provided valuable insights into diamond retailing practices and product presentation, shaping the system's web interface. Additionally, guidance for writing the SRS document was obtained from Perforce Software's article "[How to Write a Software Requirements Specification (SRS) Document](https://www.perforce.com/blog/alm/how-write-software-requirements-specification-srs-document" \t "_new)." These references were instrumental in creating a comprehensive and user-focused system for diamond retailers and customers.

## Overview

The SRS serves as a comprehensive document capturing all software requirements for the Diamond Shop System. It presents a traditional, natural-language style approach to requirements specification, without the use of use-case modeling. The SRS outlines the functionalities, features, and constraints of the system, providing a solid foundation for its development and implementation.

# Overall Description

## Product Perspective

The DSS serves as a platform for managing diamond sales, customer interactions, and administrative tasks. It integrates various functionalities such as product browsing, ordering, payment processing, inventory management, and reporting.

## Product Functions

The core functions of the DSS include:

* **Product Browsing**: Guests and customers can browse diamond products, collections, and educational content.
* **Order Management**: Customers can select products, confirm orders, and make payments securely.
* **Inventory Management**: Admins manage diamond products, update stock levels, and trigger automatic reorders.
* **Promotional Management**: Managers oversee and update promotional programs, vouchers, and point accumulation.
* **Reporting**: Admins and managers generate reports on sales performance, inventory levels, and customer satisfaction

## User Characteristics

The system caters to the following user roles:

* **Guests**: Visitors exploring diamond products, collections, and educational resources.
* **Customers**: Users who browse, select, and purchase diamond products.
* **Sales Staff**: Employees who manage orders, guide customers on measurements, and handle product dispatch.
* **Delivery Staff**: Personnel responsible for shipping and delivering diamond products to customers.
* **Managers**: Oversight of promotional activities, sales performance monitoring, and compliance with standards.
* **Admins**: System administrators managing product inventory, pricing, and system configurations.

## Constraints

* **Technical Constraints**: Compatibility with existing IT infrastructure, secure payment processing, and scalability for increased user traffic.
* **Regulatory Constraints**: Compliance with industry standards for diamond certification (e.g., GIA's 4C standards) and data protection regulations.
* **Operational Constraints**: System availability during high-traffic periods, such as promotions or peak shopping seasons.

## Assumptions and Dependencies

* **Assumptions**: Users have basic internet access and browsing capabilities. Customers are familiar with online shopping practices.
* **Dependencies**: Integration with payment gateways for secure transactions, API integration with diamond certification bodies, and database synchronization for real-time inventory updates.

## Requirements Subsets

Requirements are categorized into functional and non-functional subsets, detailed in Section 3 of the SRS. Functional requirements specify user interactions, system behaviors, and operational processes. Non-functional requirements address system performance, security, usability, and regulatory compliance.

# FUNCTIONAL Requirements

## Use case diagram for Online Diamond Shop System

## Login into the Shop System



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| --- | --- | --- | --- | --- |
| **USE CASE-n SPECIFICATION** | | | | |
| **Use-case No.** | UC-01 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Login | | | |
| **Author** | Nguyen Minh Hoang | | | |
| **Date** | 24/06/2024 | **Priority** | High | |
| **Actor:**  Customer, Admin, Staffs and Manager  **Summary:**  This use case describes the process by which a customer logs into the jewelry shopping system to access personalized features and complete transactions. Another actors log into the system to work with their assignments as commissioned.  **Triggers**  Requester indicates that he wants to log in the system.  **Post Conditions:**  The user is authenticated and redirected to their personalized pages.  **Main Success Scenario:**  **Login into then system**  1. Personas navigate to the login page.  2. System displays the login form with fields for username and password.  3. Personas enter their username and password.  4. Personas submit the login form.  5. System validates the username and password against the stored credentials.  6. System authenticates the user and creates a session.  7. System redirects the personas to their personalized pages.  **Exceptions:**  **Invalid Username or Password**  1. System detects invalid username or password.  2. System displays an error message: "Invalid username or password. Please try again."  3. Personas can re-enter credentials or choose to reset the password.  **Business Rules:**  *BR-01* | | | | |
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## Manage Staffs and Manager

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| USE CASE-n SPECIFICATION | | | |
| Use-case No. | UC-02 | Use-case Version | 1.0 |
| Use-case Name | Manage Staffs and Manager | | |
| Author | Nguyen Minh Hoang | | |
| Date | 24/06/2024 | Priority | High |
| **Actor:**Manager, Admin**Summary:**This use case describes the process by which the manager or admin can manage staff account within the jewelry shopping system. This includes adding new staff members, viewing staff information, updating staff information, and removing staff members.**Triggers**Requester indicates that he wants to manage staffs in the jewelry shop.**Post Conditions:**The staff information is successfully updated in the system.**Main Success Scenario:** Add new member to the system1. Personas navigate to the staffs management section of the system.2. System displays the list of current staff members with options to add, edit, or remove staff.3. Personas select the option to add a new staff member.4. System displays a form for entering new staff member details (e.g., name, email, role, contact information).5. Personas enter the required information and submits the form.6. System validates the information and creates a new staff account.7. System confirms the addition of the new staff member and updates the staff list. **Exceptions:**Invalid Information Entered1. System detects invalid information (e.g., incorrect email format, missing required fields).2. System displays an error message indicating the specific issues.3. Personas correct the information and resubmits the form. | | | |
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# NON-FUNCTIONAL Requirements

## Usability

The online diamond store shall ensure that a normal user can become proficient in navigating and using the platform within 15 minutes, and a power user within 10 minutes.

The user interface shall conform to common usability standards such as Microsoft’s GUI standards, ensuring intuitive navigation and operation.

The system shall provide an online help section that includes guides on how to select rings, understand diamond pricing, and utilize promotional offers, reducing the need for external training.

## Reliability

The system shall maintain an availability of 99.9%, allowing for a maximum of 8.76 hours of downtime per year for maintenance.

The Mean Time Between Failures (MTBF) for the system shall be at least 10,000 hours.

The Mean Time To Repair (MTTR) shall not exceed 2 hours.

The system shall achieve an accuracy rate of 99.99% in managing and displaying diamond certification and warranty information.

The system shall maintain a maximum defect rate of 0.1 bugs/KLOC, with critical bugs being defined as those resulting in data loss or inability to complete transactions.

## Performance

The system shall handle a minimum throughput of 50 transactions per minute during peak hours without performance degradation.

The system shall be capable of supporting up to 1,000 concurrent users, ensuring smooth operation under heavy load.

The system shall degrade gracefully, maintaining core functionality (product browsing and purchasing) even when secondary services (e.g., promotional management) are under maintenance.

### The system’s resource utilization (CPU, memory, disk space) shall not exceed 80% under peak load conditions to ensure stability and performance.

## Supportability

The system shall adhere to defined coding standards and naming conventions to facilitate maintainability and readability of the codebase.

## Design Constraints

The system shall be developed using Java for the backend and HTML/CSS for the frontend.

The system shall utilize a MSSQL database for storing all transactional and person data.

## On-line User Documentation and Help System Requirements

The online help system shall include context-sensitive help that can be accessed directly from relevant pages or screens, providing guidance on usage, troubleshooting tips, and FAQs to assist users independently.

## Purchased Components

The system shall utilize a licensed library for generating and managing diamond certifications according to GIA’s 4C standards, ensuring compliance and reliability.

## Interfaces

The UI shall include intuitive navigation features such as search functionality, product categorization, and a shopping cart for seamless browsing and purchasing.

## Legal, Copyright, and Other Notices

The system shall include legal disclaimers on product descriptions, warranty terms, and liability limitations to protect the company from legal liabilities associated with product sales and usage.

## Applicable Standards

The system shall adhere to industry standards for diamond certification (e.g., GIA’s 4C standards), ensuring accuracy and reliability in displaying and managing diamond information.

The user interface shall comply with web accessibility standards (e.g., WCAG) to ensure usability for users with disabilities, supporting features like screen readers and keyboard navigation.

# Supporting Information

[The supporting information makes the SRS easier to use. It includes:

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Appendices

These may include use-case storyboards or user-interface prototypes. When appendices are included, the SRS should explicitly state whether or not the appendices are to be considered part of the requirements.]