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<Koi Care System At Home>

Software Requirement Specification

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# Introduction

## Purpose

The purpose of this Software Requirements Specification (SRS) document is to define the functional and non-functional requirements for the Koi care system at home. This document provides a detailed description of the system's features, behavior, and constraints to ensure that the project meets both business and user needs. It serves as a communication bridge between stakeholders, developers, and designers to maintain clarity and alignment throughout the project lifecycle.

## Scope

The **scope** of the system described in the Software Requirements Specification (SRS) outlines the key functionalities, user roles, and interactions the system will support. The system is designed to serve multiple user types (Guests, Members, Shops, and Admins), each having different levels of access and capabilities. The system will manage koi ponds, facilitate online shopping, and provide administrative oversight for user accounts and orders.

## Definitions, Acronyms, and Abbreviations

#### ****Definitions****:

1. **Guest**: A user who has not registered or logged into the system. Guests have limited access, primarily for viewing content and registering for an account.
2. **Member**: A registered user with an active account who can manage personal information, koi ponds, make purchases, and manage orders.
3. **Shop**: A registered user responsible for managing product listings and categories. A shop can perform CRUD (Create, Read, Update, Delete) operations on products and interact with customers.
4. **Admin**: A privileged user who manages all aspects of the system, including user accounts, orders, and revenue. Admins have access to sensitive system operations like revenue management.
5. **CRUD**: An acronym for Create, Read, Update, and Delete, referring to the basic operations that can be performed on data in the system.
6. **Koi Management**: Functionality within the system allowing users to manage koi fish, including tracking growth and viewing statistics.
7. **Pond Management**: Functionality for users to manage koi ponds, track water quality, and calculate essential parameters like salt and food levels.
8. **Shopping Cart**: A feature that allows users to select products for purchase, update the quantity, and proceed to checkout.
9. **Checkout**: The process where a user reviews their cart, selects payment and shipping methods, and completes an order.
10. **Revenue Management**: Admin functionality that allows tracking and reporting of income generated through subscriptions and product sales.
11. **Order Management**: Admin and member functionality for viewing, tracking, and updating the status of orders.
12. **Wishlist**: A feature allowing members to save products for future purchase consideration.

#### ****Acronyms****:

1. **SRS**: Software Requirements Specification
2. **CRUD**: Create, Read, Update, Delete

## Overview

The system described in this Software Requirements Specification (SRS) is a **multi-user platform** designed to cater to various roles: **Guests**, **Members**, **Shops**, and **Admins**. The platform provides functionalities that revolve around **koi pond management**, **e-commerce**, and **administrative oversight**. It aims to serve users who are managing koi fish and ponds, while also offering a full-featured shopping experience for products related to koi and pond maintenance.

# Use Case Diagram

# FUNCTIONAL Requirements

***Guest:***

[FR-01] Can be able to register an account.

[FR-02] Can be able to Login/ Logout.

***Member***

[FR-03] Must Manage Personal Account:

* Update Personal Inoformation (User Name,Password, Email,Phone,Address).
* Logout of System.

[FR-04] Must Manage Koi List.

* CRUD Fish
* View Fish Growth Chart

[FR-05] Must manage Pond List

* CRUD Pond
* Caculate Salt and Food.
* View the water paramter statistics chart.

[FR-06] Must View and Search Products.

[FR-07] Must Manage Cart

* Add Product to Cart
* View Cart
* Update Cart.

[FR-08] Can be able to add Products to Wishlist.

[FR-09] Must Checkout

* Review Cart
* Select Payment Method (By Cash, By Bank Tranfer).
* Select Shipping Address.
* Select Shipping Method.
* Order Summary (Create Order after this).

[FR-10] Must Manage Personal Order.

* View Order History.
* Track Other Status.

[FR-11] Can be able to Login to System.

***Shop:***

[FR-03] Must Manage Personal Account:

* Update Personal Inoformation (User Name,Password, Email,Phone,Address).
* Logout of System.

[FR-12] Must Manage Product List.

* CRUD products
* Search products

[FR-13] Must Manage Categories List.

* CRUD Categories.
* Search Products.
* [FR-11] Can be able to Login to System.

**Admin:**

[FR-04] Must Manage Account List.

* CRUD Account..
* Search Account.

[FR-15] Must manage Revenue.

* Show by Member Subscription Chart.
* Show by Commission fees Chart
* Show by Week/ Month/Year Chart.

[FR-16] Must Manage Order List.

* View Order.
* Update Order Status.

[FR-17] Can be able to Login/ Logout.

# NON-FUNCTIONAL Requirements

## Usability

**Ease of Use**:

* The system must have an intuitive and user-friendly interface that is easy for both technical and non-technical users to navigate.
* All critical user actions (e.g., product checkout, order management) should require no more than 3 clicks.

## Reliability

**System Availability**:

* The system must be available 99.9% of the time, except for scheduled maintenance periods.

**Fault Tolerance**:

* The system must be able to recover from any server or network failure without data loss.
* Regular backups of user and product data must occur every 24 hours.

## Performance

**System Performance**:

* The system must handle a minimum of 100 concurrent users without performance degradation.
* The system response time for any CRUD operation (Create, Read, Update, Delete) must not exceed 2 seconds.

**Scalability**:

* The system should be able to scale both horizontally and vertically to support the growing number of users and products.

**Database Performance**:

* All database queries related to product and koi list searches must return results within 1 second.
* The system should optimize caching to minimize database hits for frequently accessed data (e.g., product lists, pond information).

## Security Requirements:

**Data Privacy**:

* + Personal data (User Name, Password, Email, Phone, Address) must be encrypted using industry-standard encryption methods (e.g., AES-256).
  + Passwords must be stored using salted hashing algorithms such as bcrypt.

**Authentication and Authorization**:

* + Only authenticated users (Members, Shops, Admins) must have access to the system.
  + Role-based access control (RBAC) must be implemented to restrict access to sensitive features (e.g., Account Management, Revenue Management).
  + A maximum of 5 failed login attempts must result in account lockout for 30 minutes to prevent brute-force attacks.