

CASE STUDY ONLINE HEALTHY FOODS STORE SYSTEM



Group 3

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# 1. Introduction

This following solution requirement specification and analysis proposal serves to develop the Online Healthy Foods Store for All Your Healthy Foods, a medium-sized food retailer from its current physical store platform to further expand its sales and enhance its services. This document outlines the functional and non-functional requirements, constraints, assumptions, scope, and quality attributes necessary for the successful development and deployment of the online store.

## **Project Background:**

All Your Healthy Foods is looking to grow its on-going physical store operation by establishing an online presence. The objective is to enable customers to order goods online, have them packaged, and delivered to their homes. Additionally, the owners seek basic statistics about the goods sold over various time periods

# 2. Project Overview

## 2.1. Domain Vocabulary

- Online Healthy Foods Store: The web-based platform developed for All Your Healthy Foods.
- Customer: Users who visit the online store to browse, order, and purchase goods.
- Administrator: Authorized personnel responsible for managing the online store, including product listings, orders, and customer data.
- Product: Items available for purchase on the online store, including various healthy foods and related products.
- Order: Requests made by customers to purchase goods from the online store.
- Delivery: The process of transporting ordered goods from the store to the customer's specified location
- Trade-in: Goods owned by the customer, sold to the dealership at the time of new goods purchase.
- Salesperson: staff members assisting customers with vehicle purchases.

## 2.2. Goals

1. The platform must comply with relevant data protection regulations.
2. Payment processing must be secure and PCI-compliant.
3. The system should support a scalable architecture to accommodate future growth.
4. Compatibility with major web browsers and mobile devices is required
5. Expand customer reach beyond the local area.
6. Gain insights into customer behavior and product trends.

## 2.3. Assumptions

1. Customers have access to internet connectivity for browsing and ordering.
2. Users are familiar with basic online shopping processes.
3. The availability of products is subject to change based on inventory levels.
4. Delivery logistics will be managed by third-party service providers.
5. Secure payment processing gateway will be integrated.
6. A reliable delivery service provider will be selected.
7. Average daily order volume is manageable with initial system capacity.

## 2.4. Scope

The scope includes the development of an online platform for All Your Healthy Foods, enabling customers to browse, order, and purchase goods online, with support for order and inventory management, payment processing, and basic reporting capabilities.

### 3. Functional Requirements and Task Descriptions

#### 3.1. Task 1 – Browse Products

<b>Tasks:</b>	<b>Browse Product</b>
Purpose:	Allow customers to easily discover and find desired healthy food products
Trigger/Precondition:	Customer visits the online store
Frequency:	On going throughout customer interaction
Critical	Product information must be accurate and readily accessible.
Work Area:	Customer's web browser
<b>Subtasks:</b>	<b>Example Solution:</b>
Display Product categories and navigation options	The system organizes products into categories and provides intuitive navigation menus
Allow customers to browse products within each category.	The system presents product listings with images and descriptions and prices for easy exploration.
Enable customers to select desired products and add them to the shopping cart	Provides "Add to Cart" buttons or icons next to each product listing for quick selection
<b>Variants:</b>	
Allow browsing by featured products, promotional offers, or personalized recommendations.	

#### 3.2. Task 2 – Shopping Cart Management

<b>Tasks:</b>	<b>Shopping Cart Management</b>
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Purpose:	Allow customers to select and manage the products they want to purchase
Trigger/Precondition:	Customer selects a product to add to cart
Frequency:	On going throughout checkout process
Critical	Cart contents must be accurate and persistent across sessions
Work Area:	Customer's web browser
<b>Subtasks:</b>	<b>Example Solution:</b>
Add or remove items from the cart	The system has a button to remove/add unwanted goods from the cart.
Change the quantities of items in the cart	The system has buttons to adjust the quantities of the items in the cart
View an overview of cart contents including item names, quantities, and prices	The system displays a detailed list of items, quantities, and total prices for review before checkout
Apply coupon codes or promotional offers	The system allows the customer to input the promotional code to receive discounts.
Estimated shipping costs based on delivery address	The system prompts the customer to enter their shipping address, contact details and preferred payment method.
<b>Variants</b>	

### 3.3. Task 3 – Track Order and Manage Delivery

<b>Tasks:</b>	<b>Track Order and Manage Delivery</b>
Purpose:	to facilitate the purchase of goods by customers, make records of each order

	with details and ascertain the payment process is safe and correct
Trigger/Precondition:	Customers finishes their shopping list (correct quantities with explicit notes on their choices)
Frequency:	Average 100 orders and purchases per day
Critical	High traffic during promotional sales
Work Area:	Online store website
<b>Subtasks:</b>	<b>Example Solution:</b>
Enter shipping address	Provide a form during the checkout process where the customer can input their shipping address, including fields for street address, city, state/province, postal code, and country. Additionally, incorporate autofill functionality and validation to enhance user experience and ensure accurate address entry.
Choose a delivery method	Present the customer with a list of available delivery methods, such as standard shipping, express shipping, or in-store pickup. Include details about estimated delivery times and associated costs for each option. Allow the customer to select their preferred delivery method from the list.
Select a payment method	Offer multiple payment options to accommodate different customer preferences, including credit/debit card payments, digital wallets (e.g., PayPal,

	Apple Pay), and bank transfers. Present the available payment methods with clear instructions for selecting and completing the payment process securely.
Review and confirm order	Display a summary of the customer's order, including the selected items, quantities, total cost, shipping address, and chosen delivery method. Provide the customer with the opportunity to review and edit their order details before proceeding to payment. Include a "Confirm Order" button for finalizing the purchase
Make a payment	Integrate a secure payment gateway into the checkout process to facilitate safe and convenient transactions. Encrypt sensitive payment information and ensure compliance with PCI-DSS standards. Guide the customer through the payment process with clear prompts and feedback messages, confirming successful payment completion upon transaction approval.
<b>Variants</b>	
<b><u>Order Placement Variants:</u></b>	
Regular order placement	Allow customers to add items to their shopping cart, proceed to checkout, enter shipping information, select a delivery method, review their order, and confirm the purchase.
Subscription-based order placement	Offer customers the option to subscribe to regular deliveries of specific products (e.g.,



	weekly or monthly). Provide a subscription management interface where customers can customize their subscription preferences, including frequency, quantity, and delivery schedule.
Bulk Order Placement	Cater to customers or businesses placing bulk orders by implementing features such as bulk quantity selection, special pricing tiers for large orders, and streamlined checkout processes optimized for bulk purchases.
<b><u>Payment Variants:</u></b> Credit/Debit Card Payment	Integrate a secure payment gateway that supports credit and debit card payments. Offer customers the option to securely enter their card details during checkout, with real-time authorization and confirmation of successful payment.
Digital Wallet Payment	Provide support for popular digital wallet platforms such as PayPal, Apple Pay, or Google Pay. Allow customers to select their preferred digital wallet option at checkout, redirecting them to the respective platform for secure payment processing.
Bank Transfer Payment	Enable customers to make payments via bank transfer by providing them with necessary account details during the checkout process. Include clear instructions on how to complete the bank

	transfer and verify payment upon receipt of funds.
Cash on Delivery (COD)	Offer the option for customers to pay for their order upon delivery using cash. Provide delivery personnel with mobile payment terminals to process cash payments on-site and update the order status in real-time upon successful payment.

### 3.4. Task 4 – Order Tracking

Tasks:	Order Tracking
Purpose:	Enhance customer satisfaction, reduce customer inquiries, manage expectations, facilitate proactive issue resolution, and deliver an exceptional customer experience.
Trigger/Precondition:	Customers finalize their order and payment process, start waiting for their food to be processed within the kitchen.
Frequency:	Average 100 tracking requirements per day
Critical	High traffic in big meals of a day (breakfast, lunch, diner)
Work Area:	Online store website
Subtasks:	Example Solution:
Order Status Updates	The system shall provide customers with real-time updates on the status of their orders, including order confirmation,

	<p>processing, packaging, shipping, and delivery.</p> <p>Status updates shall be displayed in a clear and easily accessible format, allowing customers to view the status of their orders at any time.</p>
Delivery Tracking	<p>Customers can track the delivery progress of their orders using a tracking number or order ID.</p> <p>The system shall integrate with third-party logistics providers to obtain accurate tracking information, including estimated delivery times and delivery route details.</p>
Notification Alerts	<p>The system shall send proactive notification alerts to customers at key order milestones, such as order confirmation, shipment dispatch, and delivery arrival.</p> <p>Notification alerts will be delivered via email or SMS, providing customers with timely updates and ensuring they are informed about any changes or delays to their orders.</p>
Order History	<p>Customers shall have access to a comprehensive order history feature, allowing them to view past orders and their respective tracking information.</p> <p>The system shall maintain detailed records of order history, including order dates,</p>

	items purchased, order status, and tracking details, for easy reference and review.
Customer Support Integration	The system shall integrate with customer support channels to facilitate customer inquiries related to order tracking. Customers can contact customer support directly from the order tracking interface for assistance with tracking issues or inquiries.
Variants	

### 3.5. Task 5 – Customer Preference Analysis

Tasks:	Collect Customer's Data on Food Preference
Purpose:	Understand customer needs and preferences, provide information and encourage purchasing decisions
Trigger/Precondition:	Customer visits the online store and initiates a chat with staff or browses products or leaves their own traits of choices over food.
Frequency:	No maximum bound but conducting thorough preference analysis on each customer's account is highly recommended.
Critical	
Work Area:	Online store website
Subtasks:	Example Solution:

Engage with the customer and inquire about their needs and preferences	The system provides a chat feature or contact form for customers to communicate with sales representatives
Provide detailed information about available products and promotions	The system displays product descriptions, images, prices, and any ongoing promotions
Assist the customer in making purchasing decisions	The system recommends products based on customer preferences and requirements
Rate and review products	
<b>Variants</b>	

### 3.6. Task 6 – Customer Support

<b>Tasks:</b>	<b>Provide customer support</b>
<b>Purpose:</b>	Address customer inquiries, resolve issues and enhance overall satisfaction
<b>Trigger/Precondition:</b>	Customer reaches out for assistance via direct online chat, email, or phone calls.
<b>Frequency:</b>	Depending on customer queries and issues
<b>Critical</b>	Prompt and effective resolution of customer concerns to maintain brand reputation
<b>Work Area:</b>	Customer support interface or helpdesk system
<b>Subtasks:</b>	<b>Example Solution:</b>
Receive and prioritize customer inquiries.	The system centralizes incoming inquiries from various channels and assigns priority levels based on urgency.

Respond to customer inquiries promptly and professionally.	The system provides customer support representatives with tools for efficient communication and issue resolution.
Escalate complex issues to higher levels of support or management.	The system allows support agents to escalate unresolved issues to specialized teams or supervisors for further assistance.
Document and track customer interactions and resolutions.	The system records details of customer inquiries, responses provided, and actions taken for future reference and analysis.
<b>Variants</b>	

### 3.7. Task 7 – Delivery Management

<b>Tasks:</b>	<b>Delivery Management</b>
<b>Purpose:</b>	To oversee the delivery process from order fulfillment to customer receipt.
<b>Trigger/Precondition:</b>	Delivery personnel must confirm having received the packaged food correctly as in the order details.
<b>Frequency:</b>	Average 100 delivery services per day
<b>Critical</b>	High traffic on streets may lead to delays
<b>Work Area:</b>	Online store platform and streets
<b>Subtasks:</b>	<b>Example Solution:</b>
Schedule a delivery time	Customers can choose from available delivery time slots, such as morning,

	<p>afternoon, or evening, based on their convenience and schedule.</p> <p>Incorporate a calendar interface or dropdown menu on the checkout page where customers can select their preferred delivery date and time. Ensure that available time slots are dynamically updated based on delivery capacity and existing orders.</p>
Update delivery instructions	<p>Customers can input special delivery instructions, such as gate codes, building access details, or preferred delivery location (e.g., front porch, back door). Include a dedicated text field or comment box during the checkout process where customers can enter additional delivery instructions. Ensure that these instructions are clearly communicated to the delivery team to facilitate smooth delivery.</p>
Confirm receipt of delivery	<p>After receiving their order, customers can log into their account and mark the order as "Received" or "Delivered."</p> <p>Implement a confirmation button or checkbox within the customer account dashboard or order history page, allowing customers to indicate that they have received their delivery. Additionally, provide an option for customers to rate</p>

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	their delivery experience and leave feedback if desired.
Variants	



## 4. Problem Domain

### 4.1. Pain Points

- Limited Product Awareness: Customers only know about products available in the physical store, limiting sales potential.
- Order Inconvenience: Manual phone or in-store orders can be time-consuming and lack convenience.
- Inventory Management: Tracking stock levels and availability across multiple channels can be challenging.
- Payment Hassles: Limited payment options may deter customers or slow down checkout.
- Delivery Delays and Inefficiencies: Manual order processing and coordination with delivery services can lead to delays and errors.
- Lack of Customer Insights: Limited understanding of customer preferences and buying patterns hinders marketing and product development.

### 4.2. Domain Entities

- Customer: Account holder with profile information, order history, and preferences.
- Product: Healthy food item with details like name, description, category, brand, price, stock level, nutritional information, and image.
- Order: Collection of selected products for purchase by a customer with details like date, time, delivery address, payment method, and status.
- Payment: Transaction associated with an order, including amount, payment method, and confirmation details.
- Delivery: Transportation of order to customer's address with details like estimated time, tracking information, and delivery status.
- Review: Customer feedback on a product or overall experience.

### 4.3. Actors

- Customer: Browses products, adds items to cart, places order, manages account, tracks deliveries, leaves reviews.
- Store Admin: Manages products, adds/edits descriptions, sets prices, updates stock levels, processes order, generates reports, handles customer inquiries.
- Delivery Personnel: Delivers orders to customers, updates delivery status.

### 4.4. List of Tasks

- Browse Products: Search and filter products by category, name, brand, or dietary needs.
- View Product Details: Access detailed information about specific products, including images, descriptions, nutritional facts, and customer reviews.
- Add to Cart: Select products and add them to the shopping cart.
- Review Cart: Modify quantities, remove items, apply discounts, and view subtotal.
- Checkout: Log in or create an account, select delivery address and payment method, confirm order details.
- Track Order: View order status, estimated delivery time, and tracking information.
- Account manager: Edit profile information, view order history, update payment methods.
- Leave Review: Share feedback on products or overall experience.
- Store Admin Tasks:
  - Manage product catalog (add, edit, delete)
  - Set prices and promotions
  - Manage stock levels
  - Process orders (confirm, fulfill, ship)
  - Generate reports (sales, inventory, customer insights)
  - Manage customer inquiries and reviews
- User registration and login:
  - Register for an account
  - Login to an existing account
  - Reset forgotten password

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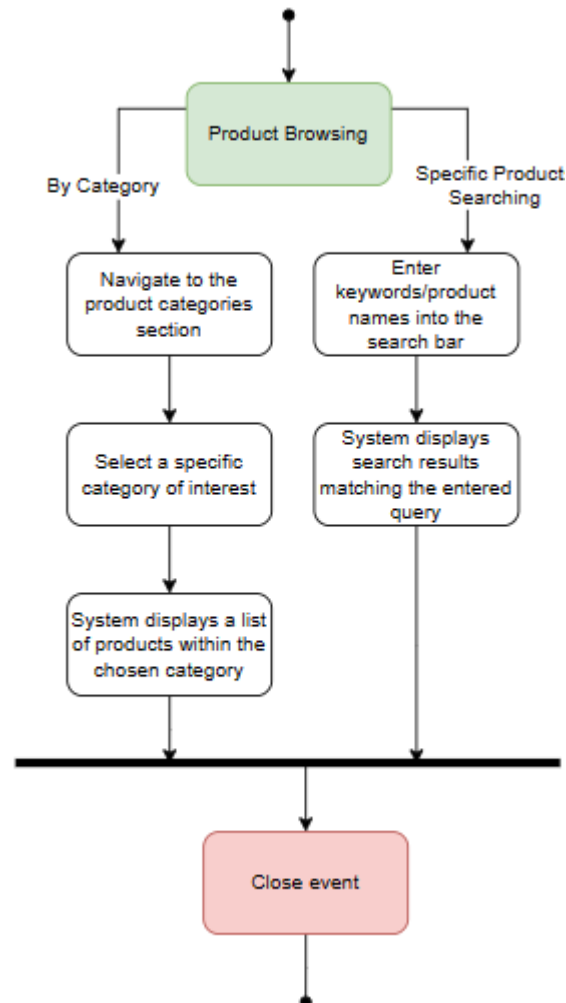
- Product browsing:
  - Browse products by category
  - Search for specific product
  - View detailed product information
- Shopping cart management:
  - Add products to the shopping cart
  - Update quantities of items in the cart
  - Remove items from the cart
  - View the total cost of items in the cart
- Order placement and payment:
  - Enter shipping address
  - Choose a delivery method
  - Select a payment method
  - Review and confirm order
  - Make a payment
- Order tracking:
  - View the status of an order
  - Track the delivery of an order
- Customer preference analysis:
  - Rate and review products
  - Save favorite products
  - Received personalized product recommendations
- Customer support:
  - Contact customer service
  - Return/Exchange product
  - Submit feedback/complaints
- Delivery Management:
  - Schedule a delivery time
  - Update delivery instructions

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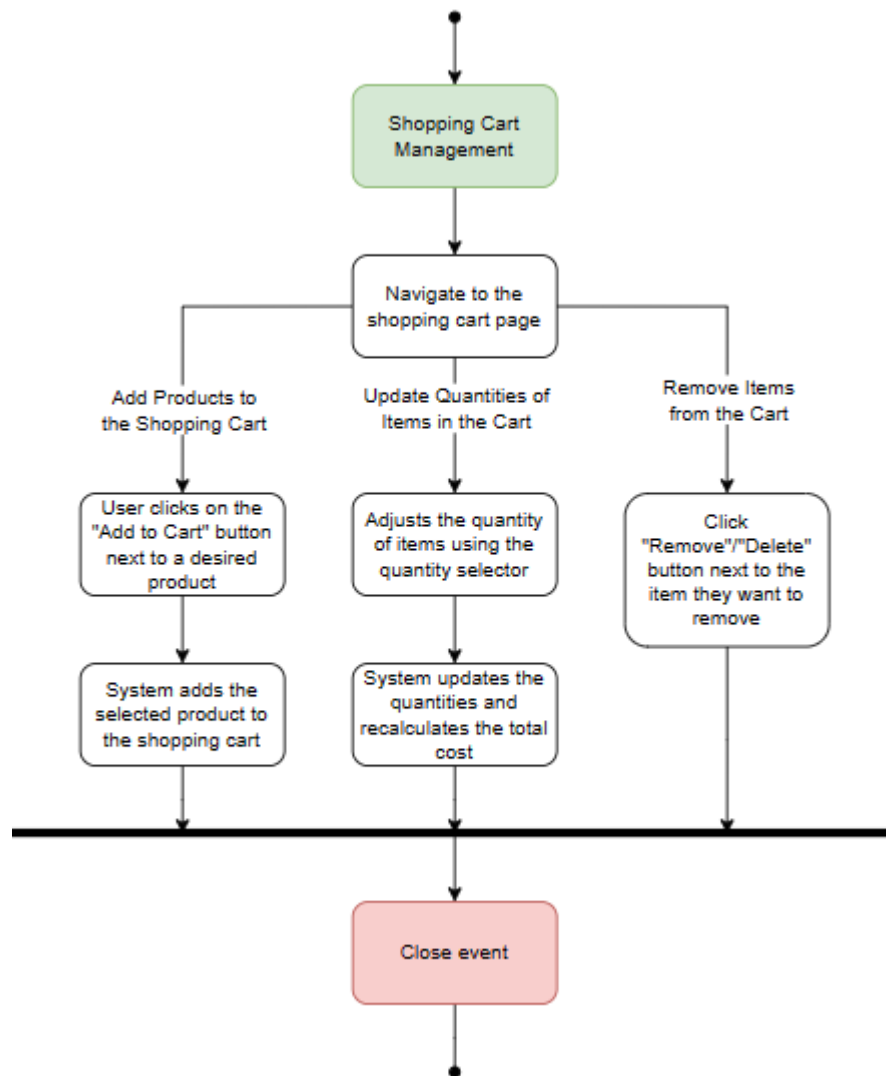
- Confirm receipt of delivery

## 5. Workflow

### Task 1 – Product Browsing

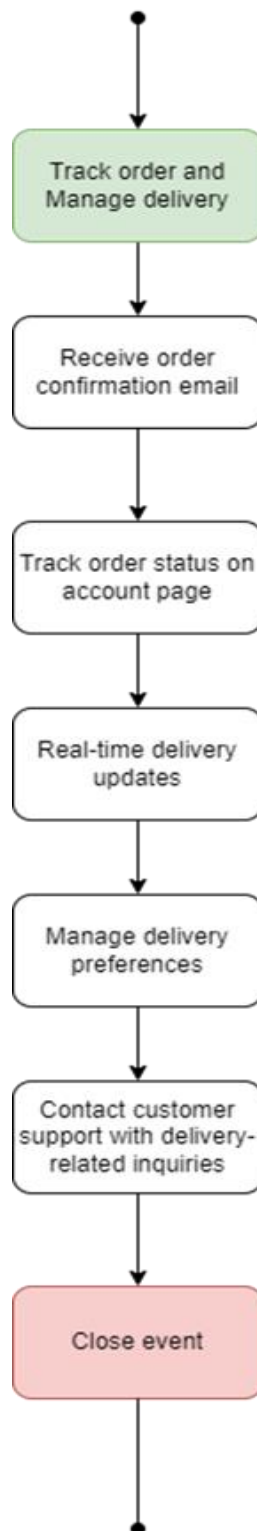


Task 2 – Shopping Cart Management



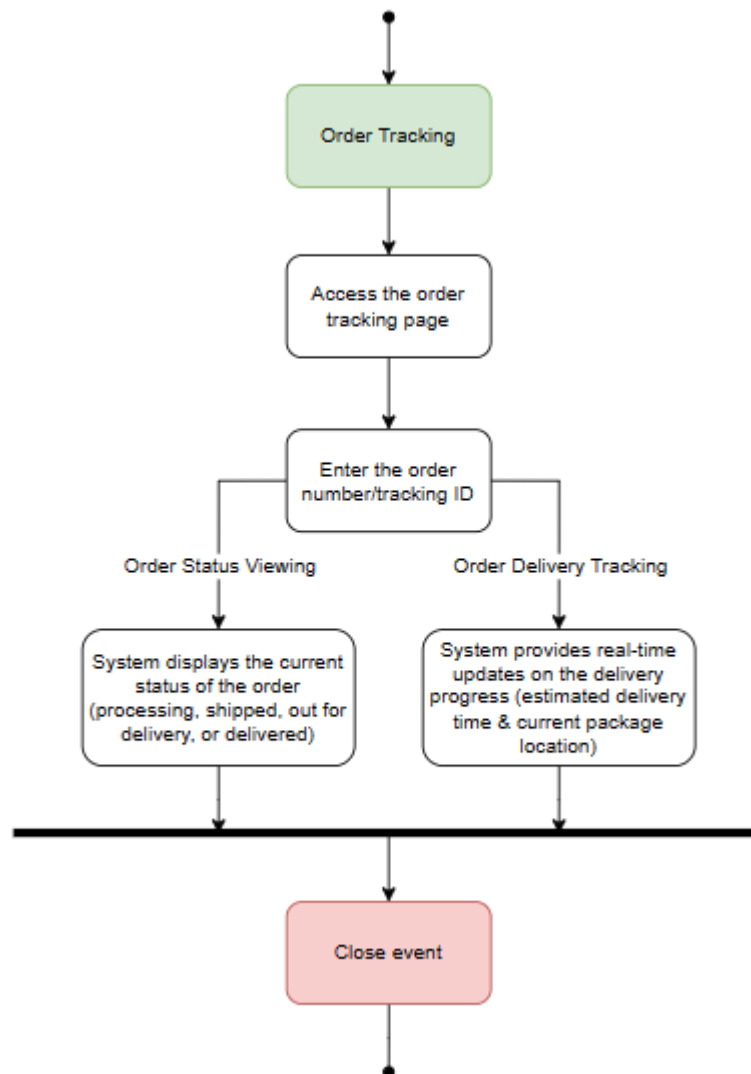
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### Task 3 – Track Order and Manage Delivery



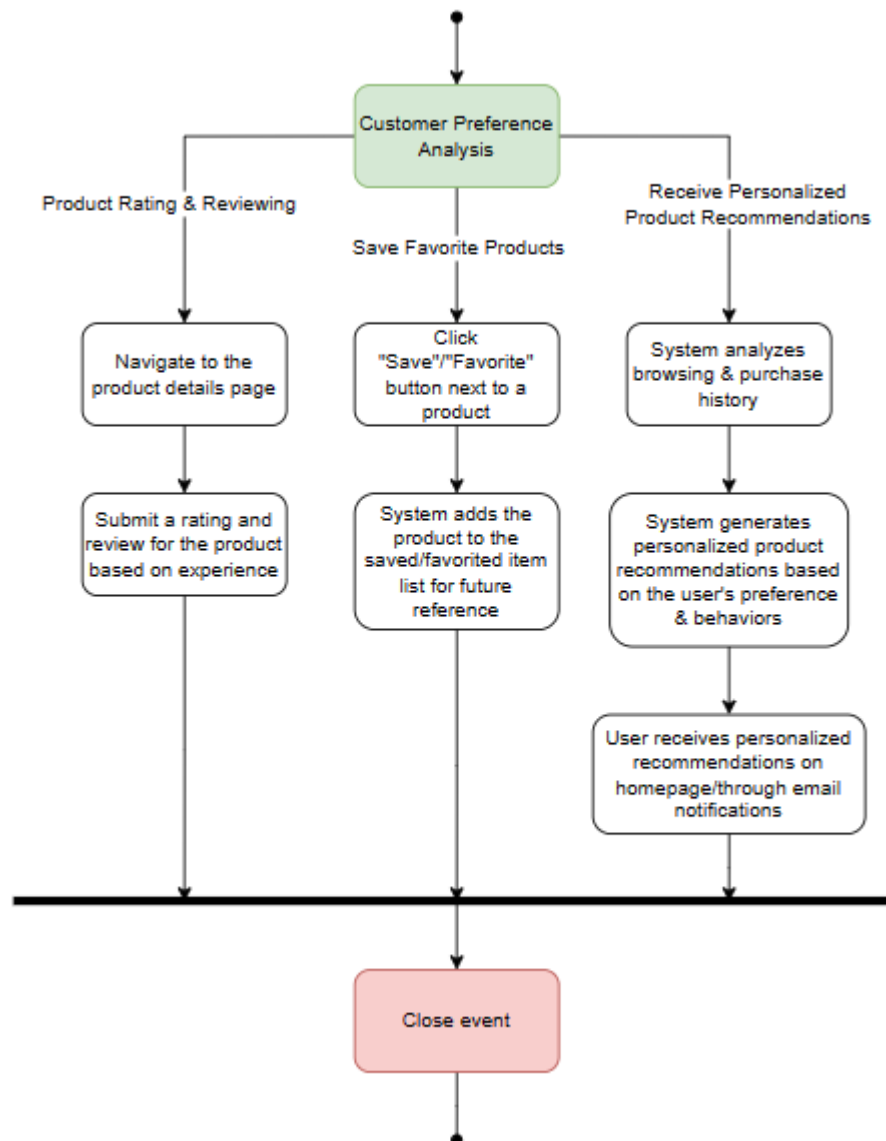
## Group 3

### Task 4 – Order Tracking

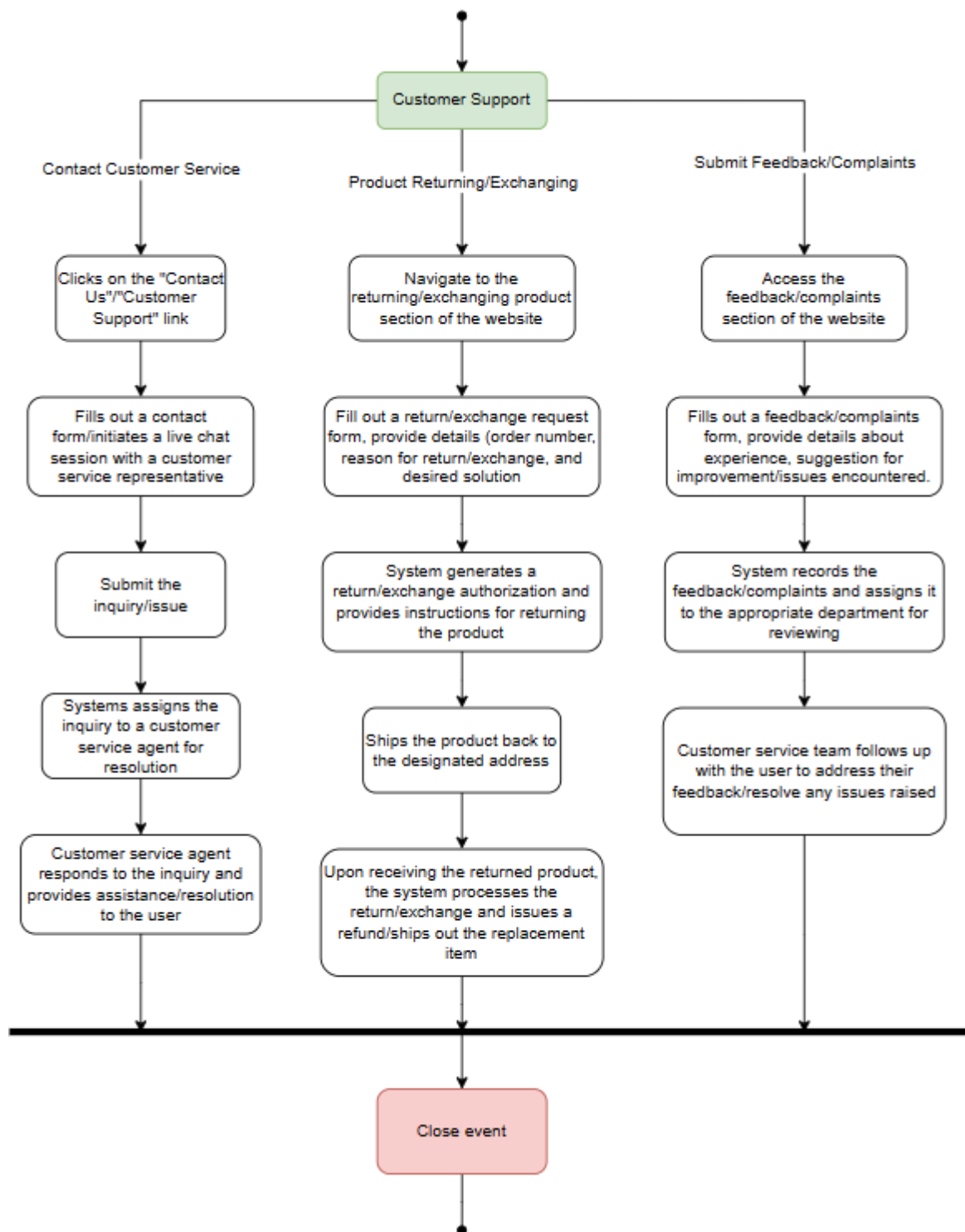




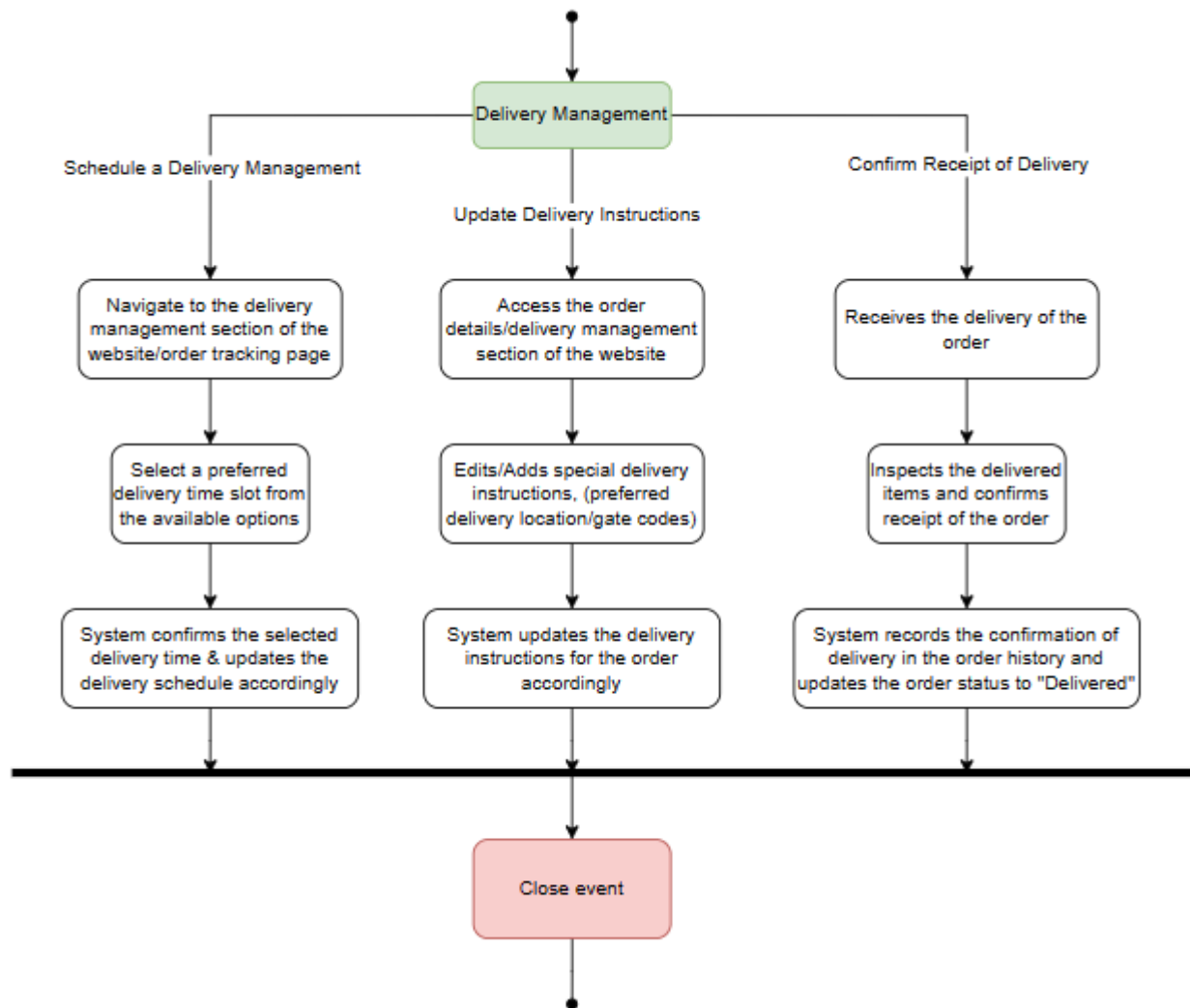
Task 5 – Customer Preference Analysis



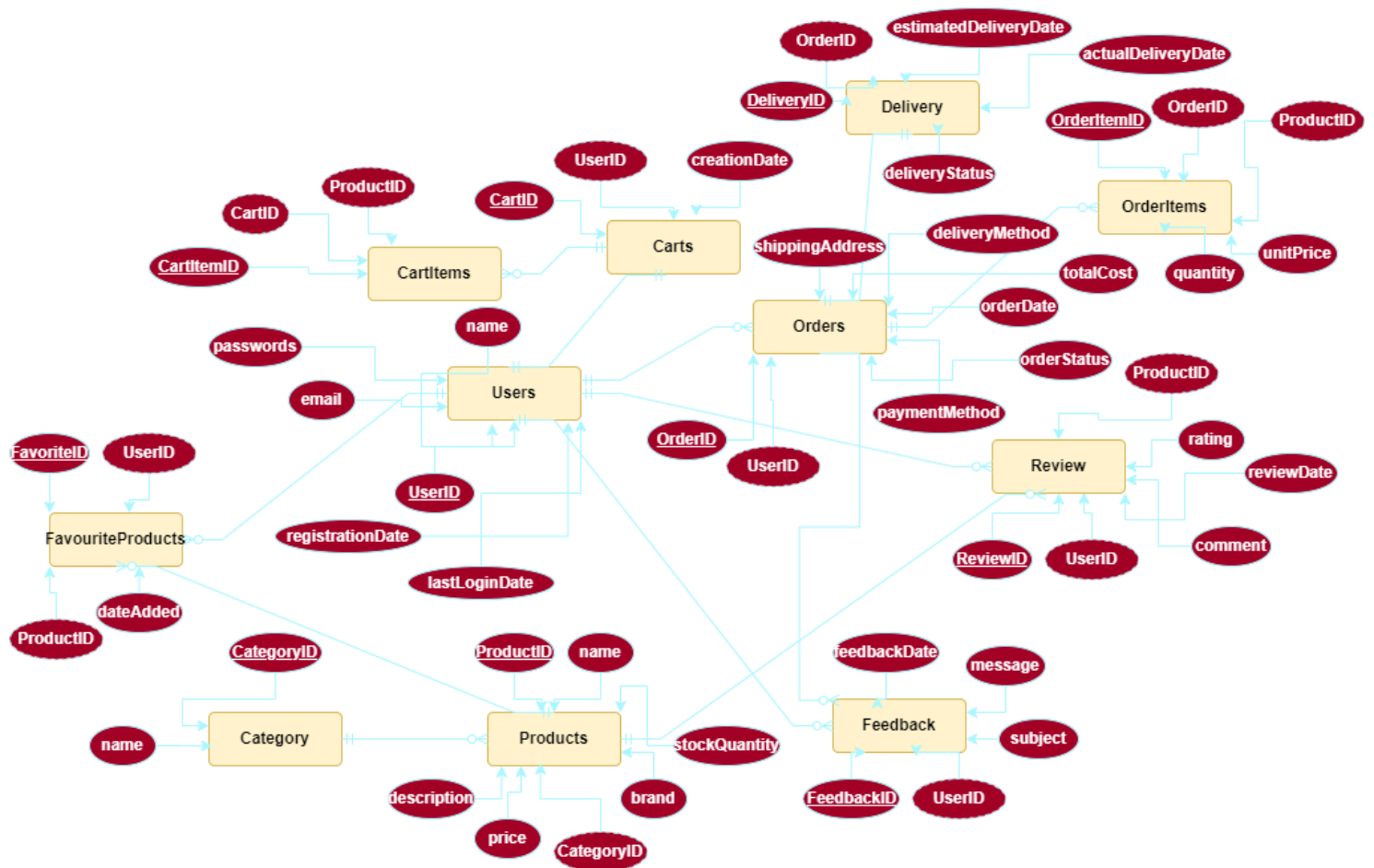
Task 6 – Customer Support



Task 7 – Delivery Management



## 6. Data Model



## 7. Quality Attributes of System

### 7.1. Portability

Providing the users' flexibility in the way to access online platforms, with various options of operating systems and different kinds of devices and smartphones. Additionally, adapting the system on the devices in conjunction with the BYOD policy significantly not only helps the salesman to manage and protect their confidential information better, but also increasing productivity and flexibility because they can access their work at any time , and less cost spending on providing organization's devices.

Attaining portability requires a system designed for appropriate common operating systems such as iOS and android for smartphones, and many other types of accessible devices like desktop, laptop, personal computers, etc.

### 7.2. Security

Handling sensitive data such as payments, customers' credentials from their accounts, invoices and receipts is crucial, since it is one of the top priorities to consider in running an online shopping store.

To achieve this quality attribute, the system is required to:

- Applying secure authentication, encrypting data transmission, and following standards criteria of securing non-contacted transactions are essential.
- Provide the access to people who are allowed and responsible to the related section.
- The customer's personal information and their related data when making payments like receipts, phone number, address, etc. must be matched and accurate.
- Access control mechanisms will be in place to restrict access to certain features or data based on user roles.
- Any unauthorized attempts to access the system or manipulate data will be logged and monitored for security purposes.

### 7.3. Reliability

The online healthy food store must be highly available to accommodate customer access and transactions always includes:

- The system will aim for an availability rate of more than 95% between the hours of 8am to 8pm, ensuring that it is accessible to users during peak hours of operation.
- Any scheduled maintenance or downtime will be communicated to users in advance and efforts will be made to minimize disruption to service.
- Redundancy and failover mechanisms will be implemented to ensure continuous operation and mitigate the impact of potential hardware or software failures.

### 7.4. Performance

To ensure the customer experience, the system should be optimized to run smoothly with fast response times while dealing with the huge number of customer requests at the same time.

Some of the requirements are given below with the aim of increasing system performance effectiveness:

- Response time: must be less than 1 – 2 seconds for websites' short interactive actions like page loading, adding products to the shopping cart, viewing customers' and products' information, etc.
- Concurrent users: determine the expected figure for individuals who access online store concurrently. Since the goal is to reach customers living in Australia, the system should be able to control the large user flow at the same time and avoid system being crashed.
- Scalability: as the target requirement is the number of nationwide customers, the system should be developed to meet the needs of the growing users, and also accommodate future growth. Scalable system can also add new functions, products, and more users without impact its performance.

## 8. Other Requirements

### Product Level Requirements

1. Data storage and Management:
  - a. The system should store and manage data input by users, including customer information product details, orders and invoices
  - b. Data entry forms shall perform relevant validation to ensure accuracy and consistency.
  - c. Data validation processes shall comply with SwinSoft internal data validation standards to maintain data integrity.
2. Information Display:
  - a. The system shall display relevant information and data upon request by the user including product listings, order details and account information.
3. Reporting Functionality:
  - a. The system should generate and display relevant reports such as sales reports, inventory reports, customer activity reports to provide insights into store operations.

### Design Level Requirements

- The system should have a special algorithm to analyze data such as predicting customer preferences or recommending products based on past purchases.
- The system should display the Terms of Use, Privacy Policy and download all the documents as needed.

## 9. Validation of Requirements

Task/Entity	User	Product	Shopping Cart	Order	Order Tracking	Review	Support Inquiry	Delivery
User Registration and Login	C, U, D							
Product Browsing	R	C, U						
Shopping Cart Management		R	C, R, U, D					
Order Placement and Payment		R	R	C, R, U, D				
Order Tracking		R	R	R	C, R, U, D			
Customer Preference Analysis		R	R	R	R	C, R, U, D		
Customer Support	R, U						C, U	
Delivery Management	R U	R		R	R			C, U



## 10. Possible Solutions

### **Developing online website using cloud-based system:**

In this solution, the online healthy food store is being migrated operation to the cloud, leveraging the scalability, flexibility, cost effective of cloud computing.

Cloud-based hosting such as AWS or Microsoft Azure provide scalable infrastructure resources, allowing the online store to handle fluctuating demand and peak traffic periods without performance degradation.

The web-based application enables customers to access the online store from any internet-connected device, including desktops, laptop. This global accessibility expands the stores's reach and customer base beyond its physical location.

The cloud provider implements robust security measures and compliance standards to protect customer data and ensure regulatory compliance. Encryption, access control and regular security audits safeguard sensitive information against unauthorized access and data breaches.

Cloud based solutions offer automatic updates and maintenance, reducing the burden on internal IT teams and ensuring that the online store remains up-to-date with the latest features, patches and security enhancements.

The pay-as-you-go pricing model of cloud services eliminates upfront hardware investments and allows the online store to pay only for the resources it consumes. This cost-effective approach reduces capital expenses and provides predictable operating costs.

The customers can access the online store from any device, anywhere and anytime into the fast and responsive user experience with minimal downtime and latency. The customer can be confident in data privacy and security measures implemented by the online stores with the secure payment processing and protection of personal information.

### **All Your Healthy Foods - Online Healthy Food Store Management System:**

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The All Your Healthy Food system should be designed to enhance the customer experience at every touchpoint in the online healthy food store. It caters to the needs of various stakeholders, including food sales staff, cooks, and the food store owner.

#### **Food Sales Staff Experience:**

The food sales staff interact with the All Your Healthy Food system through a user-friendly interface tailored for their role. They can log in to the system using their desktop computers or mobile devices. The system facilitates efficient customer interaction, allowing sales staff to provide assistance, answer queries about products, and offer nutritional advice.

Data entry is streamlined through All Your Healthy Food, enabling staff to enter customer details, manage orders, and update inventory electronically. This ensures accuracy and efficiency in operations. The system guides sales staff through the sales process, facilitating smooth transactions and providing tools to enhance the customer experience.

Inventory management is a key feature of All Your Healthy Food. Real-time inventory updates enable sales staff to promptly inform customers about product availability and suggest alternatives as needed. The CRM feature of All Your Healthy Food stores customer preferences and purchase history, allowing sales staff to provide personalized recommendations and build long-term relationships.

#### **Cooks Experience:**

Cooks interact with All Your Healthy Food through their mobile devices or designated workstations in the kitchen. The system provides them with the ability to view ingredient availability, manage food orders, and track dietary preferences or restrictions of customers. All Your Healthy Food helps streamline food preparation processes, ensuring timely and accurate meal delivery while accommodating customer preferences for healthy options.

### **Food Store Owner Experience:**

The food store owner utilizes All Your Healthy Food to oversee overall operations, monitor sales performance, and make strategic decisions. By accessing managerial reports and analytics, the owner gains insights into sales trends, customer preferences, and inventory turnover. This aids in effective inventory management and the formulation of marketing strategies. All Your Healthy Food enhances business efficiency and profitability by providing actionable data and facilitating informed decision-making.

### **Overall:**

All Your Healthy Food empowers all stakeholders involved in the online healthy food store. It offers a seamless and personalized experience for customers, efficient management tools for staff, and valuable insights for the store owner. The detailed approach to each step ensures that NutriSales is a comprehensive solution for managing an online healthy food store.