I. Requirement

1. Glossary list

#	Name	Meaning
Related to human		
1	Staff	A person that works in the restaurant and have an account to use the system
2	Management Staff	A person with the highest authority including view statistics, manage dish information, make combo menus
3	Warehouse Staff	A person responsible for import materials from suppliers, manage supplier information
4	Sale Staff	A person who receives customers, takes orders, receives payments at the table, makes membership cards for customers, confirms table reservation information and order online
5	Customer	A person who benefits from the service, can search, book a table and order food online
6	Supplier	Partner providing raw materials and ingredients
Related to activity		
7	View statistics	An action of manager staff that viewing the information of dish (name, description, price), ingredient (name, price, stock), customer (name, phone, email), supplier (name, phone, address)
8	Manage dish information	An action of manager staff that including adding new dish, changing or deleting existed dish information (name, description, price) in database
9	Make combo menu	An action of manager staff that combining two or more dish into a combo menu (name, description, list of dishes, price) and insert its information into database
10	Import ingredients from suppliers	An action of warehouse staff that confirming all the ingredients brought from suppliers and insert new ingredient or update stock of the existed ingredients in database
11	Manage supplier information	An action of warehouse staff that adding new supplier information (name, phone, email) and changing or deleting existed supplier information in database
12	Receive customer	An action of sale staff that meeting customer at reception hall, checking customer's information (name, phone, email) and guild them
13	Take orders	An action of sale staff that taking note of customer's orders (list of dishes, beverages) face-to-face and inform to chefs
14	Receive payment at the table	An action of sale staff that receiving customer's payment after they finish their meal and print bill (id, name, list of dishes and combos, price for each and total)

15	Make membership card for customer	An action of sale staff that creating and issue a card for customer to earn loyal points for their next reservation
16	Confirm table reservation information	An action of sale staff that must do when customer come to restaurant. The customer will tell the sale staff about their name, phone number, the table they pre-booked and show the staff their mail that the restaurant sent to confirm their successful reservation. The sale staff will check their information and lead them to the table pre-booked.
17	Order online	An action of sale staff. The customer first calls the restaurant to book a table. The sale staff picks up and then checks the available table according to the schedule the customer gives them then informs the customer. If the customer agrees to the staff suggestion, the staff will ask the customer's information to make a table reservation and save it to database. After that, the sale staff will send a mail to confirm their successful reservation
18	Add new dish	An action of management staff that is included in manage dish information action. The management staff will select adding new dish option in the app interface then fill the dish information in (name, description, price). The dish information will be saved into database
19	Search table	An action of customer to search for available table in a specific time online
Related to object		
20	Dish	A specific type of food that has been prepared and is ready to be served or eaten. Its information will be saved into database (id, name, description, price)
21	Ingredient	A specific food item is used to make a dish. For example, in a salad, the ingredients are lettuce, tomatoes, cucumbers, and dressing. In a cake, the ingredients are flour, sugar, eggs, and milk. Its information will be saved into database (id, name, price)
22	Combo	Short for "combination," is a package deal that bundles several individual items together and sells them as a single offer, usually at a discounted price. In the context of a restaurant, a combo typically includes a main dish, a side dish, and a drink. Its information will be saves into database (id, name, list of dishes and beverages, price)
23	Menu	A list of the food and beverages that are available for purchase. The customers can see the menu online or menu book on the table. It contains name of the dish, price

24	Order	A request made by a customer to a restaurant for food and drinks. Customer can make order right at the table or via website (order online)
25	Payment	It is the process of a customer settling the cost of their order. The sale staff will receive money from customer and update payment information in database
26	Table	A physical location in the restaurant where customers are seated and is linked to a customer order
27	Membership card	A physical or digital card issued by the restaurant to its customers. It is linked to a customer's account in the system and grants them special privileges (such as discounts, loyalty points)

2. Project information

a. Object

A website system for restaurant management including viewing statistics (dishes, ingredients, customers, suppliers), managing dish information, making combo menus for manager; importing materials from suppliers, managing suppliers information for warehouse staff; receiving customers (taking orders, receiving payments at the table, make membership cards, confirm table reservation information) for sale staff. Booking table and order foods online for customer

b. Scope

- Staff:
  + Login/ logout
- Manager:
  + View statistics
  + Manage dish information
  + Making combo menus
- Warehouse staff:
  + Import materials from suppliers
  + Manage supplier’s information
- Sale staff:
  + Confirm table reservation
  + Taking order
  + Receiving payment
  + Make membership card for customer
- Customer:
  + Booking table
  + Order foods

c. How the module works

Management staff adds new dish: Staff logins into the system → selects the menu to manage dish information → selects the function of adding dish information →the system displays adding dish information interface with text fields (name, description, price) → enters dish information and clicks add → The system saves to the database.

Management staff views customer statistics: Selects the menu to view statistical reports → selects customer statistics by revenue → the system displays an interface with a combo box to select start and end date→ selects the time to start and end statistics → view with a list of customers (name, phone number, revenue)→ selects a customer to view expenses details at chosen start and end date → the system displays an interface with the order list that the customer has called (date, price) → selects view 1 order → views detail the selected order (list of dishes with number and price).

d. Information about objects

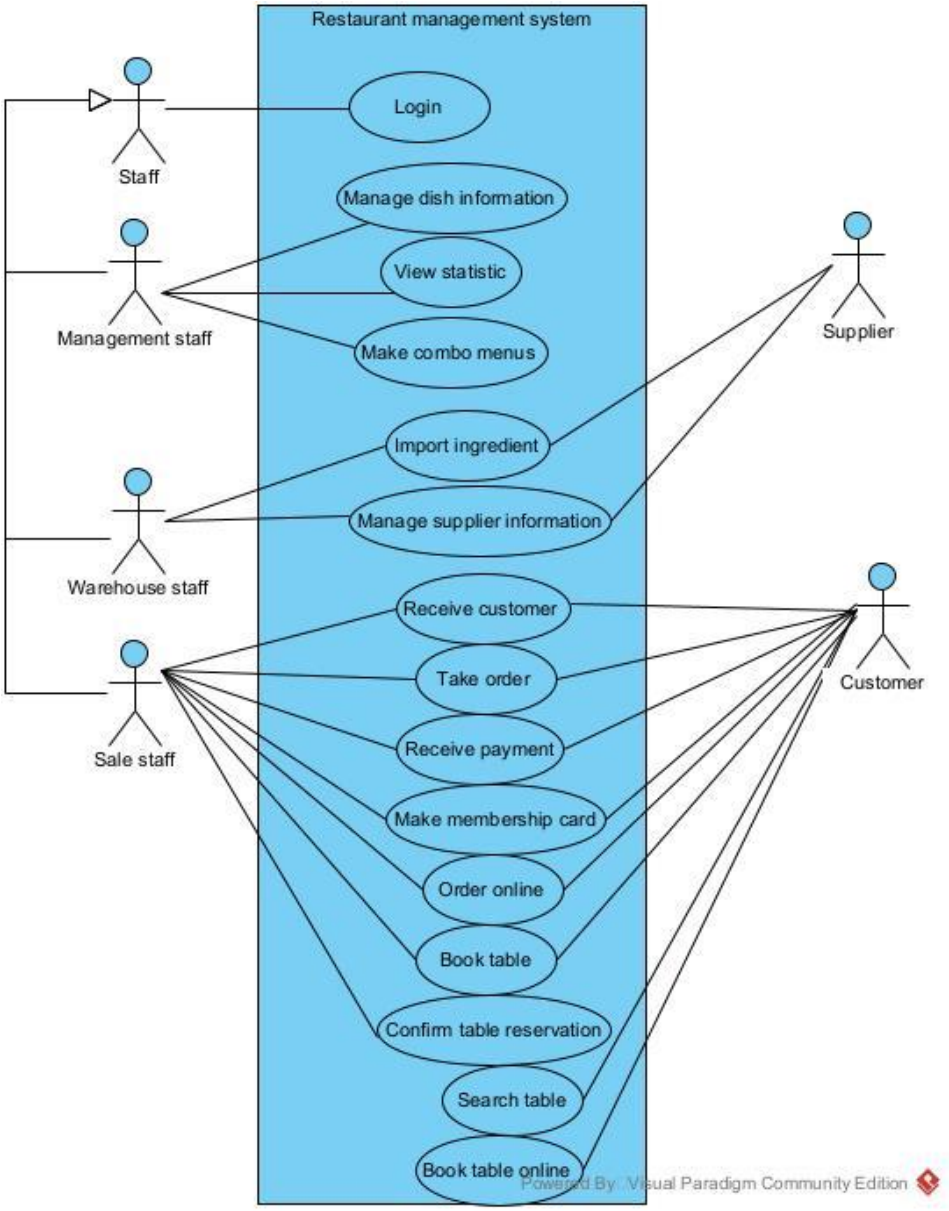
- Staff: username, password, name, phone number, email, role
- Customer: name, phone number, email
- Reservation:
- Invoice:
- Dish: name, description, price
- Order: date, price
- Table: type, available
- Supplier: name, phone, email
- Ingredient: name, stock, price
- Combo: name, price
- Membership: type, point, start date, due date

e. Relationships among objects

- Customer – Membership: 1 – 1
- Customer – Reservation: 1 – n
- Customer – Invoice: 1 – n
- Reservation – Order: 1 – n
- Reservation – Table: n – 1
- Reservation – Invoice: 1 – n
- Order – Invoice: n – 1
- Order – Dish: n – n
- Order – Combo: n – n
- Dish – Combo: n – n

3. Use case diagram

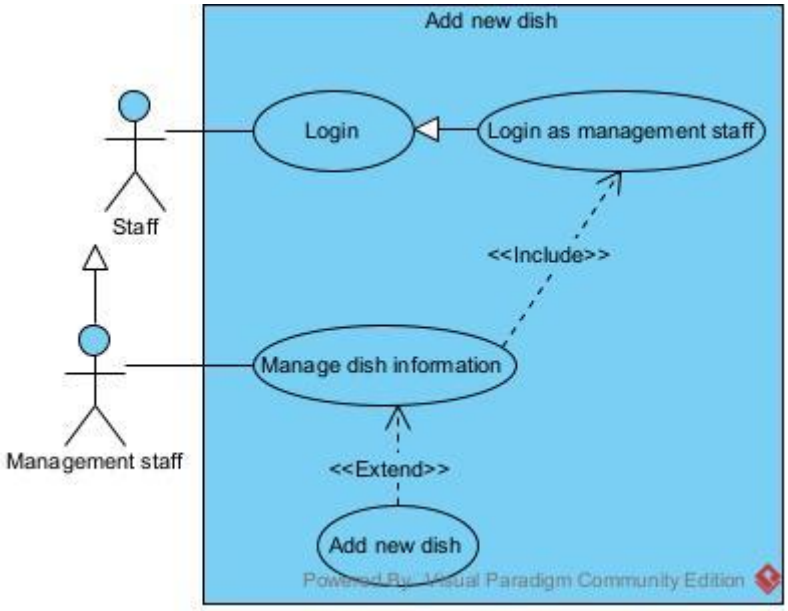
f. General use case



- Description:
  + Login: This use case enables the staff to login into the restaurant system
  + Manage dish information: This use case enables the management staff to adding new dish or change/delete exited dish
  + View statistic: This use case enables the management staff to view the information of dish, ingredient, customer, supplier
  + Make combo menus: This use case enables the management staff to make combo menus
  + Import ingredient: This use case enables the warehouse staff to import ingredient
  + Manage supplier information: This use case enables the warehouse staff to adding new supplier information or change/delete exited one
  + Receive payment: This use case enables the sale staff to receiving customer's payment after they finish their meal and print bill
  + Take order: This use case enables the sale staff to receive order offline

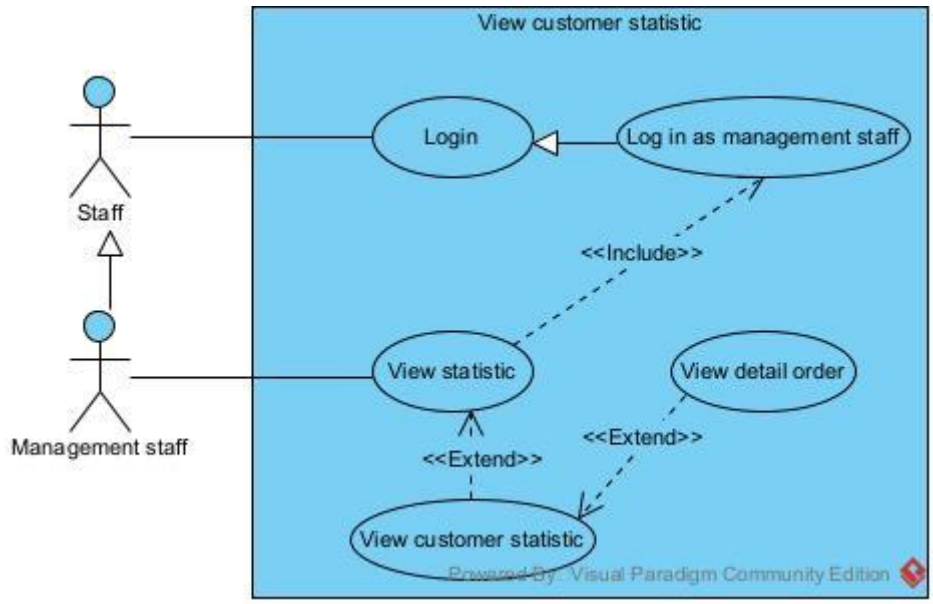
+ Confirm table reservation: This use case enables the sale staff to confirm the customer table reservation
+ Make membership card: This use case enables the sale staff to create and issue a card for customer to earn loyal points for their next reservation
+ Order online: This use case enables the customer to order online
+ Book table: This use case enables the sale staff to book table offline according to customer's request
+ Confirm reservation: This use case enables the sale staff confirm the reservation of the customer
+ Search table: This use case enables the customer to search for available table
+ Book table online: This use case enables the customer to book table online

g. Management staff adds new dish use case



- Login as management staff: This use case enables the management staff to login into their account
- Add new dish: This use case enables the management staff to add new dish into database

h. Management staff views customer statistic



- View customer statistic: This use case enables the management staff to view customer statistic
- View detail order: This use case enables the management staff to view a detail order in the list of orders of the selected customer

II. Analysis

1. Scenario

i. Module 1

Use case	Add new dish
Actor	Management staff
Pre-condition	The management staff has an account
Post-condition	The management staff has added new dish into database
Main events	1. The management staff logins with username = “a”, password = “12345” into the system to add new dish 2. The main interface which contains a Manage dish information button appears 3. The management staff selects the Manage dish information button 4. The system displays an interface with 2 buttons which is Edit dish and Add new dish 5. The management staff click the Add new dish button 6. The system shows the Add new dish interface with input of dish name, description, price and an Add button 7. The management staff enters dish name = “Noodle”, description = “a staple food made from unleavened dough that is rolled flat and cut, or extruded, into long strips or various other shapes”, price = “10.000” and clicks Add button 8. The system displays the success message box

	9. The staff clicks OK button 10. The system returns to the Add new dish interface
Exception	2. The system shows error message box 2.1. The management staff clicks OK button 2.2. The system returns to the login interface

j. Module 2

Use case	View customer statistics
Actor	Management staff
Pre-condition	The management staff has logged in the account
Post-condition	
Main events	1. After login, the management staff selects View statistics from the main interface 2. The system displays an interface that has 3 buttons which is View dish statistics, View customer statistics, View supplier statistic 3. The management clicks on View customer statistics 4. The system shows an interface with the input of start and end time of the statistics and a Search button 5. The management staff enters start time = "9/9/2025", end time = "16/9/2025" and click Search 6. The system displays a list of customers

#	Name	Phone	Email	Revenue
1	a	098720	A@gmai.com	1.000.000
2	ab	213230	AB@gmail.com	500.000

7. The management staff click on the first row of the list
8. The system displays the order list interface of the customer

#	Order date	Price	
1	10/9/2025	600.000	
2	13/9/2025	400.000	

9. The management staff select the first row
10. The system displays an interface contains order date = "10/9/2025", price = "600.000" and a list of dishes and combos that was ordered

#	Name	Price	Amount
1	Noodle	10.000	10
2	Korean combo	100.000	5

Exception	6. No customer displays on the list

3. Entity class

k. Step 1:

A restaurant management system enables management staff, sale staff and customers to use:

- Management staff: view statistics: dishes, ingredients, customers and suppliers. Manage dish information, make combo menus.
- Warehouse staff: import materials from suppliers, manage supplier information

- Sale staff: receive customers, take orders, receive payments at the table, make membership cards for customers, confirm table reservation information and order online.
- Customer: search, book a table and order food online.

l. Step 2 + 3:

- Restaurant: Out of scope => eliminate
- System: Too abstract => eliminate
- Management staff, sale staff, warehouse staff => Class Staff: username, password, name, role
- Statistics: Too abstract => eliminate
- Dishes => Class Dish: name, price, description
- Ingredients => Class Ingredient: name, price, amount
- Customers => Class Customer: name, phone, email
- Suppliers => Class Supplier: name, phone, email
- Information: Too general
- Combo => Class Combo: name, price, description
- Menu: Too general
- Orders => Class Order: price, note, type, status
- Payment => Class Invoice: price, payTime
- Membership card => Class Membership: type, point, startDate, dueDate
- Table => Class Table: type, available
- Reservation => Class Reservation: reservationTime, type
- Food: Too general

m. Step 4

- Customer – Membership: 1 – 1
- Customer – Reservation: 1 – n
- Customer – Invoice: 1 – n
- Reservation – Order: 1 – n
- Reservation – Table: n – 1
- Reservation – Invoice: 1 – n
- Order – Invoice: n – 1
- Order – Dish: n – n => create a new class DishOrder: amount
- Order – Combo: n – n => create a new class ComboOrder: amount
- Dish – Combo: n – n => create a new class DishCombo: amount

n. Step 5

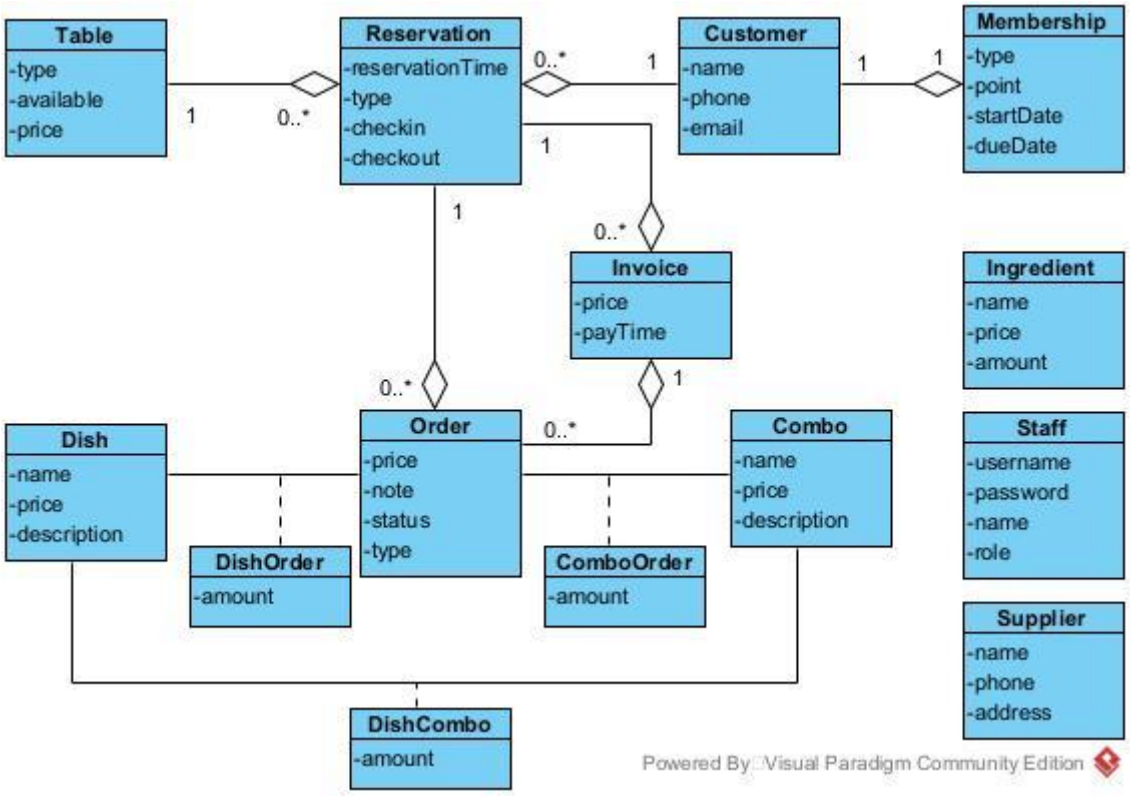


Table
-type
-available
-price
Reservation
-reservationTime
-type
-checkin
-checkout
Customer
-name
-phone
-email
Membership
-type
-point
-startDate
-dueDate
Invoice
-price
-payTime
Ingredient
-name
-price
-amount
Dish
-name
-price
-description
Order
-price
-note
-status
-type
Combo
-name
-price
-description
Staff
-username
-password
-name
-role
DishOrder
-amount
ComboOrder
-amount
Supplier
-name
-phone
-address
DishCombo
-amount
1
0..*
Powered By Visual Paradigm Community Edition