**Jewelry sale management system**

Software Requirements Specification

1.0

13/6/2024

**Prepared for**

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**Revision History**

| **Date** | **Description** | **Author** | **Comments** |
| --- | --- | --- | --- |
| 25/10/2021 | Version 1 |  | Initial Draft |
| 30/10/2021 | Version 1.1 |  | Added section 5.Change management process |
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**Document Approval**

The following Software Requirements Specification has been accepted and approved by the following:

| **Printed Name** | **Title** | **Date** |
| --- | --- | --- |
| A | Lead Software Engg. | 19/11/2021 |
| B | Lead QA Engineer | 18/11/2021 |
| C | Project Sponsor | 19/11/2021 |

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***1. Introduction***

***1.1 Purpose****The purpose of this document is to outline the functionalities and interactions within the Jewelry Sales System at the Store. The system is designed to streamline and enhance the management of jewelry sales operations, including promotion management, customer management, order management, staff management, and account management. This system aims to improve the efficiency of store operations, provide a better customer experience, and support administrative tasks.*

***1.2 Scope****The scope of this project is to develop a comprehensive sales management software for a jewelry store with multiple counters. The system will manage sales by creating orders, scanning product codes, and supporting warranty printing. It will handle promotions, purchase returns, and customer loyalty programs. The software will also manage employee performance, display current gold prices, and provide product information. Additionally, it will offer dashboard statistics to give insights into sales activities, product performance, and employee efficiency. This document covers both functional and non-functional requirements, ensuring the system meets business needs and regulatory compliance.*

***1.3 Definitions, Acronyms, and Abbreviations***

* ***POS****: Point of Sale*
* ***SKU****: Stock Keeping Unit*
* ***VAT****: Value Added Tax*
* ***GUI****: Graphical User Interface*
* ***Warranty****: A guarantee provided to the customer that the product will be repaired or replaced if necessary within a specified period.*
* ***Promotion****: Special discounts or offers provided to customers to encourage purchases.*
* ***Return Policy****: Guidelines and conditions under which a customer can return purchased items.*
* ***Loyalty Program****: A system that rewards customers for repeat purchases with points or discounts.*
* ***Dashboard****: A visual interface that displays key performance indicators and statistics.*
* ***Employee Management****: The process of overseeing and tracking the performance of store staff.*
* ***Inventory****: The complete list of items available in the store for sale.*
* ***API****: Application Programming Interface*
* ***DB****: Database*
* ***Barcode****: Machine-readable representation of data used to quickly identify items*

***1.4 References (Chưa làm)***

* *Internal Company Guidelines on Sales and Inventory Management*
* *XYZ Jewelry Store Policy Manual*
* *Standard API documentation for barcode scanners and printers used in the store*

2. Specific Requirements

# **2. Specific Requirements**

| **Role** | **Use Cases** |
| --- | --- |
| Admin | Add Employees/Manager Accounts Edit Employees/Manager Accounts Delete Employees/Manager Accounts View Employees/Manager Accounts |
| Manager | Create Promotion Update Promotion Delete Promotion Add Product  Update Product  Delete Product  View Product  Add Stall  Edit Stall  Create Customer  Edit Customer  Delete Customer  View Customer  Create Order  Update Order  Delete Order  View Order  Edit General Policy  Edit Specific Item Policy  Add New Policy  Delete Policy  Update Policy Version |
| Staff | Add Product Update Product Delete Product View Product Create Order  Update Order  Delete Order  View Order  Input Product Code  Enter Product to Bill  Input Customer Info  Apply Promotion  Generate Bill  Accumulate Loyalty Points  Generate Warranty Coupon  View General Policy  View Specific Item Policy  Search Policy by Item  View Policy History |

## Description of the Modules

| Module Name | Applicable Roles | Description |
| --- | --- | --- |
| Manage Promotions | Manager | Create Promotion: Allows the manager to create a new promotion. |
| Manage Promotions | Manager | Update Promotion: Allows the manager to update an existing promotion. |
| Manage Promotions | Manager | Delete Promotion: Allows the manager to delete a promotion. |
| Manage Products | Manager, Staff | Add Product: Allows the manager or staff to add a new product. |
| Manage Products | Manager, Staff | Update Product: Allows the manager or staff to update an existing product. |
| Manage Products | Manager, Staff | Delete Product: Allows the manager or staff to delete a product. |
| Manage Products | Manager, Staff | View Product: Allows the manager or staff to view product details. |
| Manage Stall | Manager | Add Stall: Allows the manager to add a new stall. |
| Manage Stall | Manager | Edit Stall: Allows the manager to edit details of an existing stall. |
| Manage Customers | Manager, Staff | Create Customer: Allows the manager to create a new customer. |
| Manage Customers | Manager, Staff | Edit Customer: Allows the manager to edit customer details. |
| Manage Customers | Manager, Staff | Delete Customer: Allows the manager to delete a customer. |
| Manage Customers | Manager, Staff | View Customer: Allows the manager or staff to view customer details. |
| Manage Orders | Manager, Staff | Create Order: Allows the manager or staff to create a new order. |
| Manage Orders | Manager, Staff | Update Order: Allows the manager or staff to update an existing order. |
| Manage Orders | Manager, Staff | Delete Order: Allows the manager or staff to delete an order. |
| Manage Orders | Manager, Staff | View Order: Allows the manager or staff to view order details. |
| Manage Staff | Admin, Manager | Add Staff: Allows the admin or manager to add a new staff member. |
| Manage Staff | Admin, Manager | Edit Staff: Allows the admin or manager to edit staff details. |
| Manage Staff | Admin, Manager | Delete Staff: Allows the admin or manager to delete a staff member. |
| Manage Staff | Admin, Manager | View Staff: Allows the admin or manager to view staff details. |
| View Exchange and Return Policy | Manager, Staff | View General Policy: Allows the manager or staff to view the general exchange and return policy. |
| View Exchange and Return Policy | Manager, Staff | View Specific Item Policy: Allows the manager or staff to view the exchange and return policy for a specific item. |
| View Exchange and Return Policy | Manager, Staff | Search Policy by Item: Allows the manager or staff to search for the exchange and return policy by item. |
| View Exchange and Return Policy | Manager, Staff | View Policy History: Allows the manager or staff to view the history of exchange and return policies. |
| Edit Exchange and Return Policy | Manager | Edit General Policy: Allows the manager to edit the general exchange and return policy. |
| Edit Exchange and Return Policy | Manager | Edit Specific Item Policy: Allows the manager to edit the exchange and return policy for a specific item. |
| Edit Exchange and Return Policy | Manager | Add New Policy: Allows the manager to add a new exchange and return policy. |
| Edit Exchange and Return Policy | Manager | Delete Policy: Allows the manager to delete an existing exchange and return policy. |
| Edit Exchange and Return Policy | Manager | Update Policy Version: Allows the manager to update the version of the exchange and return policy. |
| Generate Bill | Staff | Input Product Code: Allows the staff to input the product code. |
| Generate Bill | Staff | Enter Product to Bill: Allows the staff to enter the product details into the bill. |
| Generate Bill | Staff | Input Customer Info: Allows the staff to input customer information. |
| Generate Bill | Staff | Apply Promotion: Allows the staff to apply any promotions to the bill. |
| Generate Bill | Staff | Generate Bill: Allows the staff to generate the final bill for the customer. |
| Accumulate Loyalty Points | Staff | Allows the staff to accumulate loyalty points for the customer. |
| Generate Warranty Coupon | Staff | Allows the staff to generate a warranty coupon for the customer. |
| Login & Logout | All users | Allows any user to log in or log out of the system. |

2.1 External Interface Requirements

2.1.1 User Interfaces

None

2.1.2 Hardware Interfaces

None

2.1.3 Software Interfaces

None

2.1.4 Communications Interfaces

None

### 3. Detailed Requirements

#### **3.1 Front End Details**

### Sprint 1

#### **User Authentication**

**Login**

* Username
* Password

**Logout**

* Confirm Logout

**Forget Password**

* Email ID

### Sprint 2

#### **Staff Management**

**Add Staff**

* Staff Name
* Role
* Contact Information

**Edit Staff**

* Select Staff
* Staff Name
* Role
* Contact Information

**Delete Staff**

* Select Staff
* Confirm Deletion

**View Staff**

* Select Staff
* View Details

#### **Promotion Management**

**Create Promotion**

* Promotion Name
* Discount Percentage
* Start Date
* End Date

**Update Promotion**

* Select Promotion
* Promotion Name
* Discount Percentage
* Start Date
* End Date

**Delete Promotion**

* Select Promotion
* Confirm Deletion

**View Promotion**

* Select Promotion
* View Details

#### **Policy Management**

**View Policies**

* Select Policy
* View Details

**Edit Policies**

* Select Policy
* Policy Details

**Delete Policies**

* Select Policy
* Confirm Deletion

#### **Order Management**

**Create Orders**

* Customer ID
* Select Products
* Quantity

**Update Orders**

* Select Order
* Update Products
* Quantity

**Delete Orders**

* Select Order
* Confirm Deletion

**View Orders**

* Select Order
* View Details

### Sprint 3

#### **Order Management**

**Print Bill from Order**

* Select Order
* Print Format
* Confirm Print

**Export Bills**

* Select Date Range
* Export Format
* Confirm Export

**Import Product by Barcode**

* Barcode Input
* Valid Barcode
* Confirm Import

**Apply Promotion to Order**

* Select Order
* Select Promotion
* Confirm Apply

#### **Stall Management**

**Add Stall**

* Stall Name
* Location

**Update Stall**

* Select Stall
* Stall Name
* Location

**View Stall**

* Select Stall
* View Details

#### **Customer Management**

**Create Customer**

* Customer Name
* Gender
* Date of Birth
* Address
* Telephone Number
* Email ID

**Edit Customer**

* Select Customer
* Customer Name
* Gender
* Date of Birth
* Address
* Telephone Number
* Email ID

**Delete Customer**

* Select Customer
* Confirm Deletion

**View Customer**

* Select Customer
* View Details

**Generate Bill**

* Input Product Code
* Product Code
* Enter Product to Bill
* Quantity
* Input Customer Info
* Customer ID
* Apply Promotion
* Bill Details

### Sprint 4

#### **Product Management**

**Add Product**

* Product Name
* Product Category
* Price
* Quantity

**Update Product**

* Select Product
* Product Name
* Product Category
* Price
* Quantity

**Delete Product**

* Select Product
* Confirm Deletion

**View Product**

* Select Product
* View Details

#### **Policy Management**

**Create Policy**

* Policy Name
* Policy Description
* Effective Date
* Expiry Date

### Dashboard Management

**View Revenue**

* Select Date Range
* View Details

**View Product Statistics**

* Select Product
* View Details

**View Orders Statistics**

* Select Date Range
* View Details

**View Staff Statistics**

* Select Staff
* View Details

### 3.2 Technical Requirements (TRD)

### Sprint 1

#### **Login**

* T001: Username - Username must not be blank
* T002: Password - Password must not be blank
* T003: Invalid Username/Password - Display error for invalid credentials
* T004: Successful Login - Redirect to dashboard upon successful login

#### **Logout**

* T005: Successful Logout - Redirect to login page upon logout
* T006: Session Termination - Ensure user session is terminated upon logout

#### **Reset Password**

* T007: Email - Email must not be blank
* T008: Invalid Email Format - Display error for invalid email format
* T009: Non-existent Email - Display error for non-existent email
* T010: Successful Reset - Display success message and send reset link

#### **View Account**

* T011: Select Account - An account must be selected
* T012: View Details - Account details must be displayed correctly

#### **Create Account**

* T013: Account Name - Account Name must not be blank
* T014: Account Name - Special characters are not allowed
* T015: Account Type - Account Type must be selected

#### **Edit Account**

* T016: Select Account - An account must be selected
* T017: Account Name - Account Name must not be blank
* T018: Account Name - Special characters are not allowed
* T019: Account Type - Account Type must be selected

#### **Delete Account**

* T020: Select Account - An account must be selected
* T021: Submit - Confirmation is required before deletion

#### **View Profile**

* T022: Select Profile - A profile must be selected
* T023: View Details - Profile details must be displayed correctly

#### **Update Profile**

* T024: Select Profile - A profile must be selected
* T025: Profile Name - Profile Name must not be blank
* T026: Profile Name - Special characters are not allowed
* T027: Profile Email - Email must be in correct format

### Sprint 2

#### **Add Staff**

* T028: Staff Name - Staff Name must not be blank
* T029: Staff Name - Special characters are not allowed
* T030: Role - Role must be selected
* T031: Contact Information - Contact Information must not be blank
* T032: Contact Information - Only numeric values are allowed for phone number

#### **Edit Staff**

* T034: Select Staff - A staff member must be selected
* T035: Staff Name - Staff Name must not be blank
* T036: Staff Name - Special characters are not allowed
* T037: Role - Role must be selected
* T038: Contact Information - Contact Information must not be blank
* T039: Contact Information - Only numeric values are allowed for phone number

#### **Delete Staff**

* T040: Select Staff - A staff member must be selected
* T041: Submit - Confirmation is required before deletion

#### **View Staff**

* T042: Select Staff - A staff member must be selected
* T043: View Details - Staff details must be displayed

#### **View Promotion**

* T044: Select Promotion - A promotion must be selected
* T045: View Details - Promotion details must be displayed

#### **Create Promotion**

* T046: Promotion Name - Promotion Name must not be blank
* T047: Promotion Name - Special characters are not allowed
* T048: Discount Percentage - Discount Percentage must not be blank
* T049: Discount Percentage - Only numeric values are allowed
* T050: Start Date - Start Date must not be blank
* T051: Start Date - Start Date must be a valid date
* T052: End Date - End Date must not be blank
* T053: End Date - End Date must be a valid date
* T054: End Date - End Date must be after Start Date

#### **Update Promotion**

* T055: Select Promotion - A promotion must be selected
* T056: Promotion Name - Promotion Name must not be blank
* T057: Promotion Name - Special characters are not allowed
* T058: Discount Percentage - Discount Percentage must not be blank
* T059: Discount Percentage - Only numeric values are allowed
* T060: Start Date - Start Date must not be blank
* T061: Start Date - Start Date must be a valid date
* T062: End Date - End Date must not be blank
* T063: End Date - End Date must be a valid date
* T064: End Date - End Date must be after Start Date

#### **Delete Promotion**

* T065: Select Promotion - A promotion must be selected
* T066: Submit - Confirmation is required before deletion

#### **View Policies**

* T067: Select Policy - A policy must be selected
* T068: View Details - Policy details must be displayed

#### **Edit Policies**

* T069: Select Policy - A policy must be selected
* T070: Policy Details - Policy details must not be blank
* T071: Submit - All fields must be validated before submission

#### **Delete Policies**

* T072: Select Policy - A policy must be selected
* T073: Submit - Confirmation is required before deletion

#### **Create Orders**

* T074: Customer ID - Customer ID must not be blank
* T075: Select Products - At least one product must be selected
* T076: Quantity - Quantity must not be blank
* T077: Quantity - Only numeric values are allowed

#### **Update Orders**

* T078: Select Order - An order must be selected
* T079: Update Products - At least one product must be updated
* T080: Quantity - Quantity must not be blank
* T081: Quantity - Only numeric values are allowed

#### **Delete Orders**

* T082: Select Order - An order must be selected
* T083: Submit - Confirmation is required before deletion

#### **View Orders**

* T084: Select Order - An order must be selected
* T085: View Details - Order details must be displayed

### Sprint 3

#### **Print Bill from Order**

* T086: Select Order - An order must be selected
* T087: Print Format - Bill must be printed in the correct format
* T088: Print Confirmation - Confirmation message should be displayed after successful print

#### **Export Bills**

* T089: Select Date Range - A date range must be selected
* T090: Export Format - Bills must be exported in the correct format (e.g., PDF, Excel)
* T091: Export Confirmation - Confirmation message should be displayed after successful export

#### **Import Product by Barcode**

* T092: Barcode Input - Barcode must not be blank
* T093: Valid Barcode - Only valid barcodes should be accepted
* T094: Import Confirmation - Confirmation message should be displayed after successful import

#### **Apply Promotion to Order**

* T095: Select Order - An order must be selected
* T096: Select Promotion - A promotion must be selected
* T097: Apply Confirmation - Confirmation message should be displayed after successful application

#### **Add Stall**

* T098: Stall Name - Stall Name must not be blank
* T099: Stall Name - Special characters are not allowed
* T100: Location - Location must not be blank
* T101: Location - Special characters are not allowed

#### **Update Stall**

* T102: Select Stall - A stall must be selected
* T103: Stall Name - Stall Name must not be blank
* T104: Stall Name - Special characters are not allowed
* T105: Location - Location must not be blank
* T106: Location - Special characters are not allowed

#### **View Stall**

* T107: Select Stall - A stall must be selected
* T108: View Details - Stall details must be displayed

#### **Create Customer**

* T109: Customer Name - Customer Name must not be blank
* T110: Customer Name - Numbers are not allowed
* T111: Customer Name - Special characters are not allowed
* T112: Gender - Gender must be selected
* T113: Date of Birth - Date of Birth must not be blank
* T114: Date of Birth - Date of Birth must be a valid date
* T115: Address - Address must not be blank
* T116: Address - Special characters are not allowed
* T117: Telephone Number - Telephone Number must not be blank
* T118: Telephone Number - Only numeric values are allowed
* T119: Telephone Number - Telephone Number must have 10 digits
* T120: Email Id - Email Id must not be blank
* T121: Email Id - Email Id must be valid

#### **Edit Customer**

* T122: Select Customer - A customer must be selected
* T123: Customer Name - Customer Name must not be blank
* T124: Customer Name - Numbers are not allowed
* T125: Customer Name - Special characters are not allowed
* T126: Gender - Gender must be selected
* T127: Date of Birth - Date of Birth must not be blank
* T128: Date of Birth - Date of Birth must be a valid date
* T129: Address - Address must not be blank
* T130: Address - Special characters are not allowed
* T131: Telephone Number - Telephone Number must not be blank
* T132: Telephone Number - Only numeric values are allowed
* T133: Telephone Number - Telephone Number must have 10 digits
* T134: Email Id - Email Id must not be blank
* T135: Email Id - Email Id must be valid

#### **Delete Customer**

* T136: Select Customer - A customer must be selected
* T137: Submit - Confirmation is required before deletion

#### **View Customer**

* T138: Select Customer - A customer must be selected
* T139: View Details - Customer details must be displayed

#### **Generate Bill**

* T140: Input Product Code - Product Code must not be blank
* T141: Product Code - Only alphanumeric values are allowed
* T142: Enter Product to Bill - Product details must be displayed
* T143: Quantity - Quantity must not be blank
* T144: Quantity - Only numeric values are allowed
* T145: Input Customer Info - Customer ID must not be blank
* T146: Customer ID - Only numeric values are allowed
* T147: Apply Promotion - A promotion must be selected
* T148: Bill Details - Bill details must be displayed

### Sprint 4

#### **Add Product**

* T149: Product Name - Product Name must not be blank
* T150: Product Name - Special characters are not allowed
* T151: Product Category - Product Category must not be blank
* T152: Product Category - Special characters are not allowed
* T153: Price - Price must not be blank
* T154: Price - Only numeric values are allowed
* T155: Quantity - Quantity must not be blank
* T156: Quantity - Only numeric values are allowed

#### **Update Product**

* T157: Select Product - A product must be selected
* T158: Product Name - Product Name must not be blank
* T159: Product Name - Special characters are not allowed
* T160: Product Category - Product Category must not be blank
* T161: Product Category - Special characters are not allowed
* T162: Price - Price must not be blank
* T163: Price - Only numeric values are allowed
* T164: Quantity - Quantity must not be blank
* T165: Quantity - Only numeric values are allowed

#### **Delete Product**

* T166: Select Product - A product must be selected
* T167: Submit - Confirmation is required before deletion

#### **View Product**

* T168: Select Product - A product must be selected
* T169: View Details - Product details must be displayed

#### **Create Policy**

* T170: Policy Name - Policy Name must not be blank
* T171: Policy Name - Special characters are not allowed
* T172: Policy Description - Policy Description must not be blank
* T173: Policy Description - Special characters are not allowed
* T174: Effective Date - Effective Date must not be blank
* T175: Effective Date - Effective Date must be a valid date
* T176: Expiry Date - Expiry Date must not be blank
* T177: Expiry Date - Expiry Date must be a valid date
* T178: Expiry Date - Expiry Date must be after Effective Date

### Manage Dashboard

#### **View Revenue**

* T179: Select Date Range - A date range must be selected
* T180: View Details - Revenue details must be displayed

#### **View Product Statistics**

* T181: Select Product - A product must be selected
* T182: View Details - Product statistics must be displayed

#### **View Orders Statistics**

* T183: Select Date Range - A date range must be selected
* T184: View Details - Orders statistics must be displayed

#### **View Staff Statistics**

* T185: Select Staff - A staff member must be selected
* T186: View Details - Staff statistics must be displayed

### 3.3 Functional Validations (BRD)

#### **Manage Promotions**

**Admin**

* **F1**: If the promotion name is blank, the system should display an error.
* **F2**: If the promotion name contains special characters, the system should display an error.
* **F3**: If the discount percentage is blank, the system should display an error.
* **F4**: If the discount percentage is not numeric, the system should display an error.
* **F5**: If the start date is blank, the system should display an error.
* **F6**: If the start date is not valid, the system should display an error.
* **F7**: If the end date is blank, the system should display an error.
* **F8**: If the end date is not valid, the system should display an error.
* **F9**: If the end date is before the start date, the system should display an error.
* **F10**: If a promotion is not selected for update, the system should display an error.
* **F11**: If the promotion name is blank during update, the system should display an error.
* **F12**: If the promotion name contains special characters during update, the system should display an error.
* **F13**: If the discount percentage is blank during update, the system should display an error.
* **F14**: If the discount percentage is not numeric during update, the system should display an error.
* **F15**: If the start date is blank during update, the system should display an error.
* **F16**: If the start date is not valid during update, the system should display an error.
* **F17**: If the end date is blank during update, the system should display an error.
* **F18**: If the end date is not valid during update, the system should display an error.
* **F19**: If the end date is before the start date during update, the system should display an error.
* **F20**: If a promotion is not selected for deletion, the system should display an error.
* **F21**: If confirmation is not provided before deletion, the system should display an error.

#### **Manage Products**

**Admin**

* **F22**: If the product name is blank, the system should display an error.
* **F23**: If the product name contains special characters, the system should display an error.
* **F24**: If the product category is blank, the system should display an error.
* **F25**: If the product category contains special characters, the system should display an error.
* **F26**: If the price is blank, the system should display an error.
* **F27**: If the price is not numeric, the system should display an error.
* **F28**: If the quantity is blank, the system should display an error.
* **F29**: If the quantity is not numeric, the system should display an error.
* **F30**: If a product is not selected for update, the system should display an error.
* **F31**: If the product name is blank during update, the system should display an error.
* **F32**: If the product name contains special characters during update, the system should display an error.
* **F33**: If the product category is blank during update, the system should display an error.
* **F34**: If the product category contains special characters during update, the system should display an error.
* **F35**: If the price is blank during update, the system should display an error.
* **F36**: If the price is not numeric during update, the system should display an error.
* **F37**: If the quantity is blank during update, the system should display an error.
* **F38**: If the quantity is not numeric during update, the system should display an error.
* **F39**: If a product is not selected for deletion, the system should display an error.
* **F40**: If confirmation is not provided before deletion, the system should display an error.
* **F41**: If a product is not selected for viewing, the system should display an error.
* **F42**: If product details are not displayed, the system should display an error.

#### **Manage Stalls**

**Admin**

* **F43**: If the stall name is blank, the system should display an error.
* **F44**: If the stall name contains special characters, the system should display an error.
* **F45**: If the location is blank, the system should display an error.
* **F46**: If the location contains special characters, the system should display an error.
* **F47**: If a stall is not selected for update, the system should display an error.
* **F48**: If the stall name is blank during update, the system should display an error.
* **F49**: If the stall name contains special characters during update, the system should display an error.
* **F50**: If the location is blank during update, the system should display an error.
* **F51**: If the location contains special characters during update, the system should display an error.

#### **Manage Customers**

**Admin**

* **F52**: If the customer name is blank, the system should display an error.
* **F53**: If the customer name contains numbers, the system should display an error.
* **F54**: If the customer name contains special characters, the system should display an error.
* **F55**: If the gender is not selected, the system should display an error.
* **F56**: If the date of birth is blank, the system should display an error.
* **F57**: If the date of birth is not valid, the system should display an error.
* **F58**: If the address is blank, the system should display an error.
* **F59**: If the address contains special characters, the system should display an error.
* **F60**: If the telephone number is blank, the system should display an error.
* **F61**: If the telephone number is not numeric, the system should display an error.
* **F62**: If the telephone number does not have 10 digits, the system should display an error.
* **F63**: If the email ID is blank, the system should display an error.
* **F64**: If the email ID is not valid, the system should display an error.
* **F65**: If a customer is not selected for update, the system should display an error.
* **F66**: If the customer name is blank during update, the system should display an error.
* **F67**: If the customer name contains numbers during update, the system should display an error.
* **F68**: If the customer name contains special characters during update, the system should display an error.
* **F69**: If the gender is not selected during update, the system should display an error.
* **F70**: If the date of birth is blank during update, the system should display an error.
* **F71**: If the date of birth is not valid during update, the system should display an error.
* **F72**: If the address is blank during update, the system should display an error.
* **F73**: If the address contains special characters during update, the system should display an error.
* **F74**: If the telephone number is blank during update, the system should display an error.
* **F75**: If the telephone number is not numeric during update, the system should display an error.
* **F76**: If the telephone number does not have 10 digits during update, the system should display an error.
* **F77**: If the email ID is blank during update, the system should display an error.
* **F78**: If the email ID is not valid during update, the system should display an error.
* **F79**: If a customer is not selected for deletion, the system should display an error.
* **F80**: If confirmation is not provided before deletion, the system should display an error.
* **F81**: If a customer is not selected for viewing, the system should display an error.
* **F82**: If customer details are not displayed, the system should display an error.

#### **Manage Orders**

**Admin**

* **F83**: If the customer ID is blank, the system should display an error.
* **F84**: If at least one product is not selected, the system should display an error.
* **F85**: If the quantity is blank, the system should display an error.
* **F86**: If the quantity is not numeric, the system should display an error.
* **F87**: If an order is not selected for update, the system should display an error.
* **F88**: If at least one product is not updated, the system should display an error.
* **F89**: If the quantity is blank during update, the system should display an error.
* **F90**: If the quantity is not numeric during update, the system should display an error.
* **F91**: If an order is not selected for deletion, the system should display an error.
* **F92**: If confirmation is not provided before deletion, the system should display an error.
* **F93**: If an order is not selected for viewing, the system should display an error.
* **F94**: If order details are not displayed, the system should display an error.

#### **Generate Bill**

**Admin**

* **F95**: If the product code is blank, the system should display an error.
* **F96**: If the product code is not alphanumeric, the system should display an error.
* **F97**: If product details are not displayed, the system should display an error.
* **F98**: If the quantity is blank, the system should display an error.
* **F99**: If the quantity is not numeric, the system should display an error.
* **F100**: If the customer ID is blank, the system should display an error.
* **F101**: If the customer ID is not numeric, the system should display an error.
* **F102**: If a promotion is not selected, the system should display an error.
* **F103**: If bill details are not displayed, the system should display an error.

#### **Manage Staff**

**Admin**

* **F104**: If the staff name is blank, the system should display an error.
* **F105**: If the staff name contains special characters, the system should display an error.
* **F106**: If the role is not selected, the system should display an error.
* **F107**: If the contact information is blank, the system should display an error.
* **F108**: If the contact information is not numeric, the system should display an error.
* **F109**: If a staff member is not selected for update, the system should display an error.
* **F110**: If the staff name is blank during update, the system should display an error.
* **F111**: If the staff name contains special characters during update, the system should display an error.
* **F112**: If the role is not selected during update, the system should display an error.
* **F113**: If the contact information is blank during update, the system should display an error.
* **F114**: If the contact information is not numeric during update, the system should display an error.
* **F115**: If a staff member is not selected for deletion, the system should display an error.
* **F116**: If confirmation is not provided before deletion, the system should display an error.
* **F117**: If a staff member is not selected for viewing, the system should display an error.
* **F118**: If staff details are not displayed, the system should display an error.

#### **Manage Accounts**

**Admin**

* **F119**: If the account name is blank, the system should display an error.
* **F120**: If the account name contains special characters, the system should display an error.
* **F121**: If the account type is not selected, the system should display an error.
* **F122**: If an account is not selected for update, the system should display an error.
* **F123**: If the account name is blank during update, the system should display an error.
* **F124**: If the account name contains special characters during update, the system should display an error.
* **F125**: If the account type is not selected during update, the system should display an error.
* **F126**: If an account is not selected for deletion, the system should display an error.
* **F127**: If confirmation is not provided before deletion, the system should display an error.
* **F128**: If an account is not selected for viewing, the system should display an error.
* **F129**: If account details are not displayed, the system should display an error.

#### **Manage Dashboard**

**Admin**

* F130: If a date range is not selected, the system should display an error.
* **F131**: If revenue details are not displayed, the system should display an error.
* **F132**: If a product is not selected, the system should display an error.
* **F133**: If product statistics are not displayed, the system should display an error.
* **F134**: If a date range is not selected, the system should display an error.
* **F135**: If order statistics are not displayed, the system should display an error.
* **F136**: If a staff member is not selected, the system should display an error.
* **F137**: If staff statistics are not displayed, the system should display an error.

#### **Manage Exchange and Return Policy**

**Admin**

* **F138**: If a policy is not selected, the system should display an error.
* **F139**: If policy details are blank, the system should display an error.
* **F140**: If a policy is not selected for viewing, the system should display an error.
* **F141**: If policy details are not displayed, the system should display an error.

#### **User Authentication**

**Admin**

* **F142**: If the username is blank, the system should display an error.
* **F143**: If the password is blank, the system should display an error.
* **F144**: If the old password is invalid, the system should display an error.
* **F145**: If the old password is invalid, the system should display an error.

#### **Profile Management**

**Admin**

* **F146**: If the name is blank, the system should display an error.
* **F147**: If the contact information is blank, the system should display an error.
* **F148**: If profile details are not displayed, the system should display an error.
* **F149**: If the editable fields are not populated, the system should display an error.
* **F150**: If the email ID is blank, the system should display an error.
* **F151**: If the email ID is not valid, the system should display an error.
* **F152**: If the email ID already exists, the system should display an error.

#### **Forget Password**

**Admin**

* **F153**: If the email ID is blank, the system should display an error.
* **F154**: If the email ID is not valid, the system should display an error.

3.4 Classes / Objects

The following classes/objects are defined for the Jewelry Shop Management System to encapsulate the data and functionality of the system:

1. **Customer**
2. **Product**
3. **Order**
4. **Promotion**
5. **Stall**
6. **Staff**
7. **Account**
8. **Bill**
9. **WarrantyCard**

3.5.1.1 Attributes

**Customer**

* CustomerID
* Name
* Phone
* Email
* Adress
* CreateDate
* UpdateDate
* Birthday
* Status
* BonusPoint
* CustomerOrders

**Product**

* ProductID
* ProductName
* Image
* PurchasePrice
* Description
* SellPrice
* Status
* Weight
* Size
* StallLocation
* Type
* Code
* BarCodeText
* BarCode
* QRCode
* Stall
* Orderdetails
* Quantity

**Order**

* OrderID
* Description
* Type
* CreateDate
* Adress
* TotalPrice
* Tax
* FinalPrice
* TotalBonusPoint
* CustomerID
* Status
* CustomerGiveMoney
* RefundMoney
* Promotion
* Staff
* Customer
* Orderdetails
* WarrantyCard

**Promotion**

* PromotionID
* PromotionName
* DiscountPercentage
* StartDate
* EndDate
* Description
* MinimumPrice
* MaximumPrice
* OrderList

**Stall**

* StallID
* StallName
* StalLCode
* Type
* Description
* Status
* Staff
* Products

**Staff**

* StaffID
* Name
* Role
* ContactInformation

**Account**

* AccountID
* AccountName
* AccountPassword
* Phone
* Email
* Register\_Date
* Avatar
* RoleID
* StallID
* Status

**Bill**

* BillID
* OrderID
* CustomerID
* BillDate
* TotalAmount
* PromotionID (if any)
* Details (list of ProductID, Quantity, and Price)

**WarrantyCard**

* WarrantyCardID
* WarrantyCardName
* OrderID
* IssueDate
* ExpiryDate

### 3.5.1.2 Functions

**Customer**

* CreateCustomer()
* EditCustomer()
* DeleteCustomer()
* ViewCustomer()

**Product**

* AddProduct()
* UpdateProduct()
* DeleteProduct()
* ViewProduct()

**Order**

* CreateOrder()
* UpdateOrder()
* DeleteOrder()
* ViewOrder()

**Promotion**

* CreatePromotion()
* UpdatePromotion()
* DeletePromotion()
* ViewPromotion()

**Stall**

* AddStall()
* EditStall()
* DeleteStall()
* ViewStall()

**Staff**

* AddStaff()
* EditStaff()
* DeleteStaff()
* ViewStaff()

**Account**

* CreateAccount()
* UpdateAccount()
* DeleteAccount()
* ViewAccount()

**Bill**

* GenerateBill()
* ViewBill()

**WarrantyCard**

* IssueWarrantyCard()
* ViewWarrantyCard()
* UpdateWarrantyCard()
* DeleteWarrantyCard()

3.5 Non-Functional Requirements

Non-functional requirements are qualities that the system must have to be effective. Although no specific non-functional requirements have been defined for this system, typical non-functional requirements might include:

#### **Performance**

* Process sales transactions and generate invoices within 3 seconds.
* Update inventory and sales records in real-time.
* Support up to 50 simultaneous users without performance degradation.

#### **Reliability**

* Ensure 99.9% uptime.
* Maintain data integrity across transactions to prevent data loss during crashes or power failures.

#### **Usability**

* Provide an intuitive and easy-to-navigate user interface for staff with minimal training.
* Support multiple languages, including Vietnamese and English.
* Allow barcode scanning with minimal configuration.

#### **Security**

* Comply with local data protection regulations.
* Require user authentication with access control based on user roles.
* Encrypt sensitive customer information both in transit and at rest.

#### **Maintainability**

* Have a modular design for easy updates and maintenance.
* Provide documentation for system functionalities and API integration.
* Include diagnostic tools for troubleshooting and system health monitoring.

#### **Interoperability**

* Integrate with existing accounting software.
* Support standard data formats (e.g., CSV, XML) for data import/export.

#### **Availability**

* Be accessible 24/7 with scheduled maintenance not exceeding 2 hours per month.
* Have a backup system to ensure business continuity in case of primary system failure.

#### **Scalability**

* Handle increased loads during peak times like holidays or promotions.
* Accommodate additional users and devices without significant infrastructure changes.

#### **Compliance**

* Comply with local and international regulations related to electronic transactions and data storage.
* Conduct regular audits to ensure compliance with regulations.

#### **Backup and Recovery**

* Perform daily backups of all critical data.
* Restore system to the last backup point within 2 hours in case of data corruption or system failure.

#### **Accessibility**

* Be accessible to employees with disabilities, adhering to relevant accessibility standards (e.g., WCAG 2.1).

3.6 Inverse Requirements

Inverse requirements specify what the system should not do. While no specific inverse requirements have been defined for this system , typical inverse requirements might include:

* **Data Leakage**: The system must not expose any user data to unauthorized users.
* **Unauthorized Actions**: The system must not allow users to perform actions outside of their assigned roles.

3.7 Design Constraints

Many of the Jewelry Shop users may not have adequate computer knowledge to use the site. Hence, the system must be intuitive and easy to understand. This means:

* **User Interface**: The user interface should be simple, with clear navigation and help prompts.
* **Minimal Training**: The system should be designed so that users require minimal training to use it effectively.
* **Accessibility**: The system should be accessible on various devices, including desktops, tablets, and smartphones, ensuring a responsive design.
* **Language Support**: If necessary, the system should support English and VietNamese.
* **Consistent Design**: The design should be consistent throughout the system to avoid confusion and make it easier for users to learn and use the system.
* **Error Handling**: The system should provide clear error messages and guidance to help users correct mistakes.

3.8 Logical Database Requirements

The system must ensure the following logical database requirements:

* **Data Integrity**: The database should enforce data integrity constraints, such as primary keys, foreign keys, and unique constraints to ensure the accuracy and consistency of the data.
* **Data Security**: The database should implement security measures, such as encryption and access controls, to protect sensitive data.
* **Backup and Recovery**: The database should support regular backups and provide mechanisms for data recovery in case of data loss or corruption.
* **Scalability**: The database should be scalable to handle an increasing amount of data and concurrent users without performance degradation.
* **Performance**: The database should be optimized for performance to ensure fast query response times and efficient data retrieval.

3.9 Other Requirements

The system must adhere to the following additional requirements:

* **Regulatory Compliance**: The system should comply with all relevant laws and regulations, such as data protection laws (e.g., GDPR) and industry-specific regulations.
* **Maintenance and Support**: There should be a plan for regular maintenance and support to ensure the system operates smoothly and efficiently.
* **Documentation**: Comprehensive documentation should be provided for users and administrators, including user manuals, installation guides, and troubleshooting tips.
* **Interoperability**: The system should be able to integrate with other systems and software used by the jewelry shop, such as accounting software and customer relationship management (CRM) systems.
* **Testing**: The system should undergo thorough testing, including unit tests, integration tests, and user acceptance tests, to ensure it meets all functional and non-functional requirements.

4. Analysis Models

Nil

5. Change Management Process

Changes to the SRS either from the development, testing team or the client side will be communicated to the project sponsor Mr Krishny Rungtasha.

Any change made to the SRS will require a sign off from the Development lead , QA lead and the client.

Once approved changed will be made to the SRS and the new SRS will be circulated to all stakeholders