Jewelry Management System

Software Requirements Specification

1.0

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**Prepared for**

abc.com

**1. Introduction**

* The jewellery industry is highly valued, demanding a management system to streamline operations and enhance customer enjoyment. For that reason, we seek to create a robust web application to manage sales, promotions, inventory, staff workflow and customer interactions effectively
* This system support for the below type of user:
  + Staff: The sale members at the register
  + Administrator: the organisation leader, acts as the system administrator
  + Manager: The sale manager in the organisation

**1.1 Purpose**

The aim of this project is to provide a comprehensive platform for staff, managers and system administrators to effectively manage various aspects of the business.

The system will encompass modules for order management, pricing, promotions, buy-back transactions, inventory management, employee performance tracking, customer loyalty programs, and reporting capabilities. It will offer a user-friendly interface accessible via a web browser, with the intention of simplifying the process as much as possible so that staff wouldn’t need extensive training in-order to efficiently use the system. Along with this, we also offer barcode scanners and printers.

**1.2 Scope**

The Jewelry Management System will include functionalities for:

* Order creation and management
* Pricing and promotions
* Inventory management
* Staff and manager account management
* Employee performance tracking
* Customer loyalty programs
* Reporting and analytics

**1.3 Definitions, Acronyms, and Abbreviations**

**SRS**: Software Requirements Specification

**UI**: User Interface

**FR**: Functional Requirement

**NFR**: Non-Functional Requirement

**DB**: Database

**1.4 References**

**2. Specific Requirements**

**2.1 External Interface Requirements**

The system will have a web-based user interface, including:

* Login screen
* Dashboard for each user type (Staff, Manager, Administrator)
* Forms for adding and updating products, staff, customers
* Inventory management screens
* Order management screens
* Reporting and analytics screens

**2.1.1 User Interfaces**

**2.1.2 Hardware Interfaces**

**2.1.3 Software Interfaces**

**2.1.4 Communications Interfaces**

**3.1 Front End Details**

### **Login**

* **Username**
  + Required field
  + Must be valid
  + First character cannot have space
* **Password**
  + Required field
  + Minimum 8 characters long
  + First character cannot have space

### **Forgot Password**

* **Email**
  + Required field
  + Must be a valid email format

### **Add Product**

* **Product Name**
  + Required field
* **Product Description**
  + Required field
* **Product Code**
  + Required field
* **Metal Type**
  + Required field
* **Gemstone Type**
  + Required field
* **Manufacturer**
  + Required field
* **Carat**
  + Required field
  + Numeric input
* **Category**
  + Required field
* **Image**
  + Required field
  + Valid image format (e.g., JPG, PNG)

### **Update Customer**

* **Email**
  + Required field
  + Must be a valid email format
* **Phone Number**
  + Required field
  + Numeric input only
* **Point Amount**
  + Numeric input
* **Status**
  + Required field (e.g., Active, Inactive)

### **Add Staff**

* **Phone Number**
  + Required field
  + Numeric input only
* **Email**
  + Required field
  + Must be a valid email format
* **Username**
  + Required field
  + Must be valid
* **Password**
  + Required field
  + Minimum 8 characters long
* **Employed Date**
  + Required field
  + Date format (e.g., YYYY-MM-DD)
* **Salary**
  + Required field
  + Numeric input

### **Change Password**

* **Old Password**
  + Required field
* **New Password**
  + Required field
  + Minimum 8 characters long
* **Confirm New Password**
  + Required field
  + Must match New Password field

### **Add Category**

* **Name**
  + Required field
* **Description**
  + Required field

### **Initialize Order**

* **Add Product**
  + Required field (multiple selections possible)
* **Email**
  + Required field
  + Must be a valid email format

### **Confirm Order**

* **Qr Scan**
  + Required field (scan functionality)

### **Initialize Repurchase Order**

* **Capture Photo**
  + Required field
* **Name**
  + Required field
* **Metal Type**
  + Required field
* **Metal Weight**
  + Numeric input
* **Gemstone Type**
  + Required field
* **Gemstone Weight**
  + Numeric input

**3.2 Technical Requirements**

* FR-01 Create order
* FR-02 Create repurchasing order
* FR-03 Create buy-back order
* FR-04 Choose payment method
* FR-05 Trace back order
* FR-06 Scan barcode
* FR-07 Input product code
* FR-08 Pricing calculation
* FR-09 Adjust pricing ratio
* FR-10 Discount code creation
* FR-11 Create repurchasing order
* FR-12 Appraise product
* FR-13 Manage staff account
* FR-14 Manage manager account
* FR-15 Staff assignment
* FR-16 Staff performance tracking
* FR-17 Customer registration
* FR-18 Display registered customer’s point amount
* FR-19 Revenue tracking
* FR-20 Staff performance tracking
* FR-21 Display gold prices
* FR-22 Display return policies
* FR-23 Display order
* FR-24 Display available products
* FR-25 Display registered customer’s point amount
* FR-26 Create/update store’s inventory request
* FR-27 View/update inventory management request
* FR-28 Assign product to category
* FR-29 User login
* FR-30 User registration
* FR-31 Change password
* FR-32 User profile
* FR-33 Reset Password
* FR-34 User authorization
* FR-35 User logout

**3.3 Functional validations**

#### Login

#### - T-01: Verify the username field is required.

#### - T-02: Verify the password field is required.

#### - T-03: Verify the username field does not accept leading spaces.

#### - T-04: Verify the password field requires a minimum of 8 characters.

#### - T-05: Verify the password field does not accept leading spaces.

#### - T-06: Verify successful login with valid username and password.

#### - T-07: Verify failed login with valid username and invalid password.

#### - T-08: Verify failed login with invalid username and valid password.

#### - T-09: Verify failed login with invalid username and invalid password.

#### - T-10: Verify error message for empty username field.

#### - T-11: Verify error message for empty password field.

#### 

#### Forgot Password

#### - T-12: Verify valid email input for password reset.

#### - T-13: Verify error message for invalid email format.

#### - T-14: Verify handling of email addresses with leading/trailing spaces.

#### - T-15: Verify error message for non-existent email in system.

#### - T-16: Verify acceptance of valid email with special characters.

#### - T-17: Verify reset link sent only to registered emails.

#### - T-18: Verify correct error message for invalid email format.

#### - T-19: Verify correct success message for valid email input.

#### - T-20: Verify reset email contains correct link and instructions.

#### - T-21: Verify reset email is sent promptly.

#### 

#### Add Product

#### - T-22: Verify product name field is required.

#### - T-23: Verify product description field is required.

#### - T-24: Verify product code field is required.

#### - T-25: Verify metal type field is required.

#### - T-26: Verify gemstone type field is required.

#### - T-27: Verify manufacturer field is required.

#### - T-28: Verify carat field is required and accepts only numeric input.

#### - T-29: Verify category field is required.

#### - T-30: Verify image field is required and accepts only valid formats (JPG, PNG).

#### - T-31: Verify adding a product with all valid fields.

#### - T-32: Verify error for invalid image format.

#### - T-33: Verify error for non-numeric input in carat field.

#### - T-34: Verify error for empty product name field.

#### - T-35: Verify error for empty product description field.

#### - T-36: Verify error for empty product code field.

#### - T-37: Verify error for empty metal type field.

#### - T-38: Verify error for empty gemstone type field.

#### - T-39: Verify error for empty manufacturer field.

#### - T-40: Verify error for empty carat field.

#### - T-41: Verify error for empty category field.

#### - T-42: Verify error for empty image field.

#### 

#### Update Customer

#### - T-43: Verify email field is required and must be valid format.

#### - T-44: Verify phone number field is required and accepts only numeric input.

#### - T-45: Verify point amount field accepts only numeric input.

#### - T-46: Verify status field is required.

#### - T-47: Verify updating customer with all valid fields.

#### - T-48: Verify error for invalid email format.

#### - T-49: Verify error for non-numeric characters in phone number.

#### - T-50: Verify error for empty email field.

#### - T-51: Verify error for empty phone number field.

#### - T-52: Verify error for empty status field.

#### - T-53: Verify error for non-numeric value in point amount field.

#### - T-54: Verify handling of email and phone number with leading/trailing spaces.

#### - T-55: Verify updating customer status to "Active."

#### - T-56: Verify updating customer status to "Inactive."

#### 

#### Add Staff

#### - T-57: Verify phone number field is required and accepts only numeric input.

#### - T-58: Verify email field is required and must be valid format.

#### - T-59: Verify username field is required and does not accept leading spaces.

#### - T-60: Verify password field is required and must be at least 8 characters long.

#### - T-61: Verify adding staff with all valid fields.

#### - T-62: Verify error for invalid email format.

#### - T-63: Verify error for non-numeric characters in phone number.

#### - T-64: Verify error for empty phone number field.

#### - T-65: Verify error for empty email field.

#### - T-66: Verify error for empty username field.

#### - T-67: Verify error for empty password field.

#### - T-68: Verify error for password shorter than 8 characters.

#### - T-69: Verify error for username with leading spaces.

#### - T-70: Verify error for password with leading spaces.

#### - T-71: Verify handling of email and phone number with leading/trailing spaces.

#### 

#### Change Password

#### - T-72: Verify old password field is required.

#### - T-73: Verify new password field is required and must be at least 8 characters long.

#### - T-74: Verify confirm new password field is required and must match new password.

#### - T-75: Verify changing password with all valid fields.

#### - T-76: Verify error for empty old password field.

#### - T-77: Verify error for empty new password field.

#### - T-78: Verify error for empty confirm new password field.

#### - T-79: Verify error for new password shorter than 8 characters.

#### - T-80: Verify error for confirm new password not matching new password.

#### - T-81: Verify handling of old password with leading/trailing spaces.

#### - T-82: Verify handling of new password with leading/trailing spaces.

#### - T-83: Verify changing password with special characters in new password.

#### 

#### Add Category

#### - T-84: Verify name field is required.

#### - T-85: Verify description field is required.

#### - T-86: Verify adding category with all valid fields.

#### - T-87: Verify error for empty name field.

#### - T-88: Verify error for empty description field.

#### - T-89: Verify handling of name with leading/trailing spaces.

#### - T-90: Verify handling of description with leading/trailing spaces.

#### 

#### Initialize Order

#### - T-91: Verify product number when choosing the same item.

#### - T-92: Verify email field is unique.

#### - T-93: Verify initialising order with all valid fields.

#### 

#### Confirm Order

#### - T-94: Verify QR scan functionality is required.

#### - T-95: Verify successful QR code scan.

#### - T-96: Verify error for invalid QR code format.

#### - T-97: Verify handling of QR scan timeout.

#### 

#### Initialize Repurchase Order

#### - T-98: Verify photo capture is required.

#### - T-99: Verify name field is required.

#### - T-100: Verify metal type field is required.

#### - T-101: Verify metal weight field accepts only numeric input.

#### - T-102: Verify gemstone type field is required.

#### - T-103: Verify gemstone weight field accepts only numeric input.

#### - T-104: Verify initializing repurchase order with all valid fields.

#### Initialize Buy-Back Order

#### - T-105: Verify that capturing a photo is required.

#### - T-106: Verify that the name field is required.

#### - T-107: Verify that the metal type field is required.

#### - T-108: Verify that the metal weight field accepts only numeric input.

#### - T-109: Verify that the gemstone type field is required.

#### - T-110: Verify that the gemstone weight field accepts only numeric input.

#### - T-111: Verify initializing buy-back order with all valid fields.

#### 

#### Choose Payment Method

#### - T-112: Verify that the user can choose from available payment methods.

#### - T-113: Verify that an error is displayed if no payment method is selected.

#### - T-114: Verify processing payment with a valid method.

#### 

#### Trace Back Order

#### - T-115: Verify that the user can trace back an order by its ID.

#### - T-116: Verify displaying order details upon successful trace back.

#### - T-117: Verify error message for invalid order ID.

#### 

#### Scan Barcode

#### - T-118: Verify successful barcode scan.

#### - T-119: Verify error message for invalid barcode format.

#### - T-120: Verify handling of barcode scan timeout.

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#### Input Product Code

#### - T-121: Verify that the product code field accepts alphanumeric input.

#### - T-122: Verify successful product code entry.

#### - T-123: Verify error message for invalid product code.

#### 

#### Pricing Calculation

#### - T-124: Verify accurate pricing calculation based on input data.

#### - T-125: Verify updating price when input data changes.

#### - T-126: Verify error message for invalid input data.

#### 

#### Adjust Pricing Ratio

#### - T-127: Verify that the user can adjust the pricing ratio.

#### - T-128: Verify that pricing updates correctly based on the new ratio.

#### - T-129: Verify error message for invalid pricing ratio input.

#### 

#### Discount Code Creation

#### - T-130: Verify that the user can create a discount code.

#### - T-131: Verify that the discount code field is required.

#### - T-132: Verify that the discount code is applied correctly.

#### 

#### Appraise Product

#### - T-133: Verify that the user can input appraisal details.

#### - T-134: Verify that the appraisal value is calculated accurately.

#### - T-135: Verify error message for invalid appraisal data.

#### 

#### Manage Staff Account

#### - T-136: Verify that the user can create a staff account.

#### - T-137: Verify that the user can update staff account details.

#### - T-138: Verify error message for invalid staff account data.

#### 

#### Manage Manager Account

#### - T-139: Verify that the user can create a manager account.

#### - T-140: Verify that the user can update manager account details.

#### - T-141: Verify error message for invalid manager account data.

#### 

#### Staff Assignment

#### - T-142: Verify that the user can assign tasks to staff members.

#### - T-143: Verify that assigned tasks appear in staff member's dashboard.

#### - T-144: Verify error message for invalid task assignment.

#### 

#### Staff Performance Tracking

#### - T-145: Verify that the system tracks staff performance metrics.

#### - T-146: Verify that performance data is updated accurately.

#### - T-147: Verify error message for invalid performance data.

#### 

#### Customer Registration

#### - T-148: Verify that the user can register a new customer.

#### - T-149: Verify that all required customer fields are completed.

#### - T-150: Verify error message for incomplete registration data.

#### 

#### Display Registered Customer's Point Amount

#### - T-151: Verify that the system displays the correct point amount.

#### - T-152: Verify that point amounts update accurately based on transactions.

#### 

#### Revenue Tracking

#### - T-153: Verify that the system tracks revenue accurately.

#### - T-154: Verify that revenue reports are generated correctly.

#### - T-155: Verify error message for invalid revenue data.

#### 

#### Display Gold Prices

#### - T-156: Verify that the system displays current gold prices.

#### - T-157: Verify that gold prices update regularly.

#### 

#### Display Return Policies

#### - T-158: Verify that the system displays return policies.

#### - T-159: Verify that return policies are updated correctly.

#### 

#### Display Order

#### - T-160: Verify that the system displays order details.

#### - T-161: Verify that order details update accurately.

#### 

#### Display Available Products

#### - T-162: Verify that the system displays available products.

#### - T-163: Verify that product availability updates correctly.

#### 

#### Create/Update Store's Inventory Request

#### - T-164: Verify that the user can create an inventory request.

#### - T-165: Verify that the user can update an inventory request.

#### - T-166: Verify error message for invalid inventory request data.

#### 

#### View/Update Inventory Management Request

#### - T-167: Verify that the user can view inventory requests.

#### - T-168: Verify that the user can update inventory requests.

#### - T-169: Verify error message for invalid inventory request data.

#### 

#### Assign Product to Category

#### - T-170: Verify that the user can assign products to categories.

#### - T-171: Verify that assigned categories update correctly.

#### 

#### User Login

#### - T-172: Verify that the user can log in with valid credentials.

#### - T-173: Verify error message for invalid login credentials.

#### - T-174: Verify error message for locked account after multiple failed login attempts.

#### 

#### User Registration

#### - T-175: Verify that the user can register with all required fields.

#### - T-176: Verify error message for incomplete registration data.

#### - T-177: Verify that the user receives a confirmation email upon successful registration.

#### 

#### Change Password

#### - T-178: Verify that the user can change their password with valid inputs.

#### - T-179: Verify error message for incorrect old password.

#### - T-180: Verify error message for mismatched new password and confirm password.

#### 

#### User Profile

#### - T-181: Verify that the user can view their profile.

#### - T-182: Verify that the user can update their profile details.

#### - T-183: Verify error message for invalid profile data.

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#### Reset Password

#### - T-184: Verify that the user can reset their password with a valid email.

#### - T-185: Verify error message for non-existent email.

#### - T-186: Verify that the user receives a reset password link via email.

#### 

#### User Authorization

#### - T-187: Verify that the system enforces correct user permissions.

#### - T-188: Verify error message for unauthorized access attempts.

#### 

#### User Logout

#### - T-189: Verify that the user can log out successfully.

#### - T-190: Verify that session data is cleared upon logout.

#### - T-191: Verify error message for actions attempted after logout.

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**3.4 Classes / Objects**

**3.5 Non-Functional Requirements**

**3.6 Inverse Requirements**

**3.7 Design Constraints**

Nil

**3.8 Logical Database Requirements**

Nil

**3.9 Other Requirements**

Nil

**4. Analysis Models**

* Use Case Diagrams: Illustrate interactions between users and the system.
* Sequence Diagrams: Detail the flow of operations for key processes (e.g., booking a session).
* Class Diagrams: Represent the structure of the system's data.

**5. Change Management Process**

* Any changes to the requirements will be documented and reviewed.
* Stakeholders will be notified, and impact assessments will be conducted.
* Version control will be maintained to track changes.