HO CHI MINH UNIVERSITY OF TECHNOLOGY

FACULTY OF COMPUTER SCIENCE AND ENGINEERING

SOFTWARE ENGINEERING ASSIGNMENT

RESTAURANT POS

Instructor: Lê Đình Thuận

Group: SuperEngineers

Member List

Nguyễn Kế Đạt - 1913048

Nguyễn Diệu Ái - 1910032

Huỳnh Đức Thịnh - 1910563

Đặng Quốc Thanh - 1915083

Nguyễn Phúc Thịnh - 1910565

Trương Hoàng Phúc - 1914720

Nguyễn Ngô Thanh Trúc - 1910650

MỤC LỤC

Introduction

Point of sale (POS) or point of purchase is the time and place where a retail transaction is completed. At the point of sale, the merchant calculates the amount owed by the customer, indicates that amount, may prepare an invoice for the customer, and indicates the options for the customer to make payment. In restaurant business, POS systems often include table reservation, ordering food, alerts, billing, credit card processing and customer management.

The new POS system is requested to be developed based on a web-based system and shall implement the current business flow as described below.

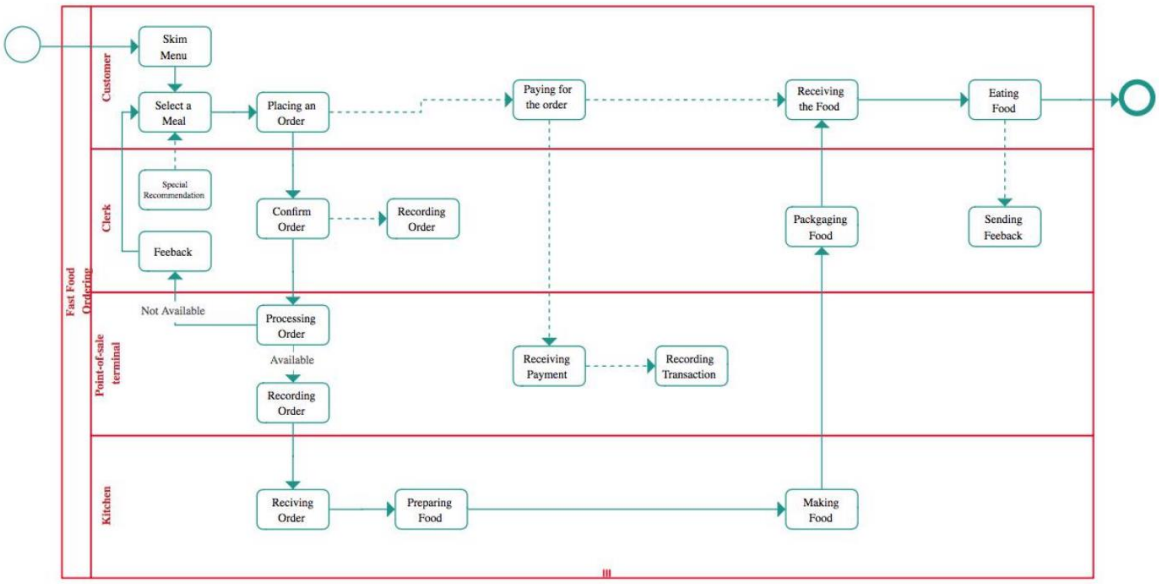


Figure 1: Customer-drawing workflow

Stakeholders

Stakeholder	Role	Description
Restaurant Owner	Product Owner	Who owns the application
Restaurant Manager	Restaurant Staff	Who is able to see the transaction reports
Clerk	Restaurant Staff	Who is responsible for handling customer's issues and payment.
Receptionist	Restaurant Staff	Who is responsible for keeping track of customer's reservation.
Customer	Restaurant Customer	Who will use the application to make reservations, order food and make payment.

Project scope

Project Justification

The primary goal of this Restaurant POS project is to provide a web-based application that automates many restaurant's processes in order to increase business intelligence, reduce wasted manpower and opportunity to scale to a large business.

General Feature of the Project

Feature 1: Making reservation

Providing customers with a quick and responsive method to book a reservation online while reducing the workload of the restaurant receptionist

Feature 2: Keeping track of table status

Allowing restaurant receptionists to keep track of how many tables are occupied currently.

Feature 3: Ordering food

Offering an interactive menu and indirect way of ordering food.

Feature 4: Making payment

Allowing customers to see their bills and send a check-out alert to the clerk. They can choose to pay by cash or online payment.

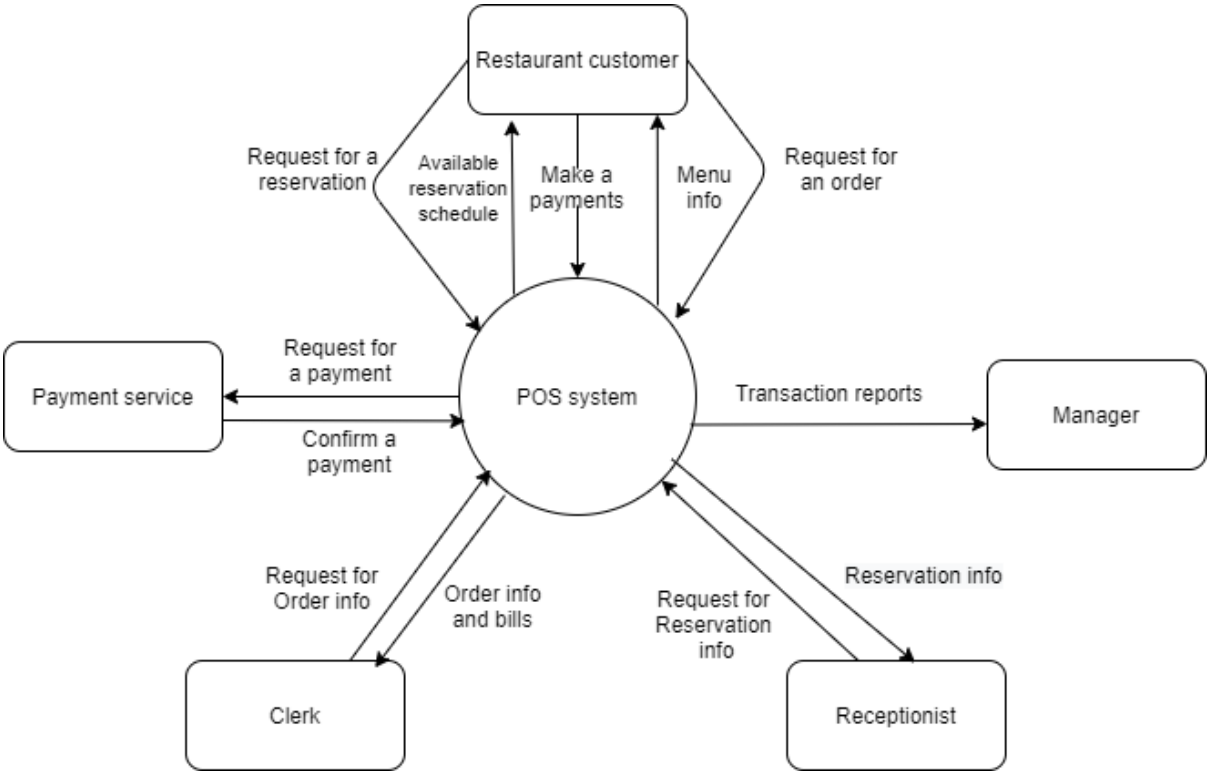
Feature 5: Viewing Statistics

Daily transactions are recorded and this feature allows the restaurant manager to view the transaction statistics.

Assumptions

- Both the restaurant and the customers have access to the Internet when using the application
- Payment transactions are handled by the third-party service

Project Context



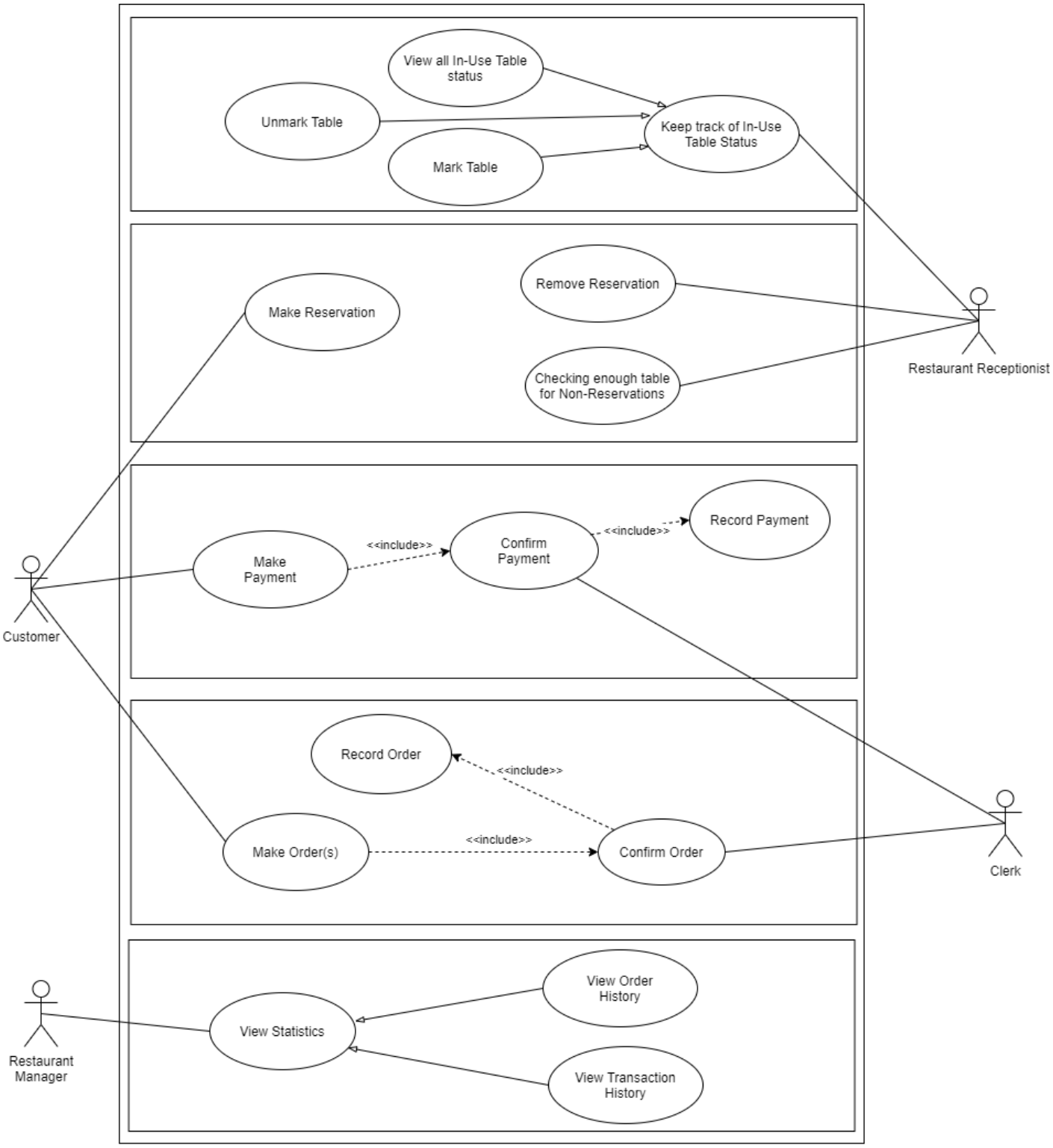
Functional Requirements

Requirement ID	Requirement	Priority	Comments
FR001	Customer can make reservations and Restaurant Receptionist can confirm the reservation	High	
FR002	Restaurant Receptionist can cancel Customer's Reservation according to Customer's Wishes	Medium	
FR003	Restaurant Receptionist can check if there are enough tables for non-reservation customer	High	
FR004	Restaurant Receptionist can keep track of which table is currently in use	High	
FR005	Customer can make food orders and Clerk can cancel the food order according to customers before confirming and sending to the kitchen	High	
FR006	Customer can make payment for their meal either by direct payment or third-party service	High	Third-party Service
FR007	Restaurant Manager can view all the Order and Transaction recorded by the System	Low	

Non-functional Requirements

Requirement ID	Requirement	Comments
NFR001	The system is implemented using Web technology and QR code	
NFR002	The system should be used on mobile, table devices and computer/laptop	
NFR003	The system should be extendable for multiple restaurants in the future	
NFR004	The system can handle at least 300 orders per day	

Project's Use-Case Diagram

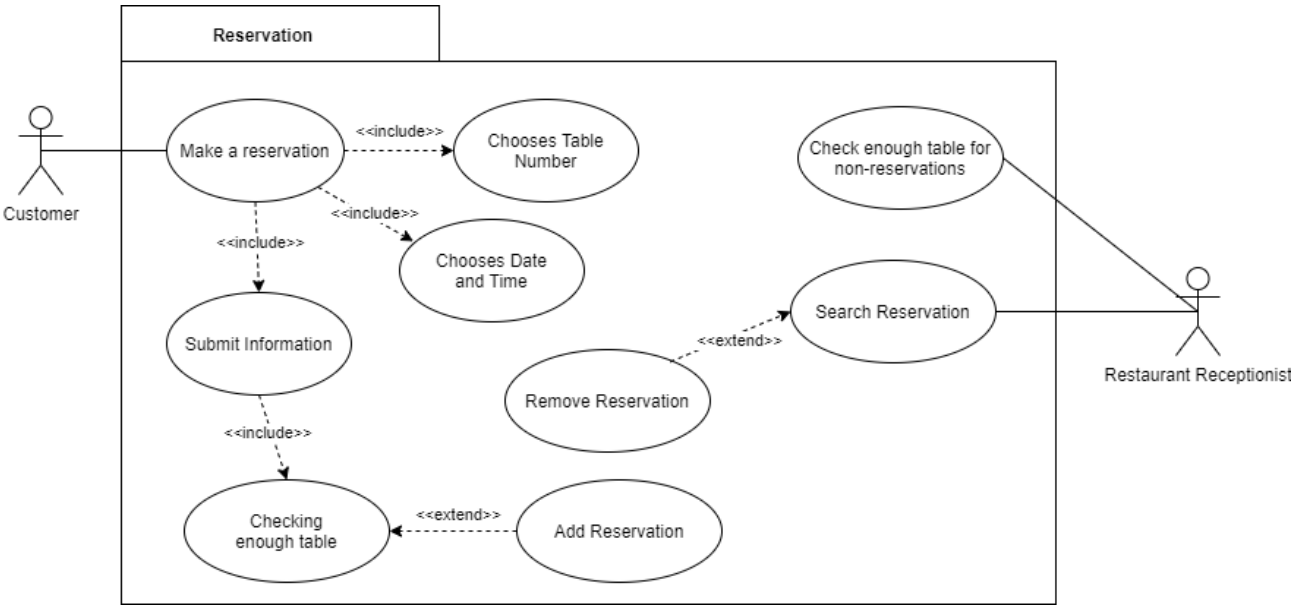


Work Assignment

Member	Requirement
Trương Hoàng Phúc Nguyễn Kế Đạt	The Project's Database and Viewing Statistics Feature
Nguyễn Phúc Thịnh	Making Reservation Feature
Đặng Quốc Thanh	Keeping track of table status Feature
Huỳnh Đức Thịnh Nguyễn Diệu Ái	Ordering Food Feature
Nguyễn Ngô Thanh Trúc	Making Payment Feature

Detailed Use-case

Feature 1: Making reservation



Use Case ID	UC-1.1
Use Case Name	Make a reservation
Description	Customer can make a reservation, they can choose number of table and time for the reservation
Actor(s)	Restaurant customer
Priority	High
Trigger	Customer chooses the reservation option
Precondition(s)	Customer has already got access to the home page.

Postcondition(s)	System updates the reservation schedule.
Basic Flow	1. Customer chooses the table's amount 2. Customer chooses the date and time. 3. Customer submits information. 4. System checks available table 5. Customer fills in the "information and contact" form. 6. Customer confirms their reservation. 7. System adds the reservation to the reservation schedule. 8. System confirms information and sends Reservation ID
Exception Flow	4a. The restaurant is fully booked at that time 1. System show "fully booked" message. 2. Use case continues at step 2.
Note	To cancel a reservation, a customer shall contact the restaurant, in that case, receptionist staff is the one who is in charge of making changes to the reservation schedule.

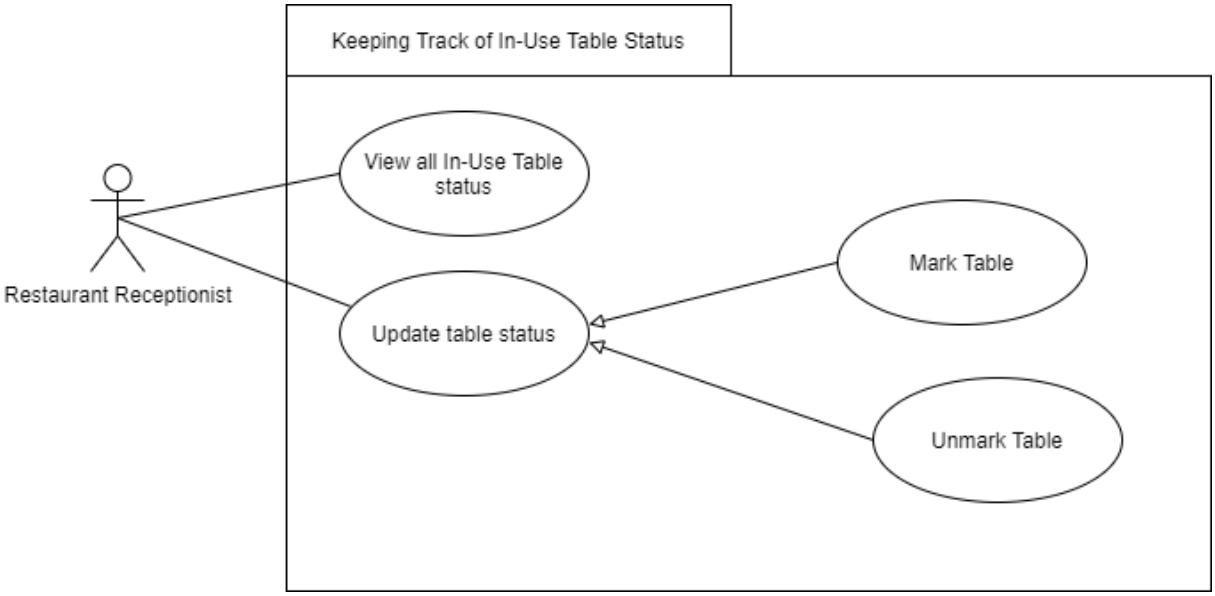
Use Case ID	UC-1.2
Use Case Name	Remove Reservation
Description	The receptionist can search and remove a reservation, either the customers have arrived at the restaurant or customers request the cancelation.
Actor(s)	Restaurant Receptionist
Priority	Medium
Trigger	Receptionist chooses to cancel a reservation
Precondition(s)	Customers have made a reservation

Postcondition(s)	System removes the reservation of the reservation schedule
Basic Flow	1. Receptionist enters the Reservation ID 2. System searches the reservation with the Reservation ID in the reservation schedule 3. System displays the searched reservation 4. Receptionist chooses to remove the reservation 5. System removes the reservation from reservation schedule
Exception Flow	2a. The reservation is not in the reservation schedule 1. System shows a “Not Found” message. 2. Use-case returns back to step 1.

Use Case ID	UC-1.3
Use Case Name	Check enough table for non-reservations
Description	Receptionist or System can check if at the time there is enough table for making a reservation or non-reservation customer
Actor(s)	Restaurant Receptionist
Priority	High
Trigger	Receptionist chooses to check if there is enough table for non-reservation customer
Precondition(s)	New reservation/customers arrive
Postcondition(s)	System shows if the restaurant at that time has enough table for new reservation/customers
Basic Flow	1. Receptionist enters the number of tables required 2. Receptionist enters the date and time 3. System checks in the Reservation Schedule and the

	In-Use Table List, gets the number of reservations at that time 4. System returns if the number of tables needed is over the limit

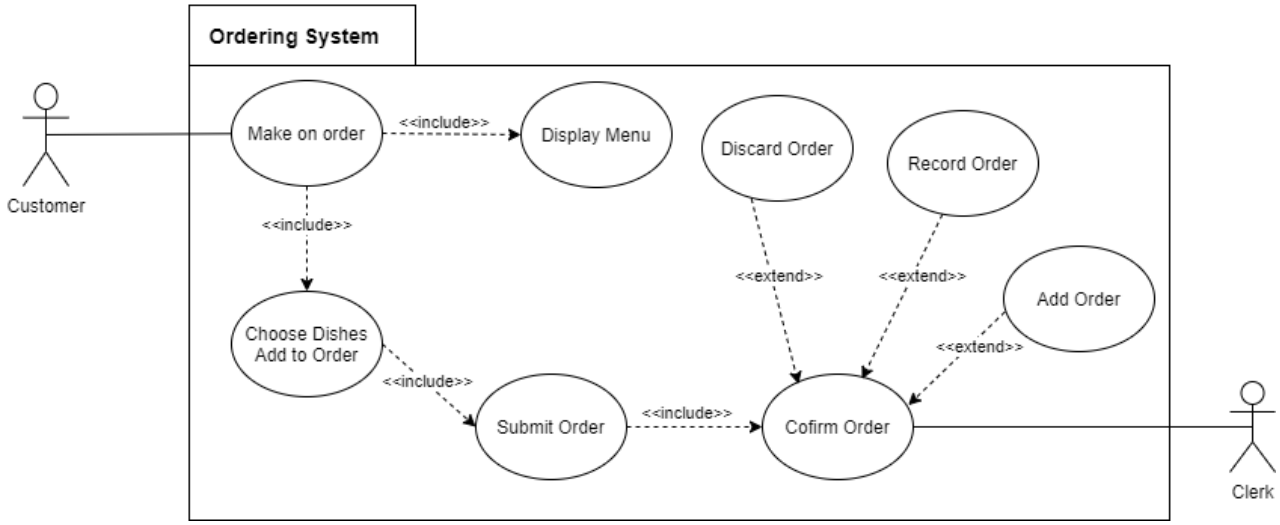
Feature 2: Keeping track of table status



Use Case ID	UC-2.1
Use Case Name	Update In-Use Table List
Description	Receptionist can view which table in the restaurant is occupied, mark a table when customers occupy it, unmark a table when customers leave
Actor(s)	Restaurant Receptionist
Priority	High
Trigger	Receptionist chooses to update the in-use table
Precondition(s)	None
Postcondition(s)	System updates the In-Use Table List

Basic Flow (Update available table)	1. Receptionist chooses to view In-Use Table List 2. System displays the status of all table 3. Receptionist chooses the table needed to be update 4. The table is marked
Alternative Flow (Update occupied table)	4a.The table is unmarked

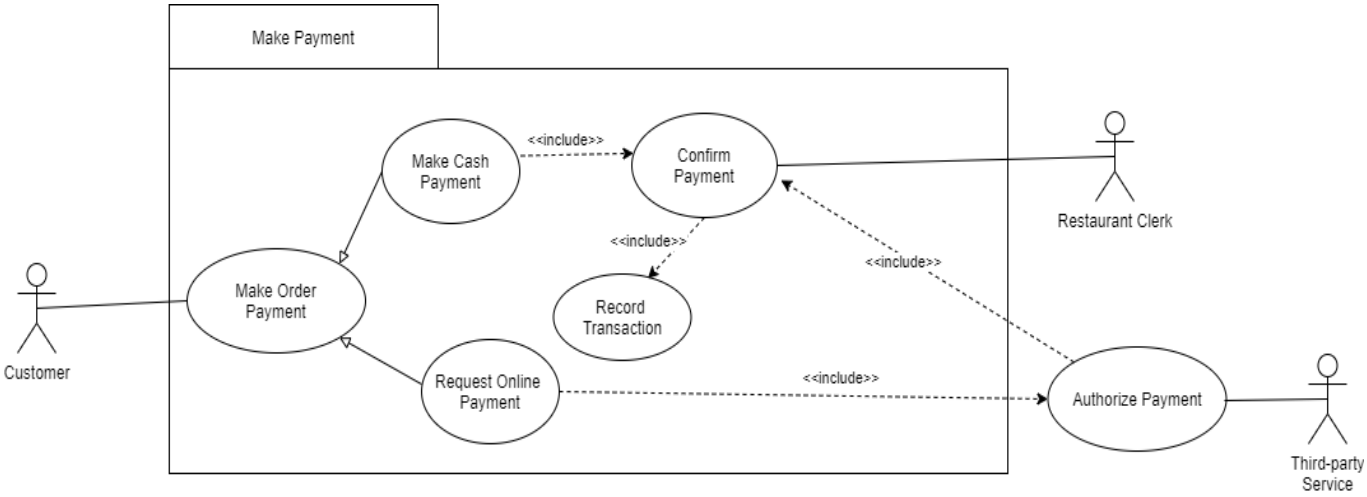
Feature 3: Ordering food



Use Case ID	UC-3.1
Use Case Name	Make Order(s)
Description	Customers access the menu through QR, choosing food options and add-ons, can observe the current cart, and submit the order.
Actor(s)	Restaurant customer, Clerk
Priority	High
Trigger	Customer chooses make an order
Precondition(s)	Customer accesses the table web through QR
Postcondition(s)	System updates orders into the order list. Kitchen Staff receives orders from the order list.

	System returns customer back to the table tab
Basic Flow	1. Customer chooses ‘make order’ option 2. System displays menu 3. Customer chooses food options on the menu 4. Customer submits wanted order 5. System sends the wanted order to clerk 6. Clerk confirms the order with customer 7. System adds the order to the Order List 8. System adds the order’s price to the total bill 9. System returns customer back to the table tab
Alternative Flow	4a. Customer wants to adds more order 1. Use-case returns back to step 2 6a. Clerk denies the order 1. System discards the order 2. Use-case returns back to step 2

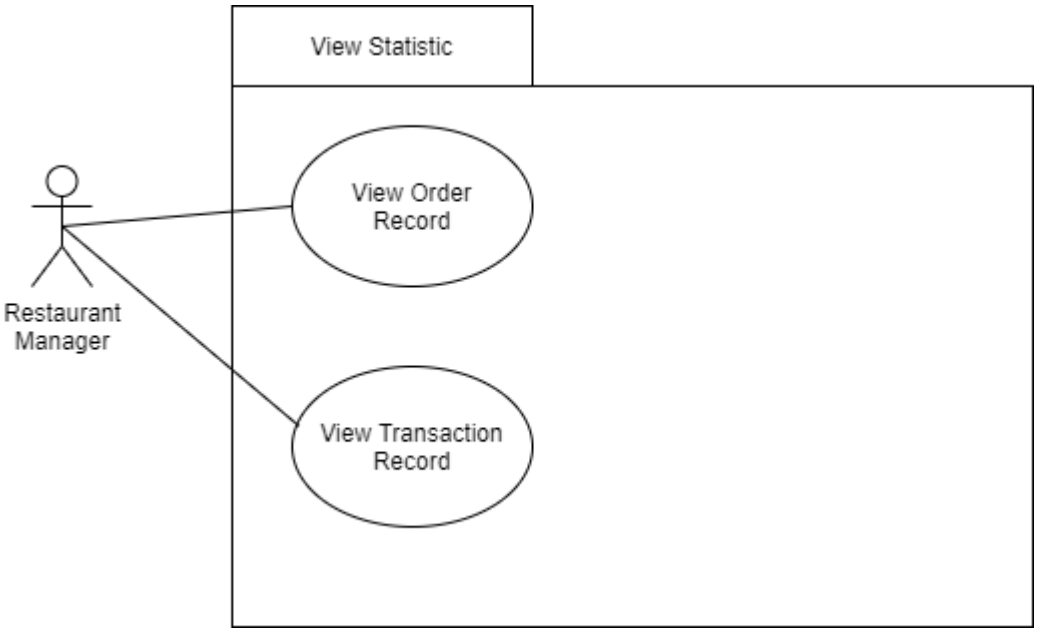
Feature 4: Making payment



Use Case ID	UC-4.1
Use Case Name	Make Payment
Description	After finishing their meal, customer makes payment using the payment feature
Actor(s)	Customer, Restaurant Clerk
Priority	High
Trigger	Customer chooses to finish their meal and make payment
Precondition(s)	Customer has ordered food in the Ordering Tab
Postcondition(s)	Customer finishes the transaction System records the transaction

Basic Flow (Online Payment)	1. Customer chooses 'Payment' option 2. System calculates the bill and processes to Customers and Clerk 3. Customer chooses between "Online Payment" and "Cash Payment" option 4. Customer chooses "Online Payment" option 5. Customer enter their information 6. Customer confirms sending their transaction request to third-party service 7. Clerk receives the transaction validation from third-party service 8. Receptionist confirms the transaction is successful 9. System records the transaction
Alternative Flow (cash Payment)	4a. Customer chooses "Cash Payment" Option 1. Receptionist receives the cash and confirms the payment 2. System records the transaction
Exception Flow	8a. The transaction is invalid 1. Receptionist confirms the transaction is not successful 2. Use-case returns back to step 1.

Feature 5: Viewing Statistics



Use Case ID	UC-5.1
Use Case Name	View Statistics
Description	Restaurant Manager can view the restaurant order and transaction history
Actor(s)	Restaurant Manager
Priority	Low
Trigger	Restaurant Manager want to view Restaurant's Statistics
Precondition(s)	Restaurant Manager has accessed to the system
Postcondition(s)	Restaurant Manager views the order and/or transaction

	history
Basic Flow	1. Restaurant Manager chooses the “View Order History” 2. System retrieves from the database and displays the Order History
Alternative Flow	1a. Restaurant Manager chooses the “View Transaction History” 1. System retrieves from the database and displays the Transaction History