

HO CHI MINH CITY NATIONAL UNIVERSITY
HO CHI MINH CITY UNIVERSITY OF TECHNOLOGY



SOFTWARE ENGINEERING (CO3001)

ASSIGNMENT - TASK 1

RESTAURANT POS 2.0

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1 Introduction to project

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.

Even before the COVID-19 crisis, POS systems had gained traction across the industry. During the coronavirus pandemic, restaurants face greater peril than ever. Such systems are expected to increase business intelligence, reduce wasted effort and opportunity to scale to a large business. Moreover, the systems should support take-away options. Our customers have multiple restaurants and have a need to develop a responsive web-based POS system that implements the current business flow.

In this project, we will deploy an application web-based solution for POS systems which implements the functions for current restaurant business in relation to food order and table reservation, alerts, billing and payment, credit card processing, menu management and general management.

2 General features of project

Feature 1: Food ordering

Customer can choose different type of serving (take away, table serving, shipping). They can view the items' descriptions and make order (choose quantity, size, options). The order will be sent to the Clerk.

Feature 2: Menu management

Restaurant owners and managers can edit, add, remove dishes from the menu, update the prices and other information related to dishes.

Feature 3: Billing and Payment

The restaurant can issue invoices for customers. The information in the invoice includes name of dishes, price of each item, quantity, tax, total price to be paid, time of invoice creation, cashier name, etc. Customers can choose to pay by using cash or card. Cashier checks and confirms the payment.

Feature 4: General management

The general management includes order management, customer management and employee management. Order management includes managing the number of orders, generating sale reports, etc. Customer management includes the system stores customer invoice information, total recurring revenue, etc. Employee management includes employee's attendance, information, working hours, etc.

3 Project's scopes

Food ordering: The scope of this feature is to show the details of each dish on the menu when customers view the dishes. They can see an illustration of the dish and information about that dish like the price and description. When they choose to order that dish, they can choose the quantity, size and options about the dish (for example dish with/without onions, spicy level, etc) and can make a note for the Clerk.

Menu management: The scope of this feature is to present a general description about what dishes the restaurant can be served at the current time. To support for this purpose, the

menu provide the below function for user and system

Billing and Payment: This feature allows customers to choose the payment method that they find most convenient, from the available options offered by the restaurant such as cash, credit card, online banking, etc and the system will store the record of the transaction. The scope of this feature is that the system only supports the limited payment method options provided by the restaurant and only stores the record of the transaction that has been completed.

General management: The scope of this feature is to manage the restaurant, limited to activities related to POS systems that support system users to record, update and delete the information. Based on the recorded information, the system can perform recommendations (related to sales and inventory) as well as analyze activities to report to the manager and restaurant's owner. Furthermore, employees and customers can login into the system, view and update information if necessary. In addition, the system management also supports employees to view attendance (check in and check out at work); customers to sign up an account, view coupons and check for orders status.

4 Non-functional requirements

Usability

- Web application content will be written by the Vietnamese.
- Some actions are represented by icons instead of text.
- The system usability is easy to use and users generally don't need to look at the document to use.

Reliability: The data should be backed up periodically.

Availability: The system must be available from 7am to 9pm.

Maintainability:

- The system is divided into separate modules for easy maintenance.
- Can extendable to use in multiple restaurants.

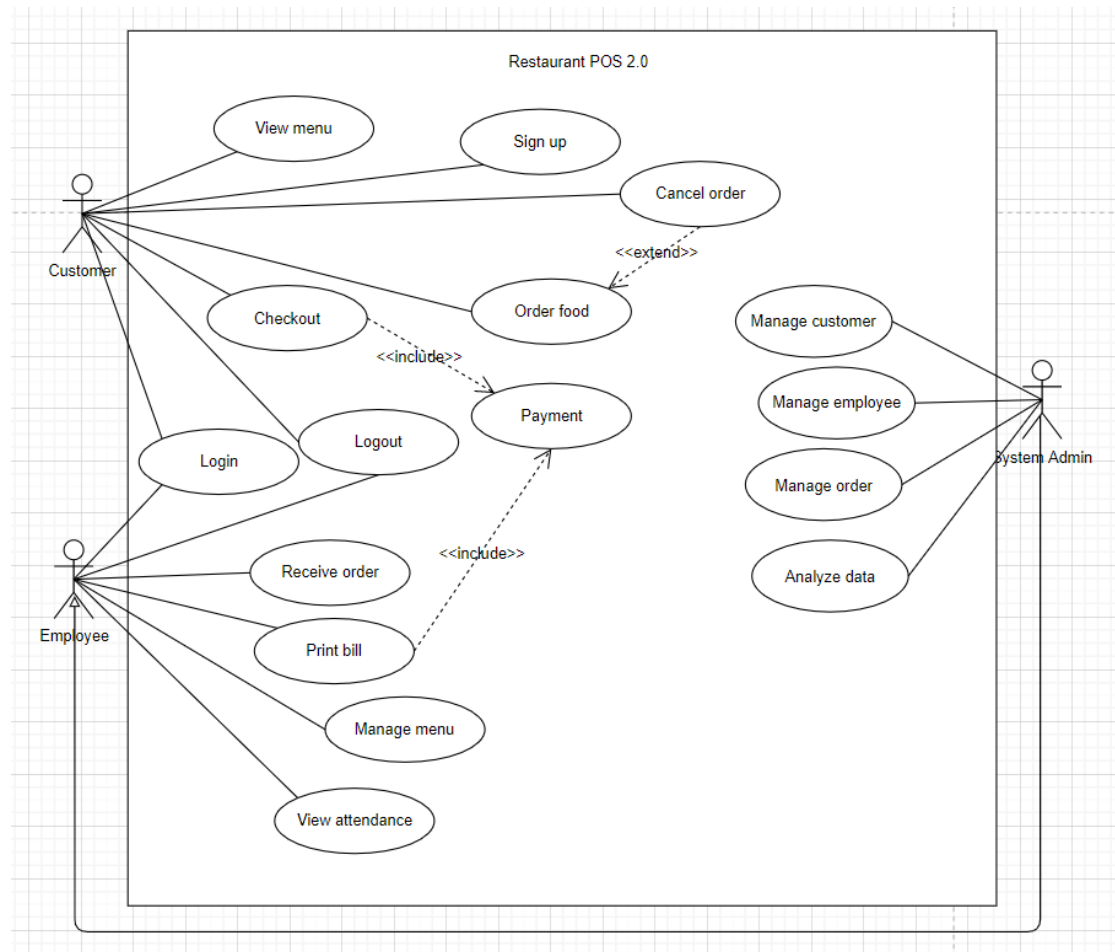
Portability:

- Using web technology and QR code.
- Usable from a mobile device, a tablet device or a normal computer/laptop.

Performance:

- System has been successfully tested with basic standards.
- Response time less than 2 seconds.
- The current transactions are about 300 orders per day.
- System can be accessed by 100 users at 1 time.

5 Project's Use-case

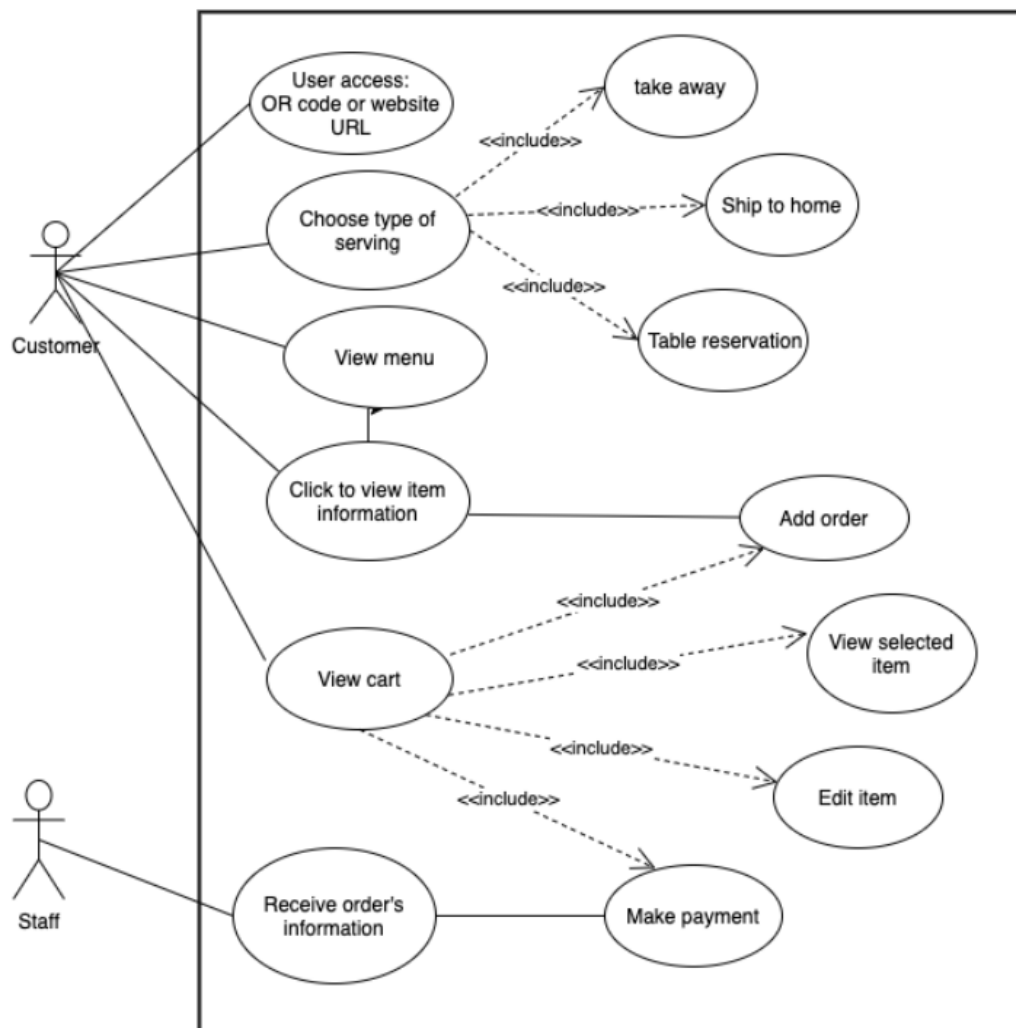


6 Work assignment

| Member | Function |
|----------------------|----------------------------------|
| NGUYỄN NGỌC HIỂN | Food order and table reservation |
| CHIÊNG PHI HOÀNG | Food order and table reservation |
| LÊ HỒNG NHẬT | Menu management |
| TRẦN QUANG KHẢ | Menu management |
| LƯƠNG ĐỨC DŨNG | Payment and Billing |
| VŨ ĐÌNH PHÚ | General management |
| NGUYỄN TRẦN QUẾ TRÂM | General management |

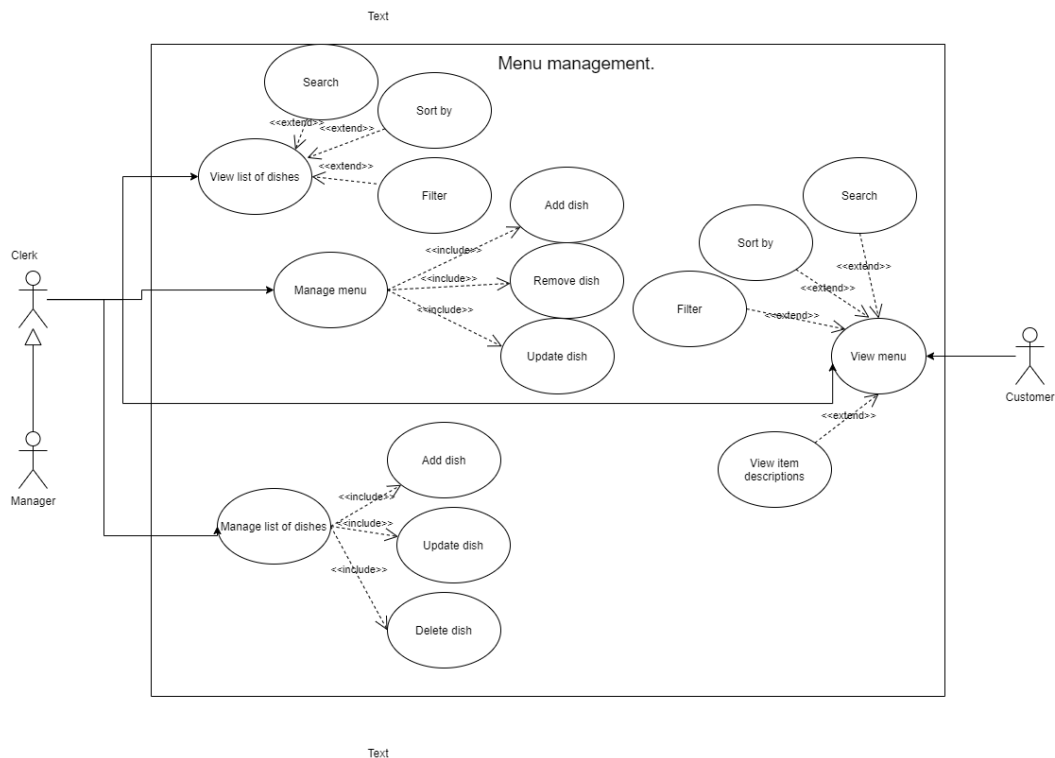
7 Features' details and Use-cases

Feature 1: Food ordering



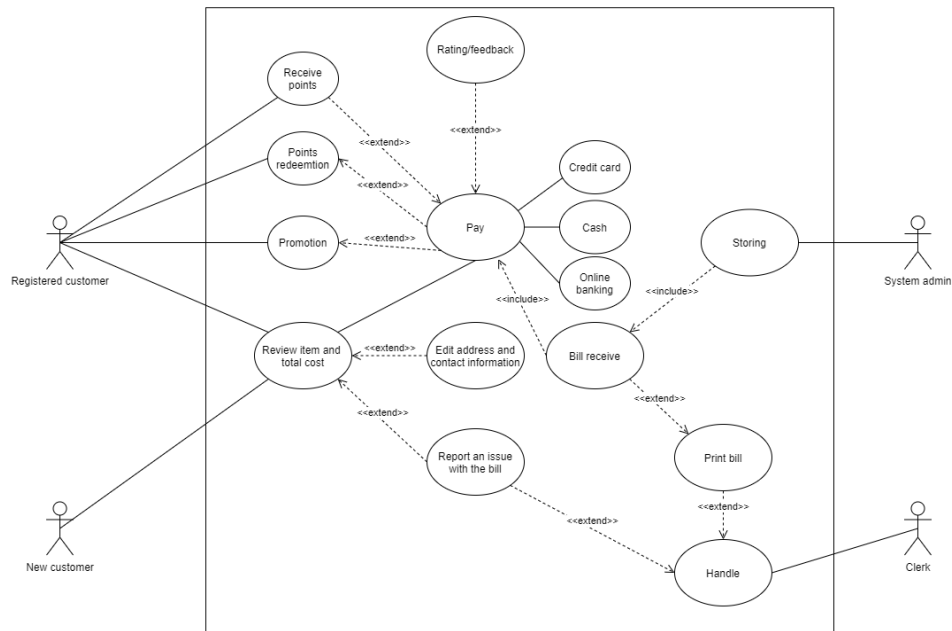
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|----------------------|--|
| Use-case name | Food ordering |
| Actors | Customer, Clerk |
| Description | Customer chooses and orders items |
| Preconditions | Website is available, Internet is available, Database is loaded |
| Normal Flow | <ol style="list-style-type: none"> 1. Access Web page 2. Customer views menu 3. Customer choose type of serving (take away, table serving or shipping to home), and choose table to reserve 4. Customer select a item and view item's details 5. If they want this item, make an order (choose quantity, size, options) 6. The item is added to cart 7. Continue to select other items (repeat from step 2) 8. After select all the items you want, view the cart's information 9. Customer can edit or delete the items they don't want anymore 10. Make a payment 11. Clerk receive order's information |

Feature 2: Menu management



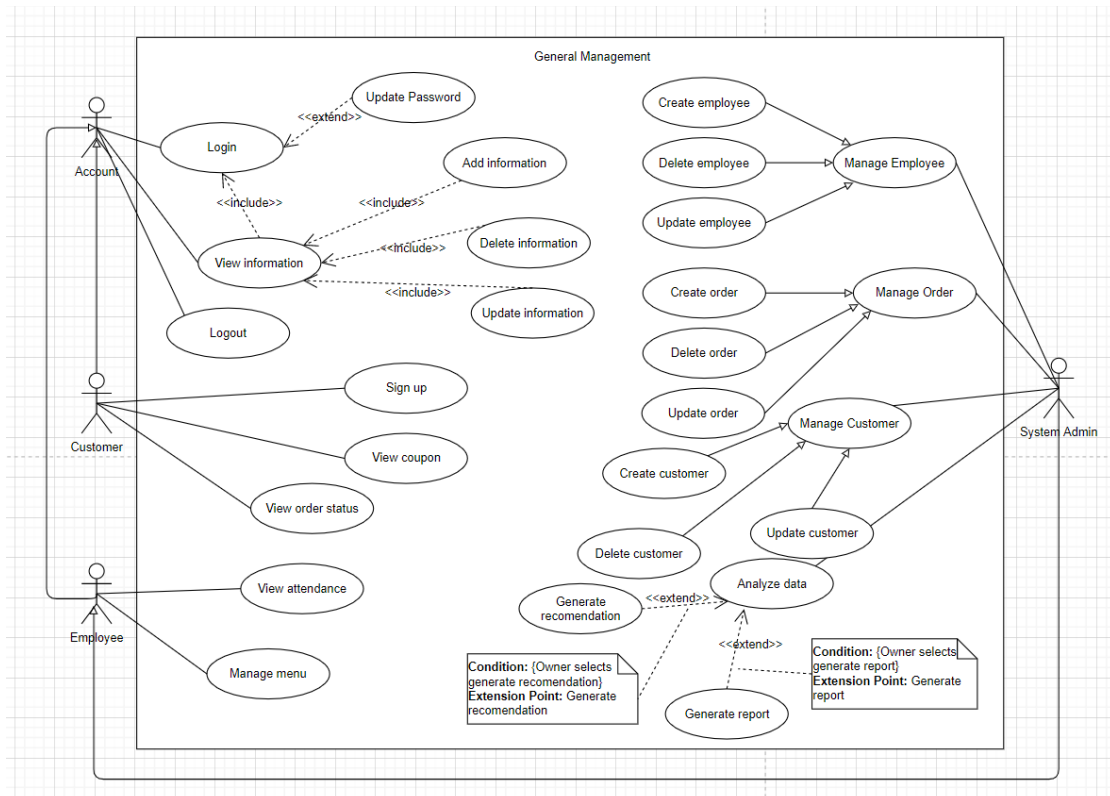
| | |
|----------------------|---|
| Use-case name | Menu management |
| Actors | Restaurant manager, clerk |
| Description | <p>The restaurant manager and clerk update the “list of dishes” to the database, add a description, price, image.</p> <p>“List of dishes” is where all dishes of restaurant are stored, menu dishes are added from the “list of dishes”.</p> <p>Remove, add, update dishes for menu and fixed dishes</p> |
| Preconditions | Website is available, Internet is available, Database is connected and loaded |
| Normal Flow | <p>1. Authorized people add the image, price, description, etc to the list of dishes</p> <p>Case 1:</p> <p>2. They can view the list of dishes</p> <p>Case 2:</p> <p>3. They can update or delete dishes on fixed dishes</p> <p>Case 3:</p> <p>4. They can add dishes and quantities of each dish to the restaurant’s menu every day</p> <p>5. They can remove or update dishes on the menu</p> <p>6. If the quantity is 0, temporarily show out of the stock or they can increase the quantity</p> |
| Exceptions | <p>If authorized people haven’t added any dishes to the list of dish (list of dishes has no items) then alert that “The list of dish has no items”. And authorized people can’t add item to the menu.</p> <p>If authorized people haven’t added any dishes to the menu (menu has no items) then alert that “The menu has no items”</p> |

Feature 3: Billing and Payment



| | |
|----------------------|---|
| Use-case name | Billing and payment |
| Actors | Registered customer, New customer, Clerk, System |
| Description | Customer reviews item list and makes payment. |
| Preconditions | The Internet is available, Website is available, Customer has finished ordering. |
| Normal Flow | <ol style="list-style-type: none"> 1. When the customer has finished ordering food. 2. Customer reviews item list. 3. If the customer is registered, they might be promoted with promotion. 4. Customer chooses a payment method. 5. If the customer is registered, they can choose to pay with reward points. 6. Customer is asked to check address and contact information one last time. 7. Customer makes payment. 8. Customer rates/gives feedback. 9. Customers receive reward points. 10. Customer receives a bill. 11. Clerk prints the bill if the customer is at the table. 12. System stores the bill. |
| Exceptions | <p>In case of take away, if the customers haven't filled in information like address, phone number, ... yet System will alert that "Please fill in all required fields".</p> <p>If the cart is empty or there is no item in progress of purchasing, the system will alert that "Please select at least one item".</p> |

Feature 4: General management



| | |
|----------------------|--|
| Use-case name | General management |
| Actors | Employee, Customer, System Admin |
| Description | The general management includes order management, customer management and employee management which support the management of employees and the general system of the restaurant related to ordering services. |
| Preconditions | Internet is available, The database must be connected and loaded |
| Normal Flow | <u>Employee management:</u> Employees login account for employee Employees check in and check out for view of attendance Employees update the information, if any. System load and update the information. <u>Customer management:</u> The system records customer information. The system records the invoice information. System load and update the information. <u>Order management:</u> System records the number of received orders, cancels orders and receives feedback System manages total orders from customers System collect feedback System load and update the information System generates data, generates sales reports to analyze and performs recommendations and quick snapshots and charts on your store's sales performance. System send summary of sale reports every day, week, month, quarter, year. |