Group D Inc.

Group D
Software Requirements Specification
For AI-Enabled Restaurant Delivery App

Version 1.0

Revision History

Date	Version	Description	Author
10/22/2025	1.0	Basic qualitative analysis of the project, first public draft.	Xin Fan Li, Sasha Radosav, Shi Cheng Huang, Rae Gainer, Billy Yang

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Software Requirements Specification

1. Introduction

This document serves as the Software Requirements Specification (SRS) for the AI-enabled Online Restaurant Order and Delivery System. It provides a comprehensive overview of the entire project, outlining the purpose, scope, key definitions, references, and document organization.

The proposed system aims to deliver a complete restaurant management solution enhanced by AI. Through integration with Ollama's API for large-scale language model (LLM) capabilities, the system introduces intelligent customer service, natural language interaction and advanced automation features that distinguish it from typical restaurant ordering platforms.

This SRS adopts a use-case modeling approach to specify system requirements. Functional requirements are detailed through the use-case descriptions.

The requirements presented in this document encompass all components of the restaurant ecosystem including different types of users interfacing with the software, various actions the different types of users can take, and specifics of the software's utility and design.

1.1 Purpose

This SRS details the functional requirement for an intelligent online restaurant ordering system. This system aims to provide users with a one-stop service for online ordering, product management, and customer interaction, all through an intelligent platform integrated with a proprietary LLM. We hope this document will provide clear and comprehensive technical guidance to design, development, testing, and other project-related departments, ensuring a reliable basis for system construction and acceptance.

1.2 Scope

The usage of the software application for the online restaurant ordering system varies depending on the user type. For clients/customers, features include browsing through the restaurant's menu, leaving reviews, ratings, and complaints on menu items, deliverers, and chefs, replying to other customers' reviews, and making delivery orders and transactions. If the user is a registered manager, they can read all reviews, ratings, and complaints, and remove them if desired, as well as apply warnings to customer accounts, deliverers and chefs for inadequate behavior/performance. The software will implement a client ranking system, featuring two classes of customers (regular customers and VIPs), the latter of which is eligible to receive special rewards such as discounts and specialized menu items. The software will implement a detailed administration system, allowing managers to take a variety of administrative actions against users in poor standing.

1.3 Definitions, Acronyms, and Abbreviations

Within this document, the following acronyms are used to substitute the following terms:

- SRS – Software Requirements Specification.
- VIP – “Very Important Person”, a rank assigned to special classes of customers.
- LLM – Large Language Model.
- GUI – The graphic user interface of the application.

1.4 References

N/A.

1.5 Overview

The remainder of this document serves to outline in more detail the functionalities and design of the software, including use cases, details on the administrative system, the graphical user interface (GUI), the structure of the underlying database, other stuff (we’ll fill this list in later), and dependencies on external software the application will have.

2. Overall Description

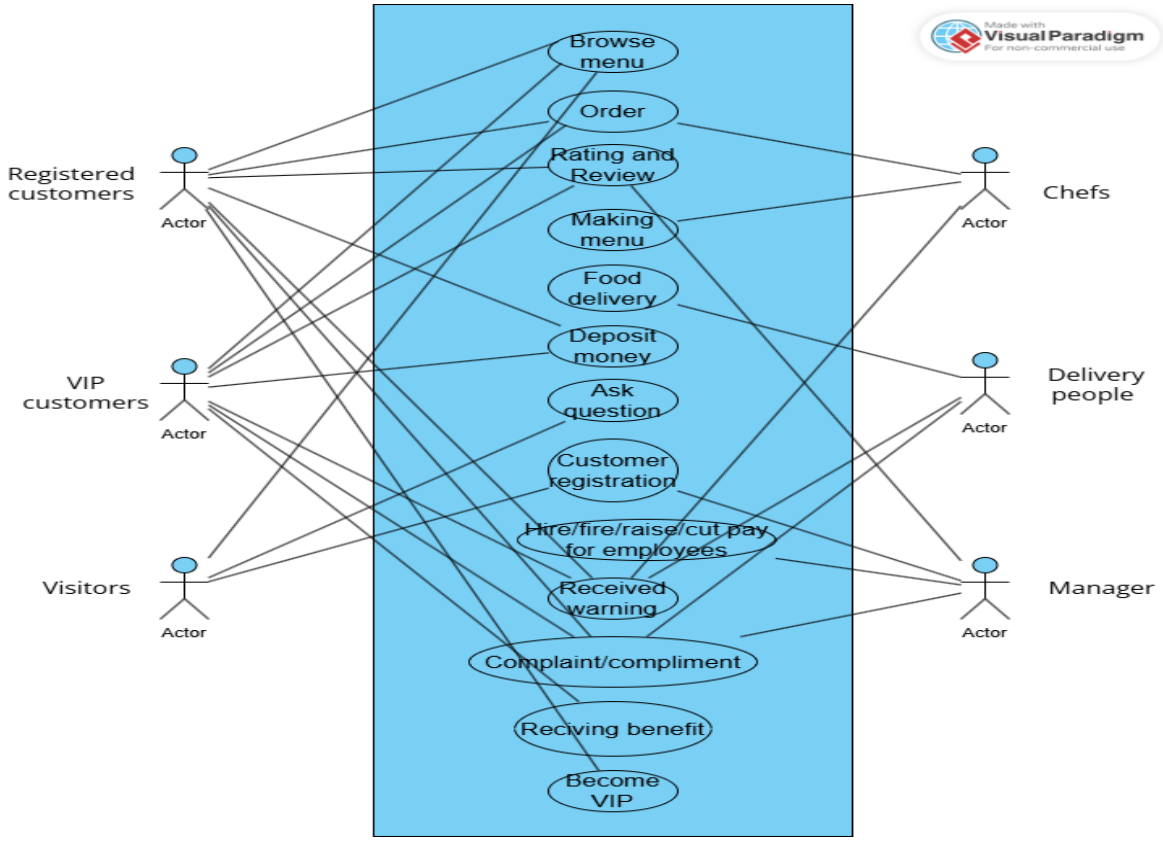
The application will feature a GUI through which the user can interface with the restaurant and its database in several different ways, as will be specified below.

2.1 Use-Case Model Survey

At the LHS, a complete list of the names of registered customers, VIP customers, and visitors will be displayed. The registered and VIP customers can order online and leave ratings and reviews for the restaurant. Visitors can browse the menu and apply to be a registered customer. At the RHS, a complete list of the names of chefs, delivery people, and the manager will be displayed. Chefs will make the menu and dishes, delivery people will make food deliveries, and the manager will handle the reputation of the restaurant and the employees based on performance.

Use cases:

- **Browse menu**: browse the restaurant's menu.
- **Order**: Order the dish online (made by the chef).
- **Rating and Review**: rate and review the dishes, chefs and delivery people.
- **Making menu**: the restaurant's menu is made by the chefs.
- **Food delivery**: food delivery to the customers.
- **Deposit money**: customers deposit money into the system to order dishes.
- **Ask questions**: ask questions about the food or the restaurant.
- **Customer registration**: visitors apply to be registered customers.
- The manager can **hire/fire/raise/cut pay for employees**.
- **Received warning**: registered customers and VIP customers can receive warning due to misbehavior, as well as the chefs and delivery people can receive warning due to inadequate performance by the rating and complaint.
- **Complaints/compliments** from both the customers and the delivery people.
- VIP customers can **receive benefits** from the restaurant.
- Registered customers can **become VIPs** with certain requirements.



2.2 Software Dependencies

The software will utilize the following dependencies:

- The software will be implemented in Java.
- The software will make use of the JavaX graphics library to provide an intuitive GUI.
- The software will make requests for an SQL database, hosted with MySQL.
- The software will make use of an LLM hosted with Ollama.

3. Specific Requirements

This section details further the requirements the software needs to fulfill to properly serve as a medium through which its use cases can be performed. For proper and intuitive usage, it must be implemented with an easy-to-use GUI. Through the application, users will be able to interact with a common database built to efficiently store all information needed to operate the restaurant, such as user accounts, menu items, reviews, ratings, and warnings.

3.1 Use-Case Reports

In this section, we outline the specifics required for each of the actions in the use-case model.

3.1.1 Browsing the Menu

3.1.1.1. The system displays all the restaurant's menu items in a list.

3.1.1.2. Every list entry displays the name of a dish, a picture of the dish, and its price.

3.1.1.3. For visitors and first-time customers, the dishes are listed in order of rating from highest to lowest.

3.1.1.4. For returning and VIP customers, the dishes most ordered by them and highest rated by them in the past will be moved to the top of the list.

3.1.2 Ordering

3.1.2.1. Registered customers and VIP customers browsing the menu may click on a menu entry to view more details about the dish, such as a complete list of ingredients and nutrition information.

3.1.2.2. From this page, they can click to add the item to their cart.

3.1.2.3. Customers may repeat this process to add multiple items to their cart.

3.1.2.4. Customers can click to review their full cart from any page.

3.1.2.5. From the page displaying the user's full cart, users can click to either place or cancel the order.

3.1.2.6. From this page, users can view the total price of the order as an itemized bill, including the price of every menu item in the cart and the price of delivery.

3.1.2.7. When attempting to place an order, the system will check if the user's current balance is above or below the price of the order. If it is below, the order will not be placed, and the user will be notified that they have insufficient funds. Otherwise, the order will go through, and the order price will be subtracted from the user's account.

3.1.3 Rating and Reviewing

3.1.3.1. From the page containing dish details, users will have a text box available to write a review, and a radio button allowing them to select a rating.

3.1.3.2. After writing a review and selecting a rating, the user may click a button to submit the review and rating.

3.1.3.3. The user may browse reviews of each dish and is given the option to reply to them.

3.1.4 Preparing and Delivering the Order

3.1.4.1. Once an order is placed, the requested menu items will be sent to a randomly selected chef to prepare.

3.1.4.2. After preparation, the order will be sent to a randomly selected delivery person to deliver to the customer.

3.1.4.3. The system will notify the customer when their order arrives.

3.1.4.4. The notification will also contain information about the chef who prepared the order and the deliverer who delivered it.

3.1.4.5. The notification will also prompt the user to rate and send a compliment/complaint to the chef and deliverer.

3.1.4.6. The order information, completed with the chef's and deliverer's identities, will also be added to the user's history to be reviewed later.

3.1.4.7. From either of these sources, the user may click on the listed chef and deliverer to view a page containing their profile.

3.1.5 Compliments and Complaints

3.1.5.1. When viewing an order notification, or when viewing a chef's or a deliverer's profile, users may leave a rating with a compliment or complaint.

3.1.5.2. These compliments and complaints will first be received by the chef or deliverer, who has the option to dispute the review.

3.1.5.3. After the chef/deliverer is given this option, a manager reviews the complaint and chooses whether to dismiss the complaint or let it stay and decides what administrative actions to take.

3.1.6 Administrative Actions

3.1.6.1. The manager has access to a list of recent actions taken by all users and may review them at their discretion.

3.1.6.2. The manager at any point may choose to take administrative action on users and on employees.

3.1.6.3. The manager can warn customers for leaving unfounded poor reviews:

- Registered customers with 3 or more warnings will be deregistered from the system and blacklisted.
- VIP customers with 2 or more warnings will be demoted to regular customers.

3.1.6.4. The manager can demote or fire employees for receiving many complaints that are decided to be well-founded.

3.1.6.5. Employees with an average rating of < 2.0 or who have received more than 3 complaints will receive an automatic warning, notifying the manager to review their profile and the ratings/complaints received.

3.1.7 Asking Questions

3.1.7.1. At any point while using the software, the user has access to a pop-up which allows them to chat with an automated chat client.

3.1.7.2. The chat client has access to its own database of programmed responses to certain questions, which it will return whenever asked any of these questions.

3.1.7.3. For questions not provided in its database, it will defer to an LLM.

3.1.8 Customer Registration

3.1.8.1. When an unregistered visitor uses the website, they will be prompted to register as a customer.

3.1.8.2. When registering as a customer, the user must input a name and address for delivery.

3.1.8.3. These details may be modified by the user later.

3.1.8.4. Once registered, users will have the option to deposit money into their account and will be able to use their account balance to place orders.

3.1.9 VIP Customers

3.1.8.1. When a registered customer spends more than $100 or makes more than 3 orders without leaving outstanding complaints, the customer will be promoted to a VIP customer.

3.1.8.2. VIP customers will receive discounts on delivery fees.

3.1.8.3. For every 3 orders, VIP customers will be able to place an order with no delivery fees.

3.1.8.4. VIP customers will be able to view and order exclusive VIP menu items when browsing.

3.1.8.5. Reviews left by VIP customers will be weighted more and considered more important than those left by regular customers.

4. Supporting Information

N/A.