

# Requirements Specification Document

**Company: Complete Foods Inc.**

**Project: Online Grocery Shopping Application**

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**Version 1.0**

## Preface

This document contains the user and system requirements for an online grocery shopping application. The readership of this document includes system developers, test engineers, maintenance engineers, system administrators and managers. This is the initial version of the requirements document for this application. No other version history exists.

## Introduction

This shopping application is being developed by Complete Foods Inc., a national grocery store chain specializing in organic products and foods which are free of preservatives and other artificial chemicals. Complete Foods has experienced strong growth in its brick and mortar sales, but has yet to offer any online platform for purchasing its products. This deficiency has caused Complete Foods to consistently lose market share as its competitors have already adopted such platforms. In an attempt to regain this market share and drive total revenue, Complete Foods is developing this online grocery shopping application.

The primary objective of the application is to provide customers with a new convenient way to shop for our products. This includes allowing online purchases to be picked up at a local store or be delivered straight to our customer's doorstep. The application will integrate with our existing inventory database to display real-time product information to users. This will allow customers to know which products are in-stock without ever stepping foot in a store. Once a purchase transaction has occurred, this information is forwarded to a local store for fulfillment using our new distribution network. For in-store pickups, local stores will prepare the requested orders and notify the customer via the application once the items are ready for pickup. For delivery transactions, users specify a delivery window and the local store will send a notification via the application once the order has left the store for delivery. The application will also provide the customer with an estimated delivery time based on current delivery conditions.

## User Analysis

The customers at Complete Foods tend to be more health conscious than the average shopper. This means our customers require more information regarding the groceries they are purchasing. Specifically, our customers want to know how produce was grown (i.e. organic, pesticide free) and how products were prepared (i.e. gluten-free, vegan). It is essential for the application to present this information to the user so they may confidently make purchases. We also know that our customers highly value convenience. First, this means the application must be intuitive and easy to use. The checkout process must be simple and require minimal effort for repeat users. Second, the product delivery process must be seamless and highly reliable.

## **Functional User and System Requirements**

- 1. The information of all contracted stores and items shall be displayed.**
  - 1.1. The system shall display information of contracted stores such as address, phone number, etc.
  - 1.2. The system shall display basic information of items such as name, price, pictures, etc. when listing the items.
  - 1.3. The system shall display detailed information of items when user selects them.
  - 1.4. The system shall enable user to browse produces by category.
  - 1.5. The system shall enable user to search for items.
  - 1.6. The system shall enable user to sort the search results based on relevancy, price, etc.
  - 1.7. The system shall display at most 30 matching results on one page.
  - 1.8. The system shall notify user when no matching result is found and display options for similar produce.
- 2. The grocery online shopping application shall generate management reports.**
  - 2.1. A daily, weekly, monthly, and annual inventory report shall be generated.
  - 2.2. An inventory report shall be created for each store and shall display stock levels and stock values.
  - 2.3. A daily, weekly, monthly, and annual sales report shall be generated.
  - 2.4. A sales report shall be created for each store and shall display cost of merchandise sold, returns, gross profit, margins, and tax.
  - 2.5. A semi-annual and annual customer report shall be generated for the head quarter and shall display customer purchasing behaviors.
  - 2.6. A quarterly and annual financial report shall be generated for the head quarter and shall display revenue, cost of good sold, and operating expenses.
  - 2.7. Access to the report shall be restricted to authorized users as listed on an administrative access control list.
- 3. An administrator shall be able to manage records.**
  - 3.1. An administrator shall be able to add or update information about a product such as price, coupons, and substitutions to the online store web page.
  - 3.2. An administrator shall be able to add or update payment information.
  - 3.3. An administrator shall be able to add or update customer information.
  - 3.4. An administrator shall be able to add or update employee information.
- 4. A contracted store shall be able to update its online store page.**
  - 4.1. A store shall be able to update information of the store.
  - 4.2. A store shall be able to update item name, price, coupon, and alternative item for item not currently available.
- 5. An employee shall be able to process orders.**
  - 5.1. An employee shall be able to verify authentication before login the system.
  - 5.2. An employee shall be able to check order status.
  - 5.3. An employee shall be able to manage orders.
  - 5.4. An employee shall be able to fulfill orders.
  - 5.5. An employee shall be able to assign orders to a driver according to the routes.
  - 5.6. An employee shall be able to keep track of delivery status.
- 6. A visitor shall be able to register their accounts.**
  - 6.1. A visitor shall be able to visit the store web page without registration.
  - 6.2. A visitor shall be able to choose the store nearest to them on the web page by specifying their locations.
  - 6.3. A visitor shall be able to register by creating new unique account ID and a valid password.

**7. A customer shall be able to view and maintain profile.**

- 7.1. The system shall allow user to create profile.
- 7.2. The system shall allow user to set valid password.
- 7.3. The system shall allow user to update personal and payment information.
- 7.4. The system shall display use's order history.
- 7.5. The system shall display detailed information of an order if user selects it.

**8. A customer shall be able to place orders.**

- 8.1. A customer shall be able to add items in stock to cart.
- 8.2. The system shall notify user if there's a change in the cart such as when an item becomes out of stock or changes price.
- 8.3. A customer shall be able to visit the store website before login.
- 8.4. A customer shall be able to login with a valid account ID and a valid password.
- 8.5. A customer shall be able to access the nearest contracted store based on geographical information.
- 8.6. A customer shall be able to manually select a contracted store.
- 8.7. A customer shall be able to place orders on available merchandise.
- 8.8. A customer shall be able to select a delivery window of time.
- 8.9. A customer shall be able to change his/her orders before deliveries are scheduled.
- 8.10. A customer shall be able to cancel his/her orders.
- 8.11. A customer shall be able to check out.
- 8.12. The system shall calculate and display the tax for the order.
- 8.13. A customer shall be able to choose different payment methods.
- 8.14. A customer shall be able to enter order information for tracking.
- 8.15. The system shall display the tracking information of the current order.
- 8.16. A customer shall be able to logout.

## **Non-functional Requirements**

### **Product requirements**

#### **1. Usability**

- 1.1 The web page shall be easy to navigate. Every web page includes all the most important links, back and forward buttons on it.
- 1.2 The interface shall be easy to use. Buttons, headings, titles, labels, and help/error messages are simple and easy to understand. A customer does not need any training time to use the application. An employee training time shall not beyond 10 hours.

#### **2. Performance**

- 2.1 The storage capability of the database shall be at least  $2^{60}$  bytes.
- 2.2 The response time of the system shall be less than 2 seconds or less.
- 2.3 97% of all visible web pages for customers shall respond in 6 seconds or less.
- 2.4 The system shall be able to support at least 1,000,000 customer interactions simultaneously during peak hours on a busy day.
- 2.5 The application shall be compatible with Unix, Mac OS, and Windows based platform.

#### **3. Dependability**

- 3.1 The system shall not cause any physical or financial harm to employees and customers.
- 3.2 The system shall be able to provide 24/7 service. Downtime shall not exceed 8 seconds in any one day.
- 3.3 The probability of the system or system component corruption shall not exceed 0.001%.
- 3.4 The mean time to repair of the system shall not exceed 200 hours.

#### **4. Security**

- 4.1 The web page shall be secure. An SSL Certificate must be installed onto the web page server.
- 4.2 The database shall be secure. Firewall must be installed in the database. The database is monitored, and any abnormal or suspicious behavior must be reported in real time.
- 4.3 The system shall have different types of user groups. Each user group has different access constraint. Each user needs authentication and authorization to access the system.

#### **Organizational requirements**

1. The web page shall operate in all popular browsers.
2. An employee shall identify himself/herself using an authority identity card.
3. The programming languages for development shall be Java EE, HTML, XML, and JavaScript.

#### **External requirements**

1. The system shall implement Data Protection Act 1998.
2. The system shall implement Electronic Commerce Security Act (5 ILCS 175).
3. The system shall implement Consumer Contracts Regulations 2013.
4. The system shall meet Payment Card Industry Data Security Standard.

### **System Evolution**

#### **Assumptions**

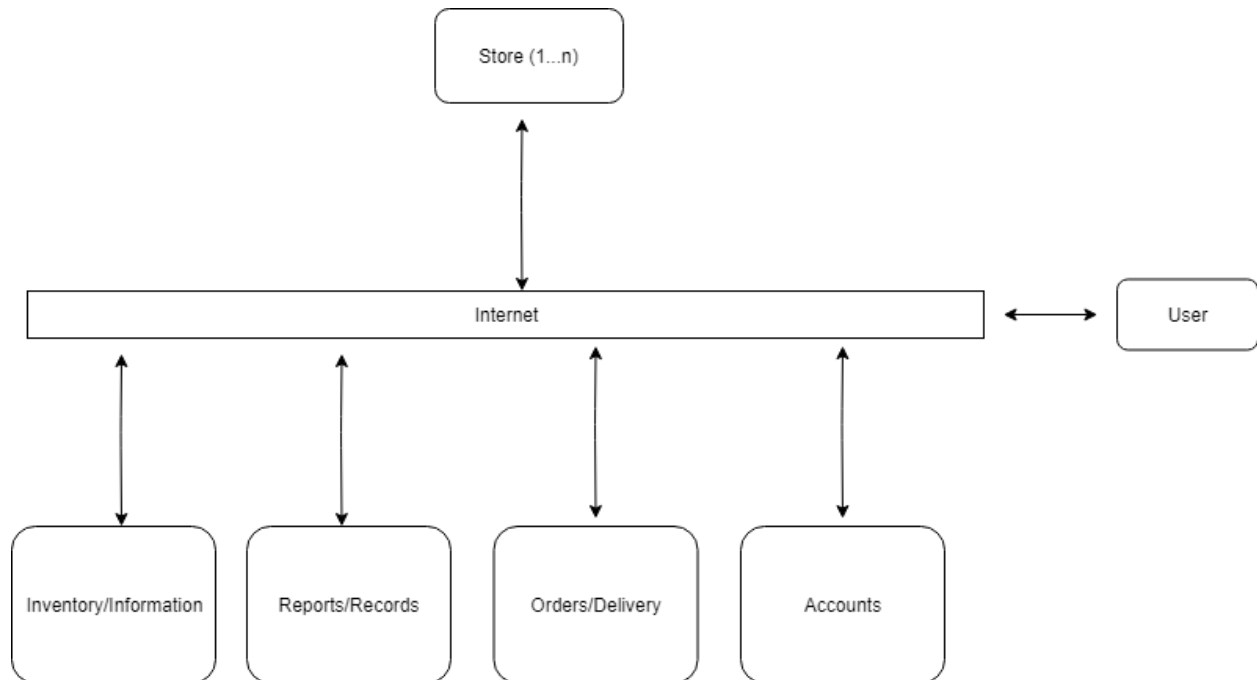
1. The power supply of the system is reliable.
2. The system runs on a web server that is working properly.
3. The database system allows the system to manipulate the data stored in it.
4. The high-bandwidth network connection is stable.
5. Users are familiar with the Internet and can perform basic operations such as navigating to the website.

#### **Anticipated changes**

1. The selection of employee may be optimized based on the location and availability of the employees.
2. The employee to pick up the list and the employee to deliver the ordered goods may be different.
3. An employee may need to shop for multiple delivery if users from the same neighborhood make their orders during a same period of time.
4. The delivery time may need to be rearranged due to different closing time of stores.

### **System Architecture**

The system shall follow a client-server pattern that organizes a set of services and associated servers that the client can access and use. The data is in a shared database and can be accessed from a large range of locations making scalability and maintenance easy to do if needed. An important aspect to utilizing and client-server architecture is also separation and independence; the ability to change services along with servers without affecting other parts of the system as a whole. Clients are able to send and receive requests based on their needs. There are separate servers associated with client/user requirements that carry out services based on those needs. These servers include: Store, Reports, Orders, and Accounts. As stated earlier, each of these servers has a set of services that allow each client to call upon with the correct authorization. There is also another client, the user. The user has reduced privileges as they are able to Create/Edit/Delete their accounts, access their store webpage of choice, and place orders as needed.

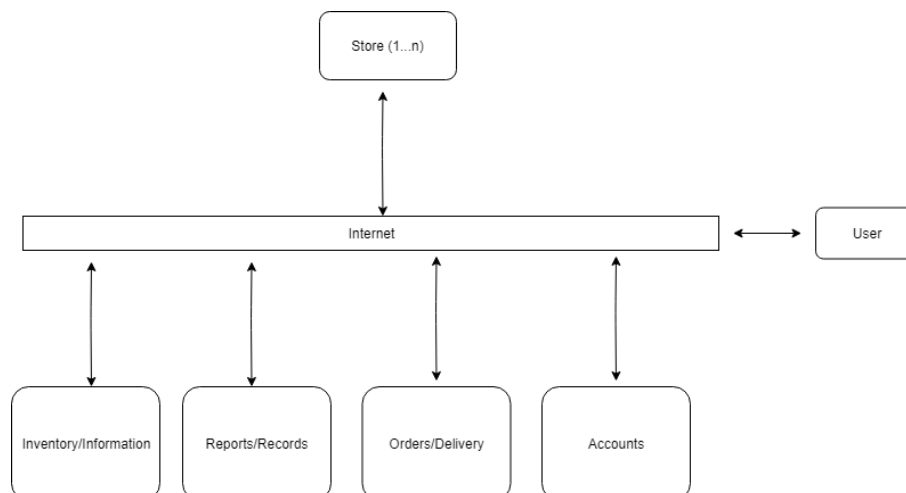


Each store would not have their own servers based on their needs but rather they would have access to all of the servers as a whole with specific authorization in place. Meaning a store cannot access Reports, Inventory, Orders of another store, they can only access their own. The separation of services will allow for easier maintenance such as adding new servers, upgrading servers without affecting the other parts of a system, and changing services and requirements are expanded on/revised.

## System Models

Below are system models pertaining to the Complete Foods Inc. Online grocery shopping application.

### System Architecture Model



A client-server approach is used for each store being a client. Services are split into different servers pertaining to each request sent/received. There is a layer of security in place in order to deter any unauthorized access. Listed below are the services pertaining to each server.

#### Inventory/ Information:

- Display and store information of contracted stores such as address, phone number, etc.
- Display and store basic information of items such as name, price, pictures, etc. when listing the items.
- Display and store detailed information of items when user selects them.
- Enable user to browse produce by category.
- Enable user to search for items.
- Enable user to sort the search results based on relevancy, price, etc.
- Notify user when no matching result is found and display options for similar produce.

#### Reports/ Records:

- A daily, weekly, monthly, and annual inventory report generated.
- An inventory report for each store and shall display stock levels and stock values.
- A daily, weekly, monthly, and annual sales reports
- A sales report shall be created for each store and shall display cost of merchandise sold, returns, gross profit, margins, and tax.
- A semi-annual and annual customer report for the headquarters and shall display customer purchasing behaviors..
- Access to the report shall be restricted to authorized users as listed on an administrative access control list.

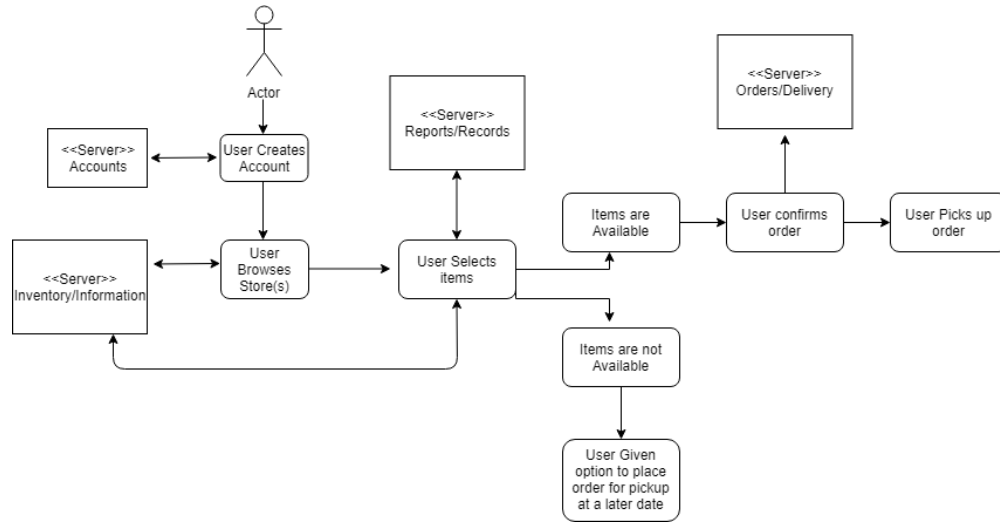
#### Orders/ Delivery:

- A customer shall be able to add items in stock to cart.
- The system shall notify user if there's a change in the cart such as when an item becomes out of stock or changes price.
- Allows the customer to manually select a contracted store.
- Allows the customer to place orders on available merchandise.
- Allows the customer shall to select a delivery window of time.
- Allows the customer to change his/her orders before deliveries are scheduled.
- Allows the customer to cancel his/her orders.
- Allows the customer to check out.
- Allows the customer to enter order information for tracking.
- The system shall display the tracking information of the current order.

#### Accounts:

- The system allows user to create profile.
- The system allows user to set valid password.
- The system allows user to update personal and payment information.
- The system allows display user's order history.

## Context Model



A context model outlining the process in which the Complete Foods Inc. online grocery shopping application is used.