

Restaurant Management System

<https://github.com/CserYe03na/RestaurantSystemGUI>

Group#
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May 10th, 2025

Table of Work

(Please write x in the boxes to mention what each student achieved in this project)

	Student-1 Serena	Student-2 Kevin
Project Description	x	
Uses Cases Diagram(s)	x	x
Sequence Diagrams	x	x
Class diagram(s)	x	x
Implementation	x	x
Conclusion		x

Table of Contents

- Terminology Glossary (If needed)
- System Analysis
 - Project Description (One Page)
 - General Description, Goals and Benefits
 - System input(s) and output(s)
 - Special requirements (Performance, Interfaces, Constraints, Reliability, if any)
 - Uses Cases Diagram(s) and use cases description.
- System Design
 - Sequence Diagrams
 - Class diagram(s)
- Conclusion
- Appendix (any related reports, questionnaires, docs.. If any).

Project Description

General Description

The Restaurant Management System is a GUI-based application designed to assist both diners and restaurant managers in efficiently managing key restaurant operations. It provides a user-friendly and intuitive interface that enables restaurant managers to handle reservations, orders, and membership information, while allowing diners to make and view reservations, place orders, and manage their personal membership profiles. The system assumes that essential restaurant data, including the restaurant's name, ID, and configuration settings, is preloaded by a system administrator. Additional operational data is stored in three separate external files corresponding to reservations, orders, and memberships, which ensures data persistence across user sessions and facilitates efficient data retrieval and updates for both sides.

Goals & Benefits

The primary goal of this system is to streamline restaurant service operations by reducing manual administrative tasks and enhancing the overall dining experience. Designed with scalability in mind, the system can be easily extended to support any restaurant listed in the configuration files. Key benefits would include:

- Improved restaurant-related service organization and persistent tracking
- Enhanced customer engagement through self-service features
- Easy-to-operate interface suitable for anyone

System Inputs and Outputs

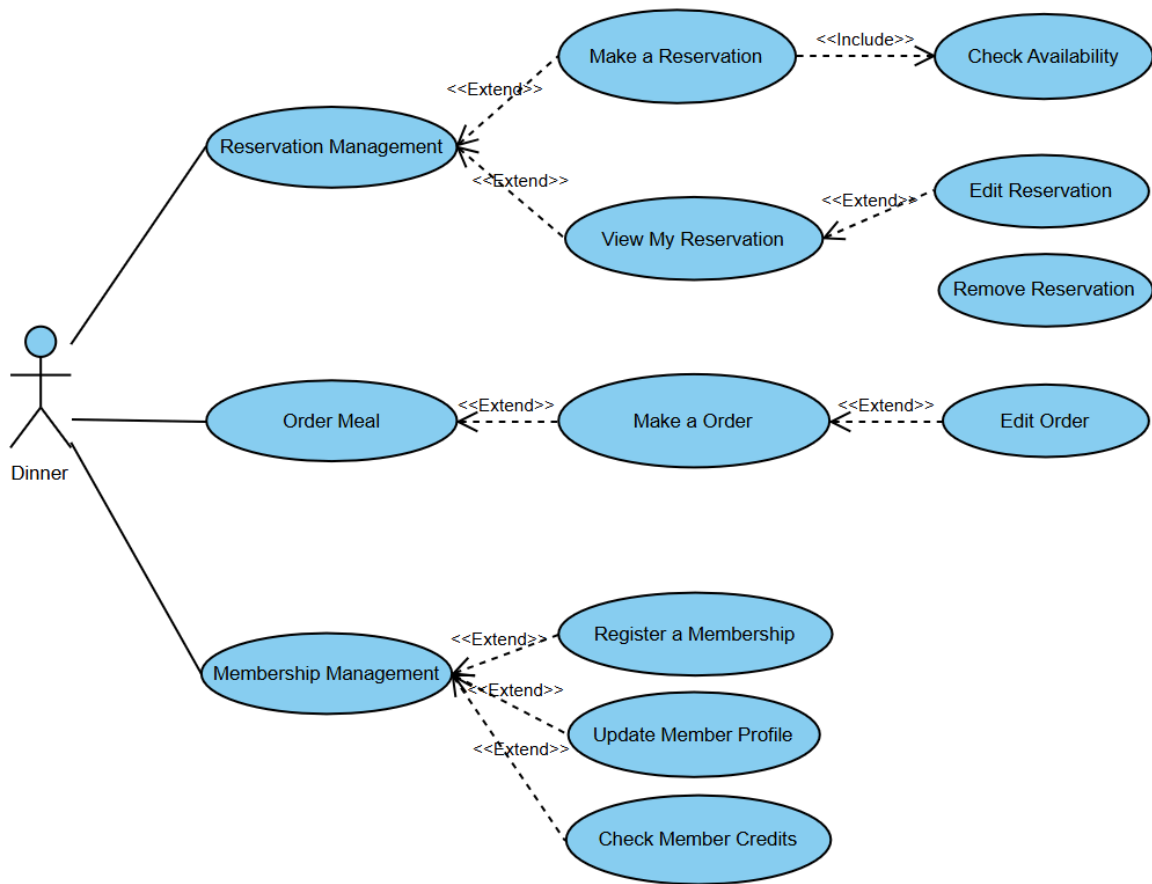
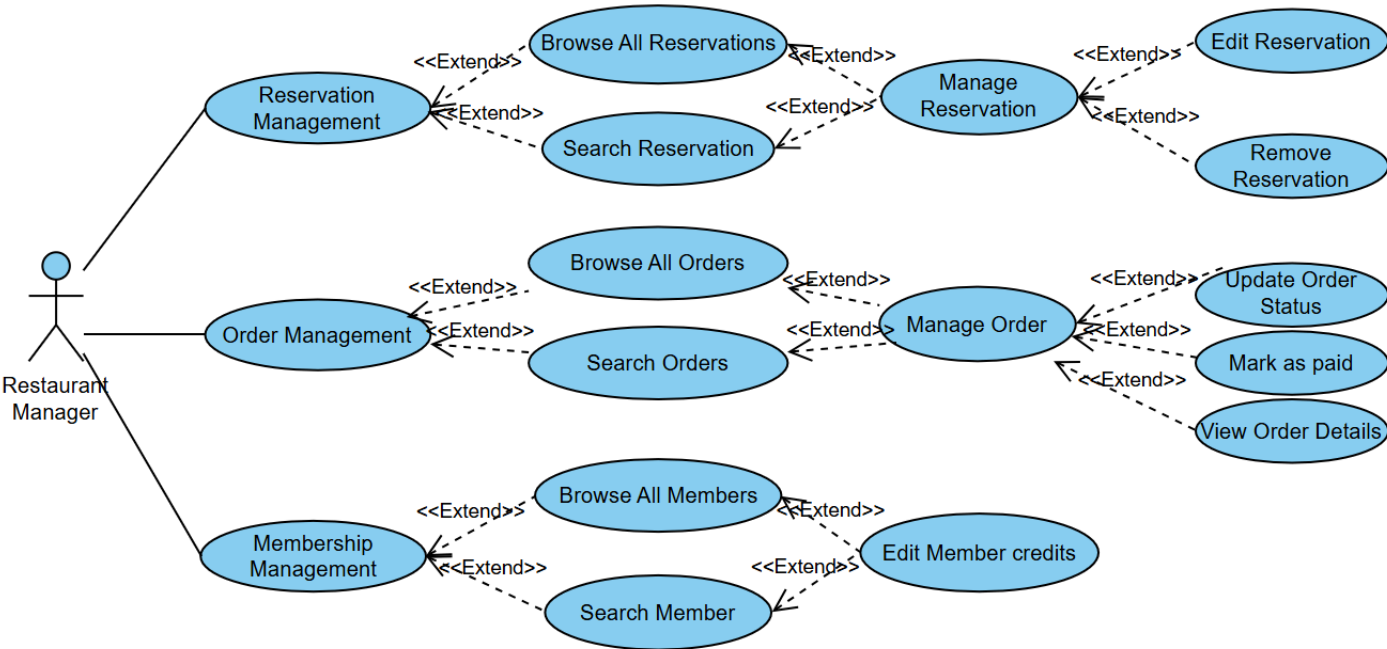
Inputs include:

- Restaurant configuration files (restaurant.csv)
- Reservation details: dates, time, party size, guest name, phone number
- Member registration or update requests: member name, phone number, address, dining preference
- Search queries for reservations or members
- Selected menu items, quantities, customer names, phone numbers, and payment methods.

Output includes:

- Lists of reservations or members
- Reservation confirmation or modification results
- Membership registration results, obtained loyalty credits, and membership level
- Orders: Receipts (order IDs, items, totals), filtered order tables for managers.
- System Files: Updated orders.csv, reservations.csv, and members.csv after actions.
- Validation alerts (e.g., "Invalid phone format" or "Restaurant not found").

Usercase Diagram

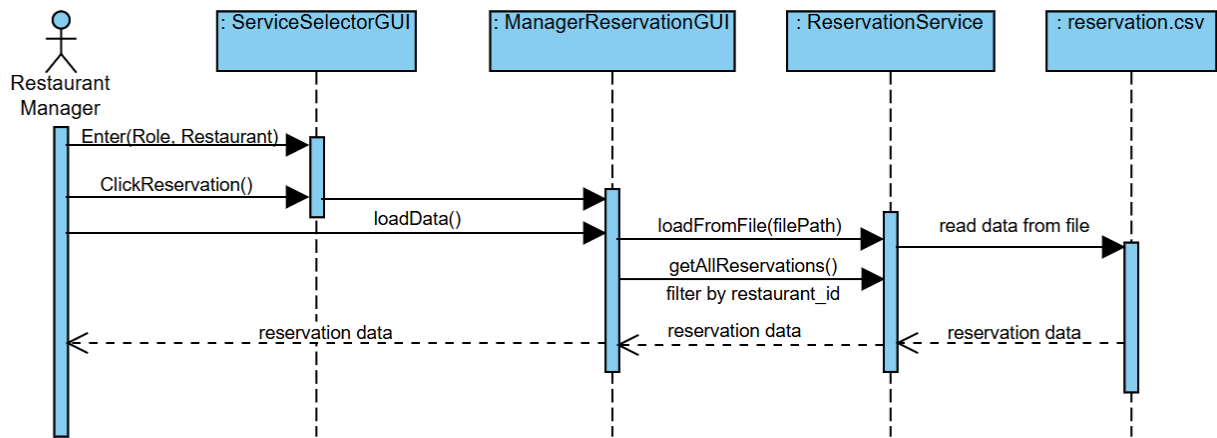


Usercase Description

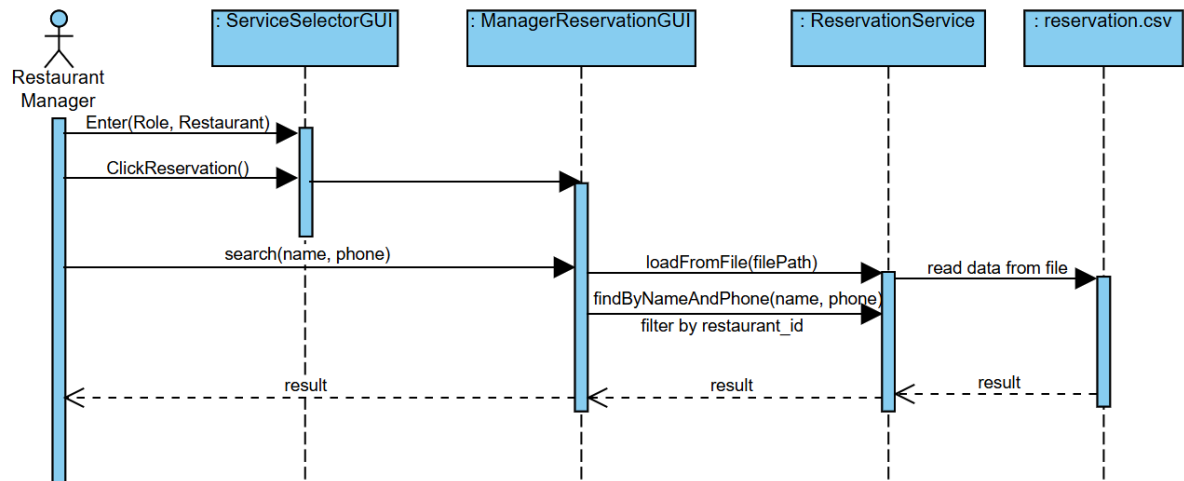
UC Reference Name/Number	Overview	Related use cases	Actors
UC1 - Reservation Management	Allows the restaurant manager to oversee all reservation-related operations	1.1, 1.2	Restaurant Manager
UC1.1 - Browse All Reservations	Displays a list of all reservations made at the selected restaurant.	1, 1.3	Restaurant Manager
UC1.2 - Search Reservation	Enables searching for specific reservations using both name and phone number.	1, 1.3	Restaurant Manager
UC1.3 - Manage Reservation	Facilitates editing or removing selected reservations.	1.3.1, 1.3.2	Restaurant Manager
UC1.3.1 - Edit Reservation	Allows modification of reservation details such as date, time, party size, or special request.	1.3	Restaurant Manager
UC1.3.2 - Remove Reservation	Deletes an selected reservation from the database.	1.3	Restaurant Manager
UC2 - Order Management	Manages the restaurant's food and drink orders.	2.1, 2.2	Restaurant Manager
UC2.1 - Browse All Order	Displays a list of all current and historical orders with details for the restaurant manager to review.	2, 2.3	Restaurant Manager
UC2.2 - Search Orders	Allows the manager to filter orders by criteria (name or phone) for quick access.	2.2.3	Restaurant Manager
UC2.3 - Manage Order	Provides tools to modify order's details.	2.3.1, 2.3.2	Restaurant Manager
UC2.3.1 - Update Order Status	Changes an order's workflow state (e.g., "Received" → "Preparing" → "Delivered").	2.3	Restaurant Manager
UC2.3.2 - Mark as Paid	Records payment completion for an order to update financial records.	2.3	Restaurant Manager
UC2.3.3 - View Order Details	Shows total price info for a selected order.	2.3	Restaurant Manager
UC3 - Membership Management	Manages selected restaurant membership-related activities.	3.1, 3.2	Restaurant Manager
UC3.1 - Browse All Members	Displays all registered members and their profile details.	3, 3.3	Restaurant Manager
UC3.2 - Search Member	Searches for members using identifying information, name and phone number.	3, 3.3	Restaurant Manager
UC3.3 - Edit Member Credits	Allows the manager to update credit values of specific selected members.	3.1, 3.2	Restaurant Manager
UC4 - Reservation Management	Enables diners to manage their reservations, including making, viewing, updating, removing.	4.1, 4.2	Dinner
UC4.1 - Make a Reservation	Allows a diner to create a new reservation after checking availability by entering name and phone.	4.1.1	Dinner
UC4.1.1 - Check Availability	Displays available tables before making a reservation in the selected date and time slot.	4.1	Dinner
UC4.2 - View My Reservation	Displays all reservations made by the diner.	4, 4.2.1, 4.2.2	Dinner
UC4.2.1 - Edit Reservation	Allows diners to modify an existing reservation.	4.2	Dinner
UC4.2.2 - Remove Reservation	Enables diners to cancel an existing reservation.	4.2	Dinner
UC5 - Make Order	Allows diners to place a food order from the restaurant menu.	5.1	Dinner
UC5.1 - Edit Order	Edit item cart and dinner's details	5	Dinner
UC6 - Membership Management	Provides features for diners to manage their membership profile.	6.1, 6.2, 6.3	Dinner
UC6.1 - Register a Membership	Allows a diner to register as a member of the restaurant.	6	Dinner
UC6.2 - Update Member Profile	Enables diners to modify their membership profile information.	6	Dinner
UC6.3 - Check Member Credits	Allows members to view their current membership credit balance.	6	Dinner

Sequence Diagram

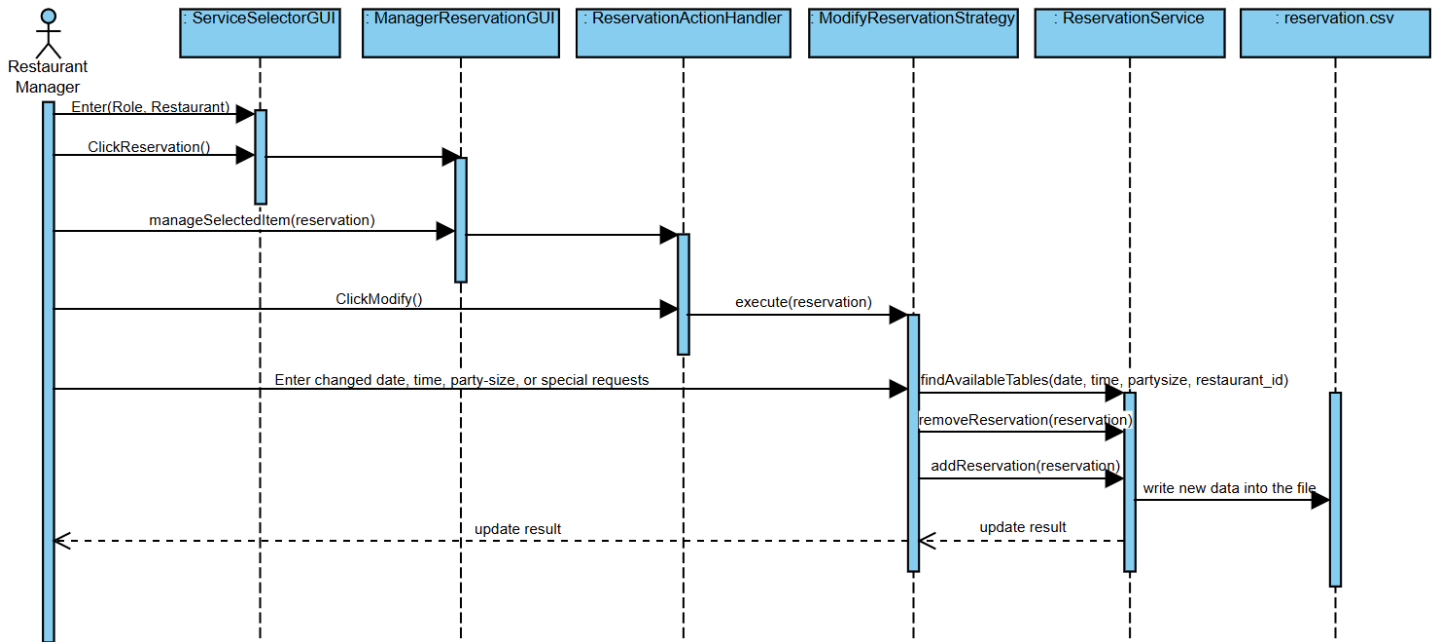
UC1.1 Browse all reservations - Manager



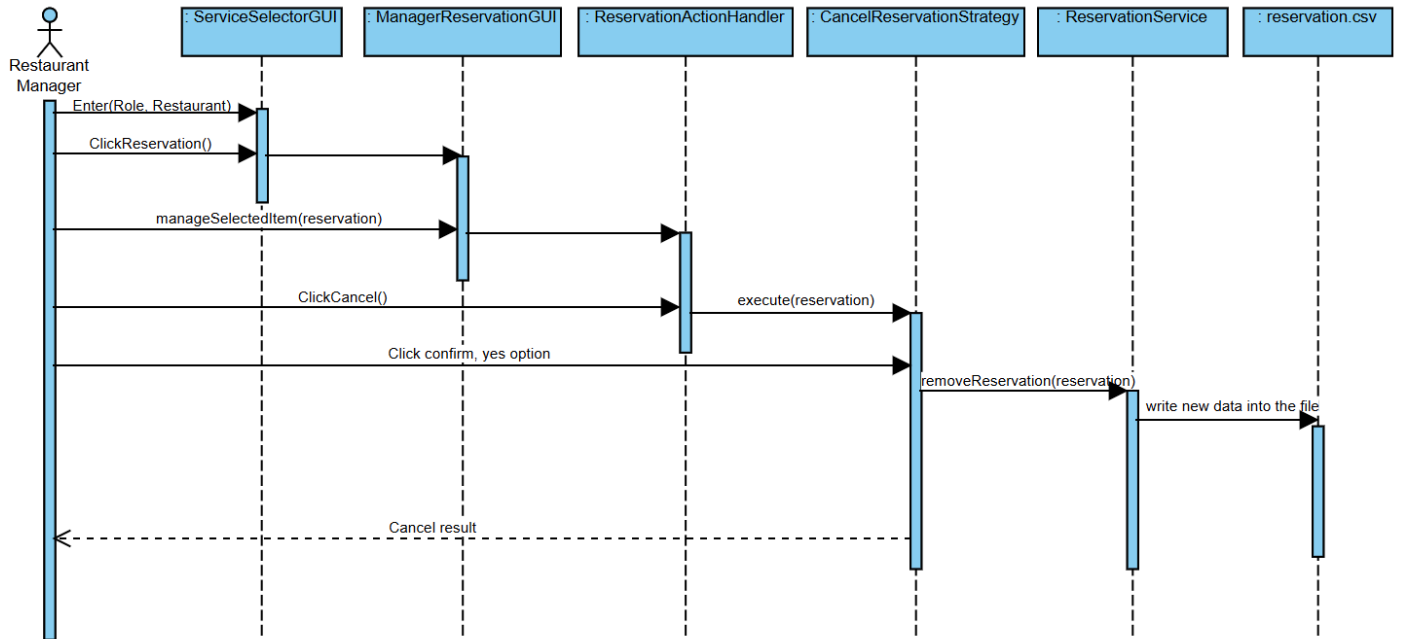
UC1.2 Search Reservation - Manager



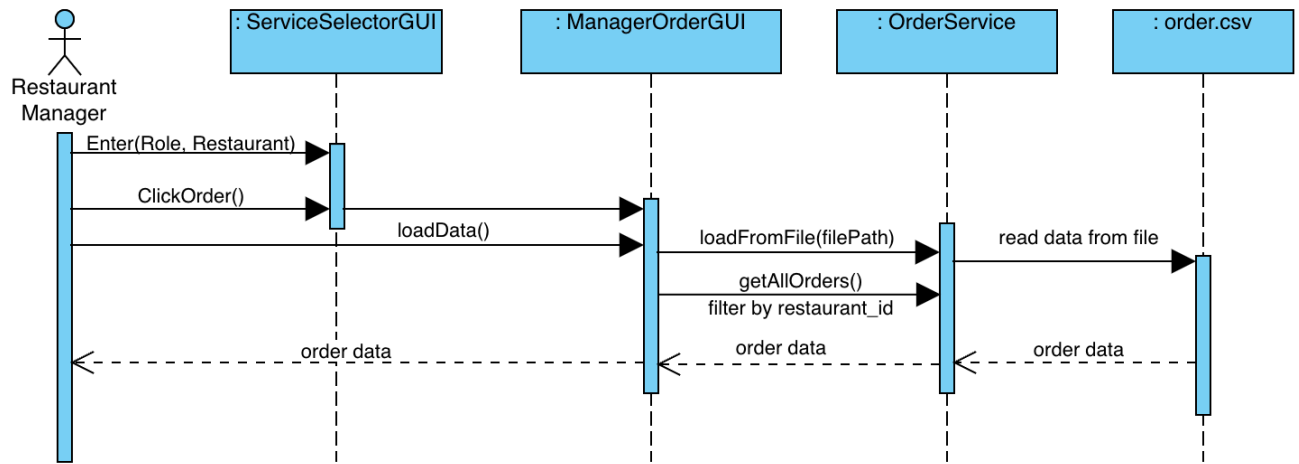
UC1.3.1 Edit Reservation - Manager



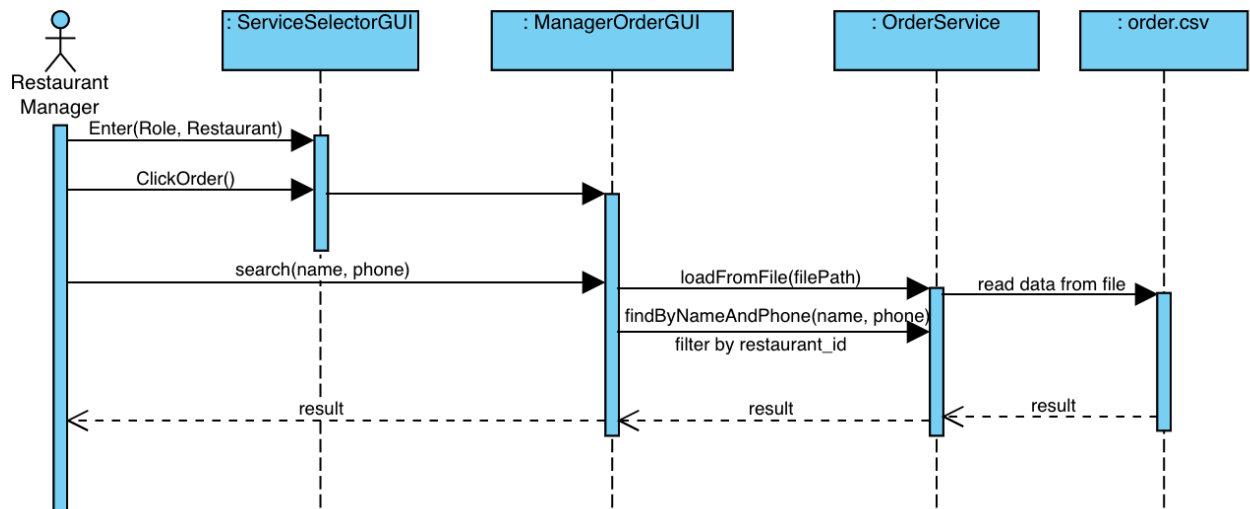
UC1.3.2 Remove Reservation - Manager



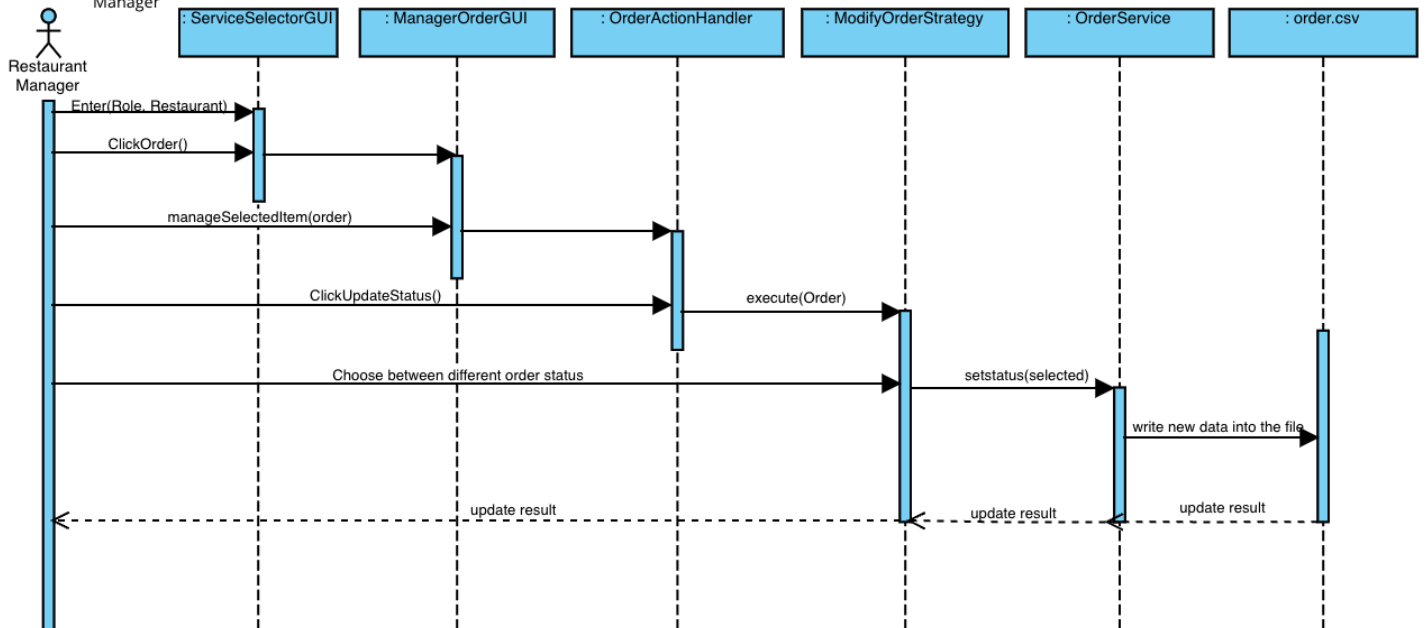
UC2.1 Browse all orders - Manager



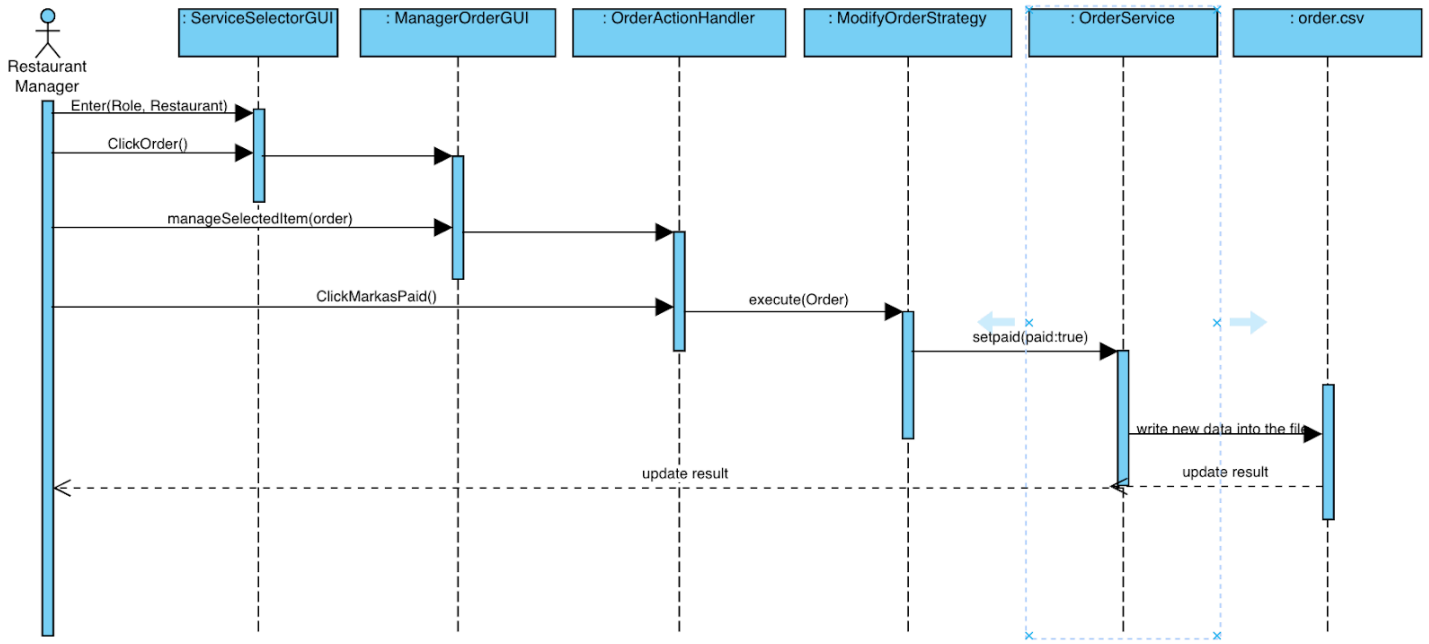
UC2.2 Search Orders - Manager



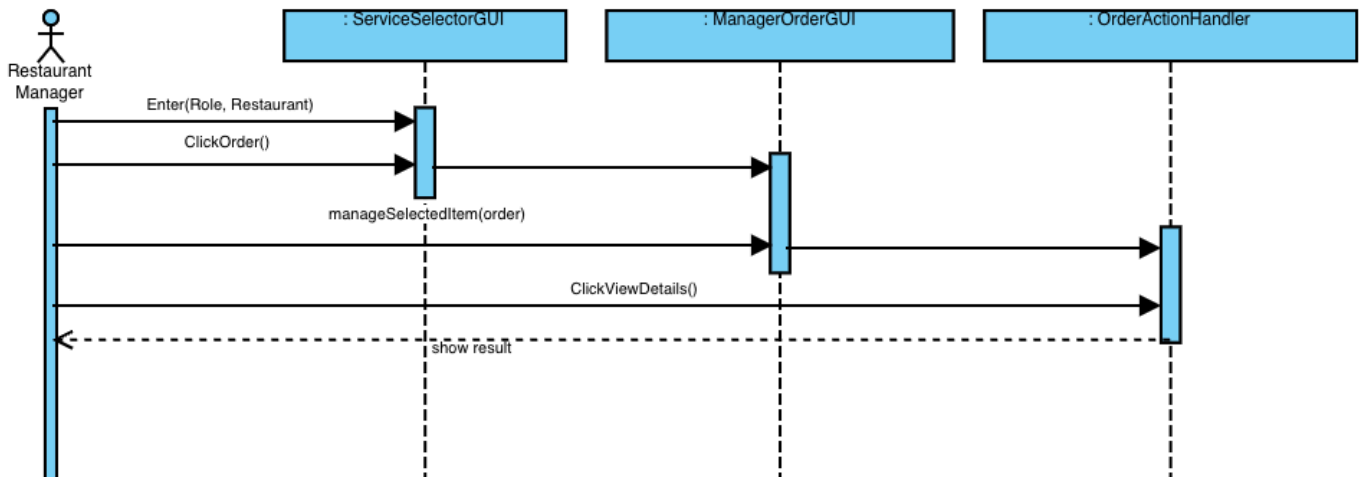
2.3.1 Update Order Status - Manager



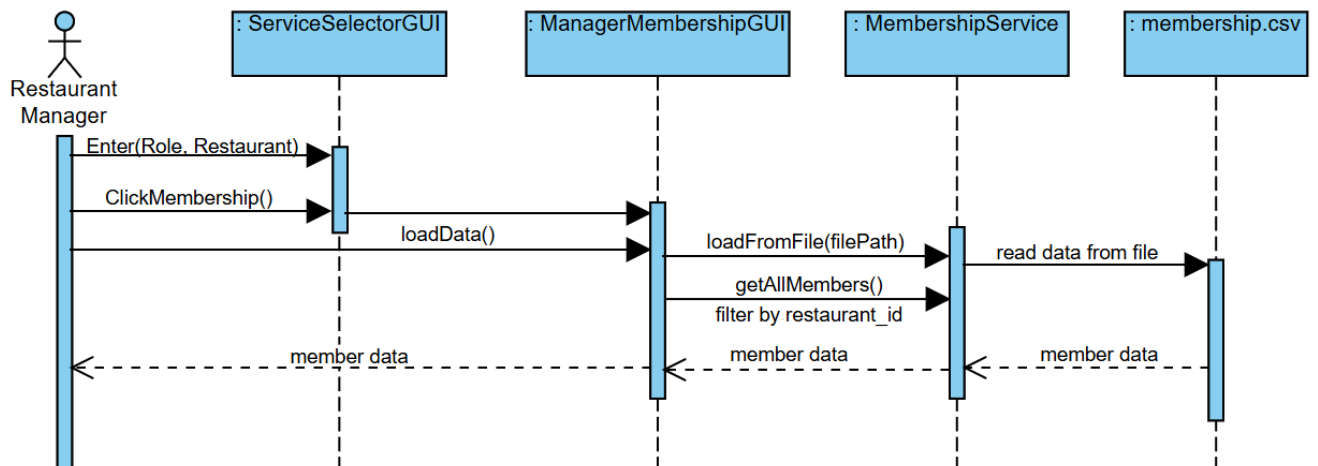
2.3.2 Marked as Paid - Manager



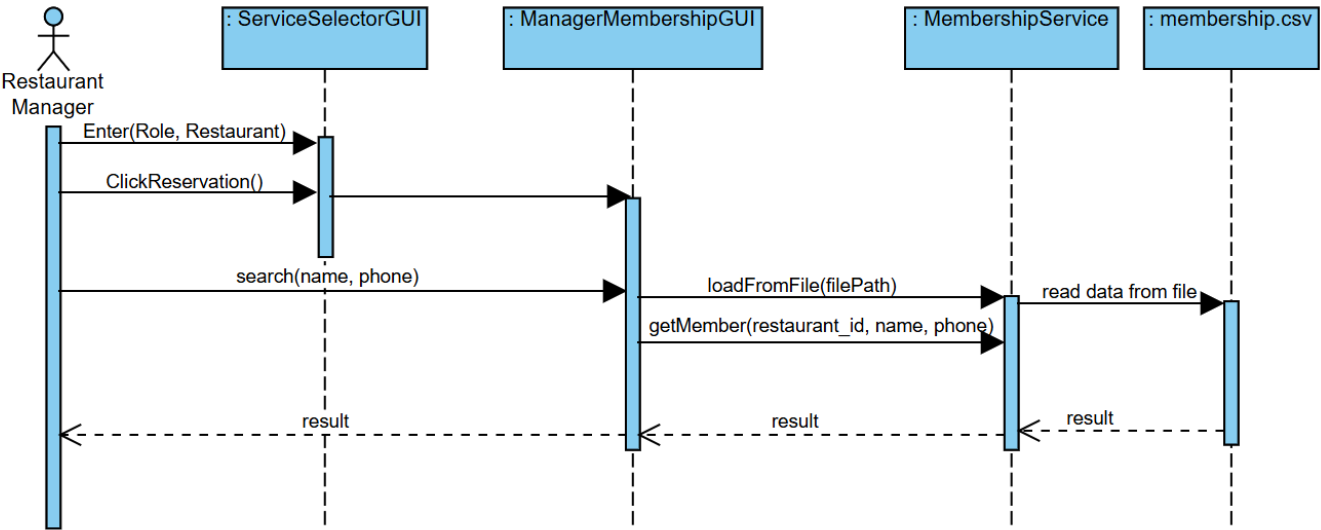
2.3.3 View Order Detail - Manager



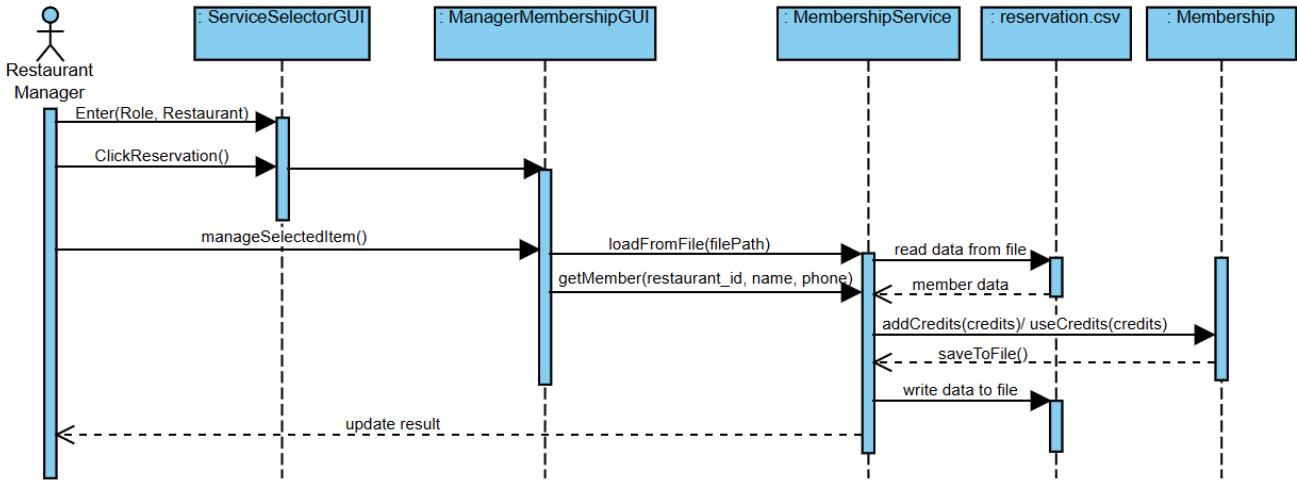
3.1 Browse all members- Manager



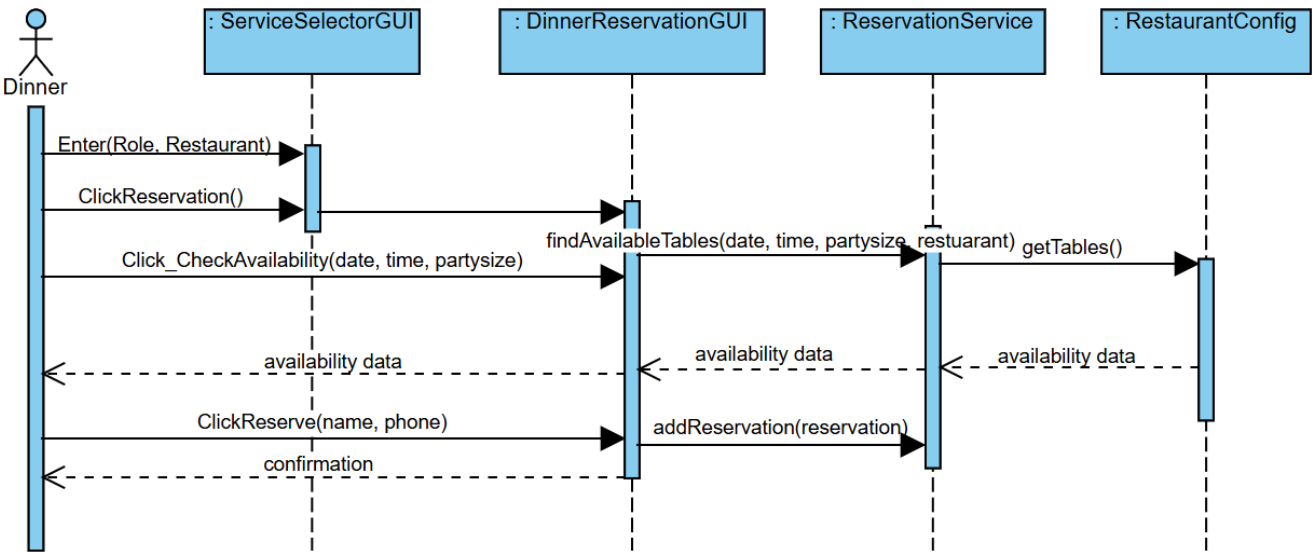
3.2 Search Member - Manager



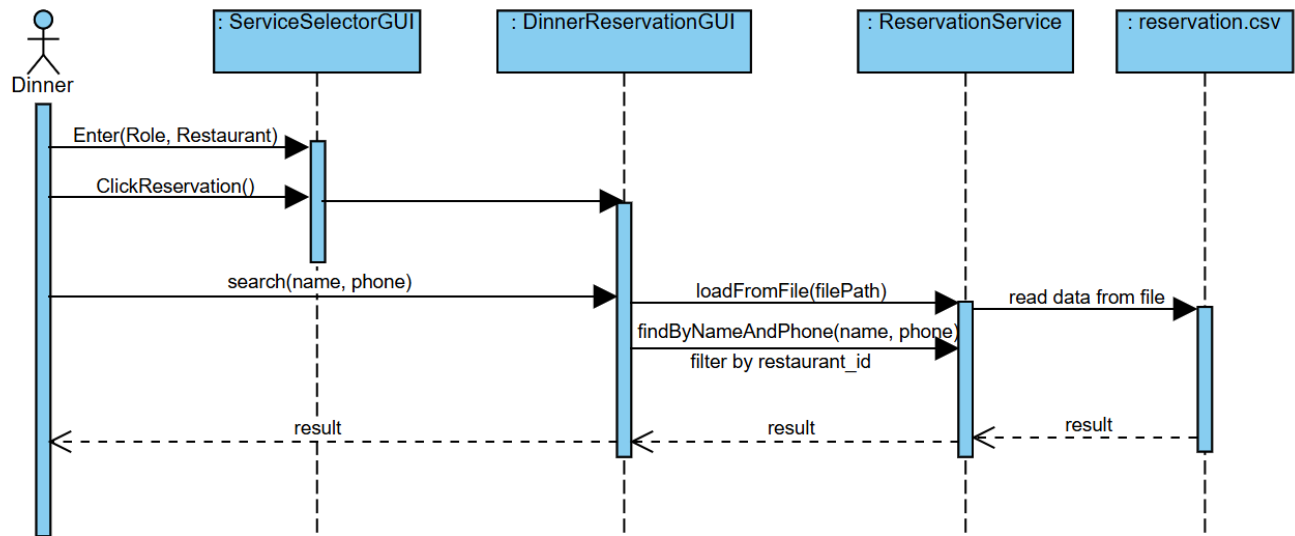
3.3 Edit member credits - Manager



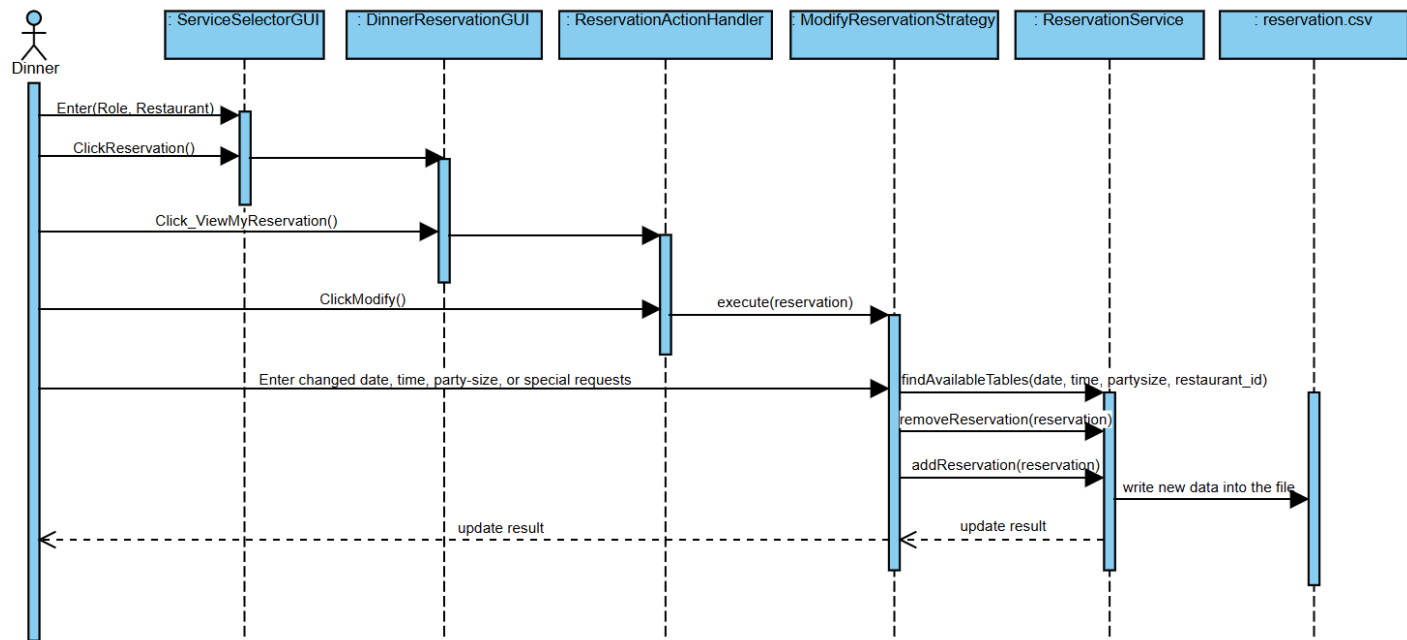
UC4.1 Make reservation - Dinner



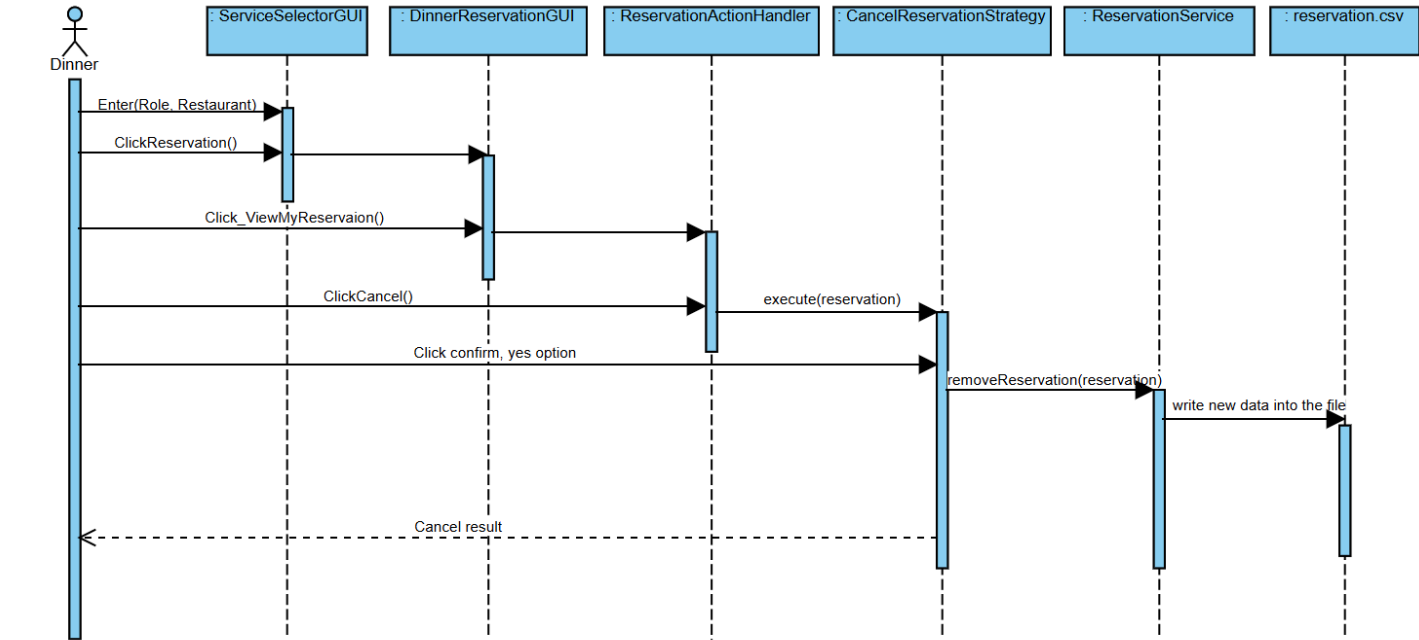
UC4.2 View Reservation - Dinner



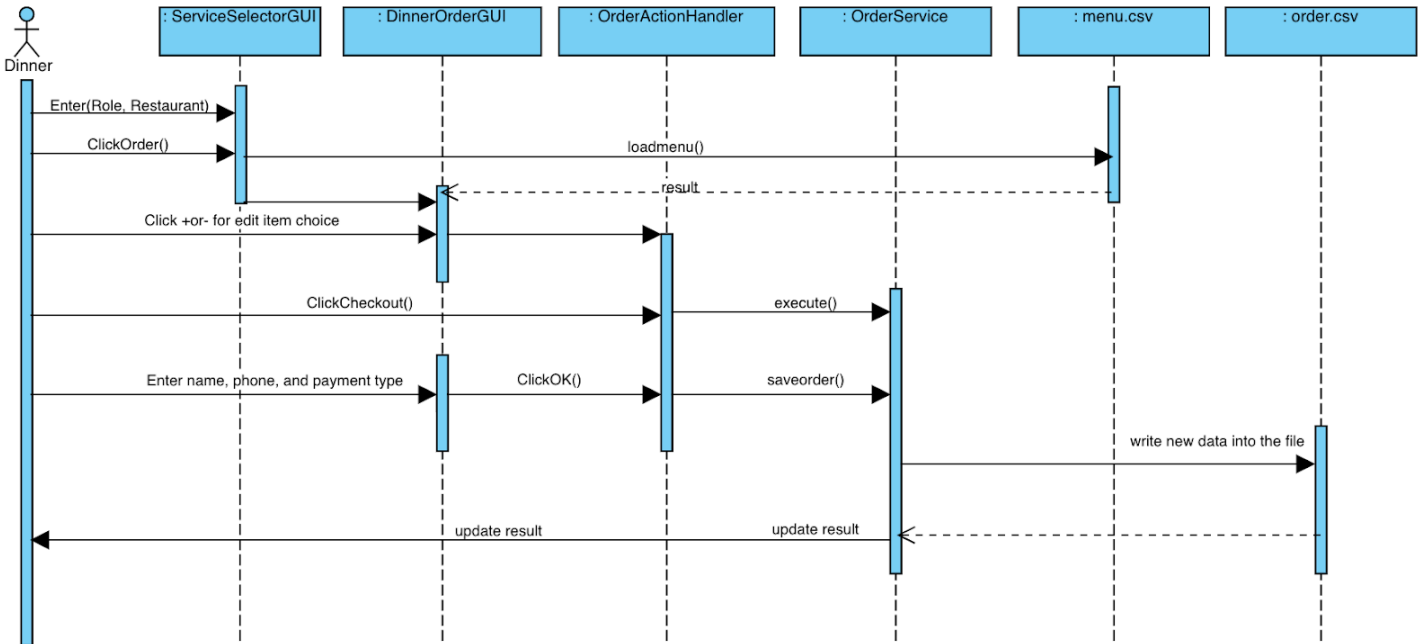
UC4.2.1 Edit Reservation - Dinner



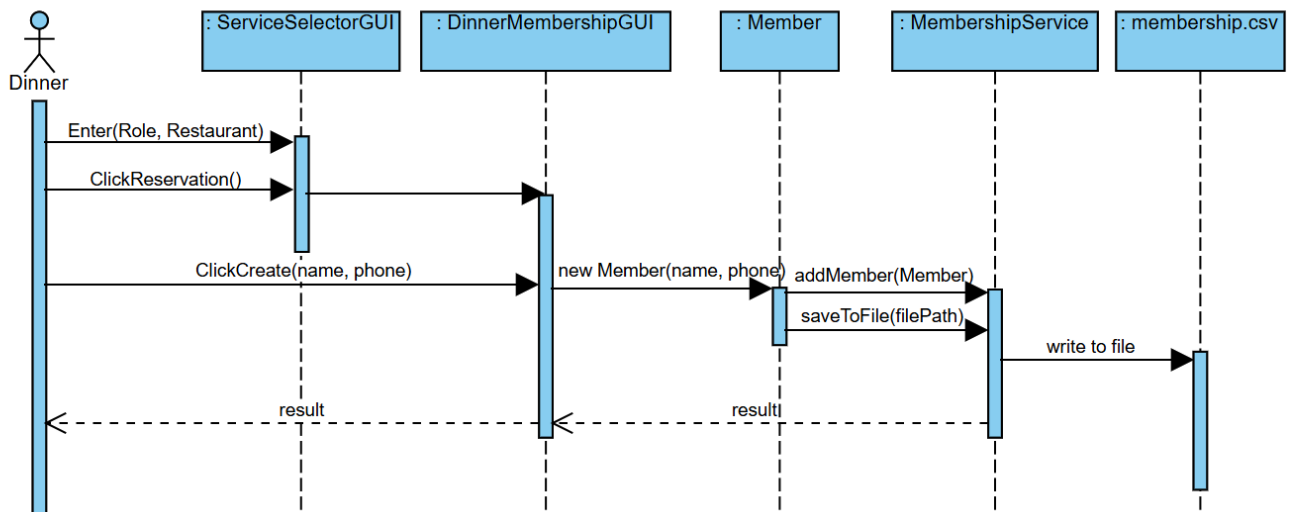
UC4.2.2 Remove Reservation - Dinner



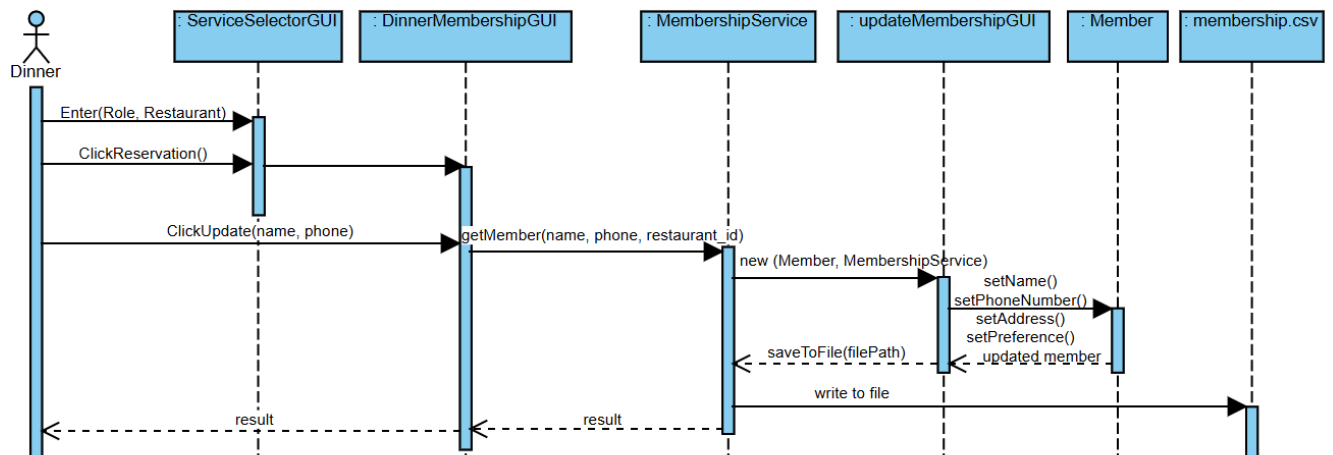
UC5.1 Edit Order - Dinner



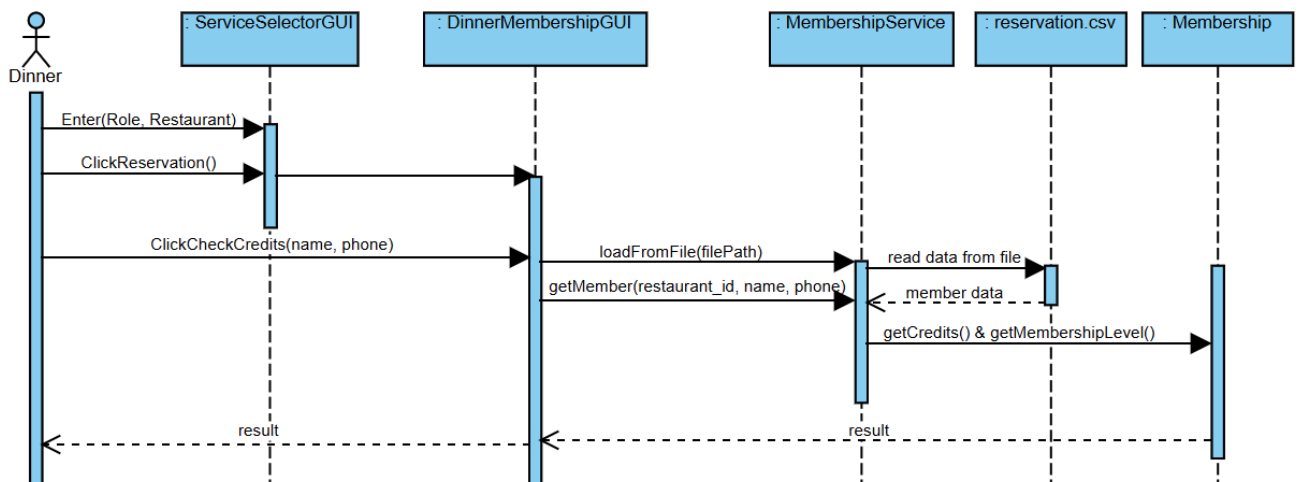
UC6.1 Register membership - Dinner



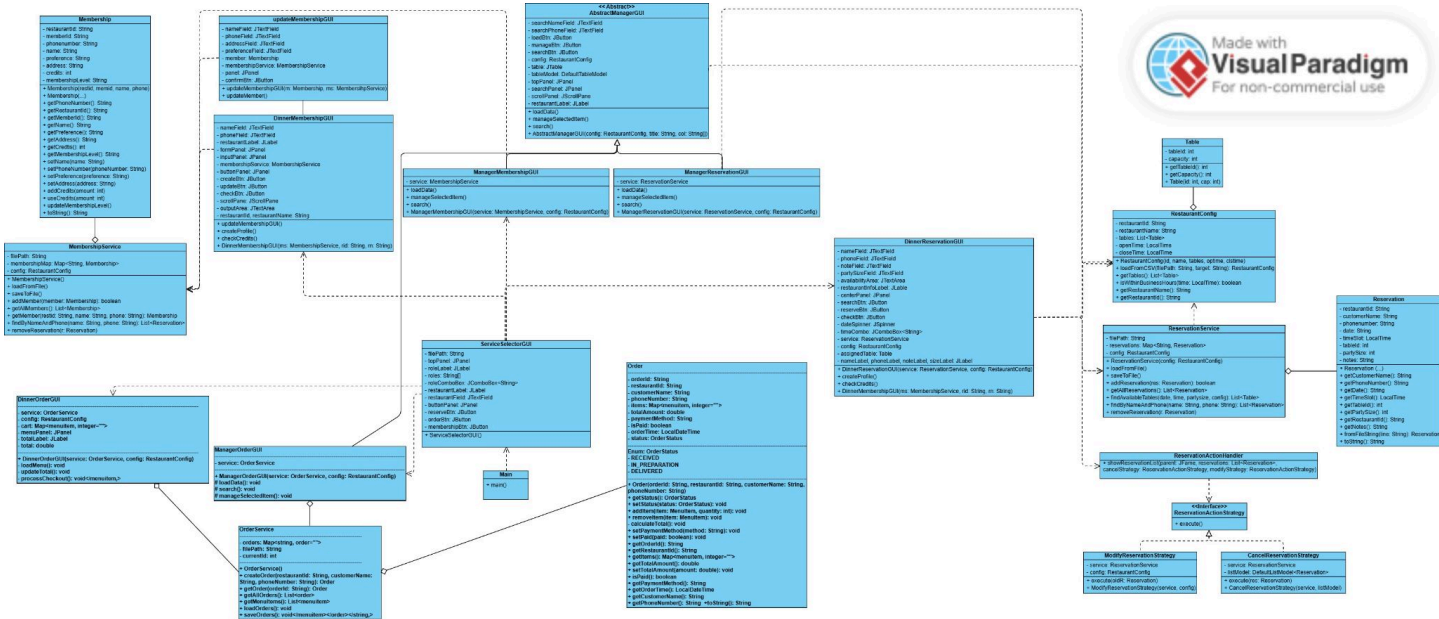
UC6.2 Update Member Profile - Dinner



UC6.3 Check member credits - Dinner



Class Diagram



Conclusion

The Restaurant Management System successfully addresses the need for an efficient, user-friendly solution to streamline restaurant operations for both diners and managers. By integrating key functionalities—reservation handling, order management, and membership tracking—the system reduces administrative burdens while improving customer engagement through self-service features.

Built with scalability in mind, the system supports multiple restaurants via configuration files and ensures data persistence through structured CSV storage. The GUI-based interface enhances usability, allowing managers to oversee operations seamlessly and diners to manage reservation, orders, and memberships effortlessly.

Key achievements include:

- Automation of manual tasks (reservations, order updates, membership tracking).
- Real-time data access for managers (search, modify, and analyze reservations/orders).
- Enhanced customer experience with intuitive self-service options.

Future enhancements could include online payment integration, advanced analytics for sales trends, and mobile app compatibility. This system lays a strong foundation for modernizing restaurant operations while maintaining simplicity and reliability.