

**VIETNAM NATIONAL UNIVERSITY HO CHI MINH CITY
UNIVERSITY OF INFORMATION TECHNOLOGY
FACULTY OF INFORMATION SYSTEM**



**FINAL PROJECT REPORT
INFORMATION SYSTEM ANALYST AND DESIGN**

TOPIC

BUILDING A COFFEE SHOP MANAGEMENT APPLICATION

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Thank you.

Group of authors

LECTURERS COMMENTS

List of Tables and Picture

- List of tables:

Table 1.1 Scope of the project

Table 2.1 Topic and requirement of question

Table 2.2 Outline of interview

Table 2.3 Questionnaire and recorded answers of manager

Table 2.4 Questionnaire and recorded answers of accountant

Table 2.5 Questionnaire and recorded answers of warehouseman

Table 2.6 Questionnaire and recorded answers of member

Table 2.7 Software requirements

Table 3.1 List of actors of the system

Table 3.2 List of use cases

Table 3.6.1 Table Employee

Table 3.6.2 Table Employee Controller

Table 3.6.3 Table Employee Management GUI

Table 3.6.4 Login GUI

Table 3.6.5 Customer

Table 3.6.6 Customer information GUI

Table 3.6.7 Customer Information Management GUI

Table 3.6.8 Customer Controller

Table 3.6.9 Invoice

Table 3.6.10 Invoice Management GUI

Table 3.6.11 Invoice Controller

Table 3.6.12 Drinks

Table 3.6.13 Drinks Controller

Table 3.6.14 Manage Drinks GUI

Table 3.6.15 Goods

Table 3.6.16 Goods Controller

Table 3.6.17 Manage Goods GUI

Table 3.6.18 Import

Table 3.6.19 Manage Import

Table 3.9.1 EMPLOYEE

Table 3.9.2 INVOICE

Table 3.9.3 CUSTOMER

Table 3.9.4 IMPORT

Table 3.9.5 DRINKS

Table 3.9.6 ORDER

Table 3.9.7 GOODS

Table 3.9.8 PROCESS

Table 4.1 Main pages in program

Table 5.1 Division and evaluate member's working process

- List of pictures:

Picture 2.4 Existing system of Coffee Management System

Picture 2.5 Human Resources Department

Picture 2.6 Accounting Department

Picture 2.7 Customer Care Department

Picture 2.8 Import Management Department

Picture 3.1 Use-case Diagram of the system

Picture 3.2 Use-case Diagram of Manage Employee Information

Picture 3.3 Use-case Diagram of Manage Customer Information

Picture 3.4 Use-case Diagram of Manage Invoice

Picture 3.5 Use-case Diagram of Manage Revenue

Picture 3.6 Use-case Diagram of Manage Drinking

Picture 3.7 Use-case Diagram of Manage Goods

Picture 3.8 Use-case Diagram of Manage Import

Picture 3.9 Use-case Diagram of Order Process

Picture 3.10 Use-case Diagram of Order Online Process

Picture 3.4.1 Login activity diagram

Picture 3.4.2 Insert invoice activity diagram

Picture 3.4.3 Edit invoice activity diagram

Picture 3.4.4 Delete invoice activity diagram

Picture 3.4.5 Search invoice activity diagram

Picture 3.4.6 Revenue management activity diagram

Picture 3.4.7 Insert employee activity diagram

Picture 3.4.8 Edit employee activity diagram
Picture 3.4.9 Delete employee activity diagram
Picture 3.4.10 Search employee activity diagram
Picture 3.4.11 Show employee's salary report activity diagram
Picture 3.4.12 Delete employee activity diagram
Picture 3.4.13 Insert drinks activity diagram
Picture 3.4.14 Edit drinks activity diagram
Picture 3.4.15 Delete drinks activity diagram
Picture 3.4.16 Search drinks activity diagram
Picture 3.4.17 Insert customer activity diagram
Picture 3.4.18 Update/Search customer activity diagram
Picture 3.4.19 Search goods activity diagram
Picture 3.4.20 Search goods activity diagram
Picture 3.4.21 Delete goods activity diagram
Picture 3.4.22 Import management activity diagram
Picture 3.4.23 Order process activity diagram
Picture 3.4.24 Online order process activity diagram
Picture 3.5.1 Login sequence diagram
Picture 3.5.2 Login class diagram
Picture 3.5.3 Revenue management sequence diagram
Picture 3.5.3.1 Revenue management class diagram
Picture 3.5.4 Insert employee sequence diagram
Picture 3.5.5 Insert employee class diagram
Picture 3.5.6 Delete employee sequence diagram
Picture 3.5.7 Delete employee class diagram
Picture 3.5.8 Edit employee sequence diagram
Picture 3.5.9 Edit employee class diagram
Picture 3.5.10 Employee's salary sequence diagram
Picture 3.5.11 Employee's salary class diagram
Picture 3.5.12 Search employee sequence diagram
Picture 3.5.13 Search employee class diagram
Picture 3.5.14 Edit goods sequence diagram
Picture 3.5.15 Edit goods class diagram

Picture 3.5.16 Search goods sequence diagram
Picture 3.5.17 Search goods class diagram
Picture 3.5.18 Delete goods sequence diagram
Picture 3.5.19 Delete goods sequence diagram
Picture 3.5.20 Import goods sequence diagram
Picture 3.5.21 Import goods class diagram
Picture 3.5.22 Shipment Lookup sequence diagram
Picture 3.5.23 Shipment Lookup class diagram
Picture 3.5.24 Insert drinks sequence diagram
Picture 3.5.25 Insert drinks class diagram
Picture 3.5.26 Update drinks sequence diagram
Picture 3.5.27 Update drinks class diagram
Picture 3.5.28 Delete drinks sequence diagram
Picture 3.5.29 Delete drinks class diagram
Picture 3.5.30 Search drinks sequence diagram
Picture 3.5.31 Search drinks class diagram
Picture 3.5.32 Insert invoice sequence diagram
Picture 3.5.33 Insert invoice class diagram
Picture 3.5.34 Delete invoice sequence diagram
Picture 3.5.35 Delete invoice class diagram
Picture 3.5.36 Edit invoice sequence diagram
Picture 3.5.37 Edit invoice class diagram
Picture 3.5.38 Search invoice sequence diagram
Picture 3.5.39 Search invoice class diagram
Picture 3.5.40 Insert customer sequence diagram
Picture 3.5.41 Search / Update customer sequence diagram
Picture 3.5.42 Update customer sequence diagram
Picture 3.5.43 Search customer sequence diagram
Picture 3.5.44 Manage customer sequence diagram
Picture 3.5.45 Member - Order process sequence diagram
Picture 3.5.46 Customer is member class diagram
Picture 3.5.47 Customer isn't member sequence diagram
Picture 3.5.48 Customer isn't member class diagram

Picture 3.5.49 Customer is member sequence diagram
Picture 3.5.50 Customer is member class diagram
Picture 3.5.51 Customer isn't member sequence diagram
Picture 3.5.52 Customer isn't member sequence diagram
Picture 3.7.1 Order and serving state diagram
Picture 3.7.2 Import goods state diagram
Picture 3.8 ERDs model
Picture 3.10.1 Level 0 DFDs Model
Picture 3.10.2 Level 1 DFDs Model
Picture 4.2.1 Login frame
Picture 4.2.2 Revenue statistic frame
Picture 4.2.3 Product management frame
Picture 4.2.4 Insert frame in Produce Management
Picture 4.2.5 Update frame in Produce Management
Picture 4.2.6 Invoice management frame
Picture 4.2.7 User Management
Picture 4.2.8 Insert employee frame in User management
Picture 4.2.9 Update employee frame in User management
Picture 4.2.10 Warehouse management frame
Picture 4.2.11 Import goods frame in Warehouse management
Picture 4.2.12 Delete goods frame in Warehouse management
Picture 4.2.13 Sales management frame
Picture 4.2.14 Invoice management frame
Picture 4.2.15 Customer management frame
Picture 4.2.16 Insert customer's information frame
Picture 4.2.17 Update customer's information frame
Picture 4.2.18 Revenue Statistic
Picture 4.2.19 Inventory management frame
Picture 4.2.20 Import goods
Picture 4.2.21 Delete goods

Tables of content

List of Tables and Picture	4
CHAPTER 1: INTRODUCTION	1
1.1 Problem	1
1.2 Solution	2
1.3 Aims	2
1.4 Functions	2
1.5 Scope of projects	3
1.6 Tools	5
CHAPTER 2: REQUIREMENT SPECIFICATION	5
2.1 Situation survey	5
2.1.1 Interview	5
2.1.2 Survey of existing system.	14
2.1.3 Business process	14
2.2 Software requirements	18
2.2.1 Functional requirements	18
2.2.2 Non-functional requirements	19
CHAPTER 3: ANALYSIS AND DESIGN	21
3.1 Use-case Diagram	21
3.2 List of actors	25
3.3 List of use cases	26
3.4 Describe use cases and activity diagrams	27
3.4.1 Use Case Login.	27
3.4.2 Use Case Invoices Management	28
3.4.3 Revenues Management	31
3.4.4 Employees Management	32
3.4.5 Drinks Management	36
3.4.6 Customers Management	38
3.4.7 Goods Management	41
3.4.8 Import Management	43
3.4.9 Order Process	44
3.4.10 Order Online Process	45

3.5. Sequence Diagram and Class Diagram	47
3.5.1 Login	47
3.5.2 Revenue Management	48
3.5.3 Employees Management	50
3.5.4 Goods Management	57
3.5.5 Import Management	61
3.5.6 Drinks Management	64
3.5.7 Invoices Management	69
3.5.8 Customers Management	74
3.5.9 Order Process	77
3.5.10. Order Online Process	79
3.6 Describe Class Diagram	82
3.7. State Diagram	96
3.7.1 Order and serving	96
3.7.2 Import Goods	97
3.8 ERDs model	98
3.9 Mapping to Relational Model from ERDs	99
3.9.1 Relational Model	99
3.9.2 Data organization	99
3.9.3 Describe table	100
3.10 DFDs Model	103
3.10.1 Level 0	103
3.10.2 Level 1	103
CHAPTER 4: IMPLEMENTATION AND TESTING	104
4.1 List of main pages of the program	104
4.2 User Interface	105
CHAPTER 5: CONCLUSION	116
5.1 Achievement	116
5.2 Self-assessment	116
Division and evaluate member's working process	119

CHAPTER 1: INTRODUCTION

First of all, all members in the group are honored to give our teachers an overview of the project. We are doing a project that analyzes and designs a Coffee shop management information system. This report includes 5 parts:

- **Part 1: Giving an overview of the project**

In this part, we will introduce the reason why we choose the topic, content, scope of project and summarize the problem.

- **Part 2: Specification and analyst requirements**

In this part, we will sum up briefly the operation of the coffee shop and job description as well as professional competence that is in a coffee shop. Then we will give methods to solve this given problem.

- **Part 3: Analyzing and designing the system**

In this part, we will go into the details of analyzing and designing management systems, actors which have direct impacts on the system, steps to handle and detailing functions based on diagrams.

- **Part 4: Implementation and testing**

In this part, we will show some main interfaces used for typical user's tasks and describe some test cases

- **Part 5: Conclusion**

In this part, we will give opinions after building our software, limitations and achievements of this project

1.1 Problem

In recent years, the demand for drinking has increased dramatically in Viet Nam. According to some reports, 90% Vietnamese drink something everyday so to meet their needs, various trademarks have been formed and developed strongly up to now such as The Coffee House, Highlands, Phuc Long,... To become the first-picking of customers, there has been a competition in service and operation among enterprises. This is not only about time-efficiency and labor-saving but also provides the best service, as well as customer care. Thanks to the development of information technology, these processes have become easier than ever. All of details have been installed, calculated in computers like total price, customers' drinking note,... This way of managing information is now common in all coffee shops, replacing the traditional method of recording and calculating that wastes a lot of time in the past.

Moreover this obsolete approach can make undesirable mistakes. This leads to customers' misinformation as well as wrong calculation which can be a big defect in customers' eyes. We realize creating or having a program to manage the process is necessary nowadays.

Phuc Long has adapted to advanced technology as well as multiple applications with various functions such as: manage orders and table, handle calculation, customers' information,.... However, there are still some activities that require employees to work manually everyday such as insert or update when filling goods into the coffee house, counting the total money after the shift-working,...

To solve the above problem requires a practical solution that can be an aggregation and management system to synchronize the customer data. As well as the management process is necessarily standardized to achieve better efficiency.

1.2 Solution

It's much more convenient and easier for businesses to create a management application that can improve errors, respond to 50 requirements at the same time when the coffee shop is crowded as well as support the most precise data effectively. Furthermore, the application can be used to manage different types of coffee shops.

Management software is a flexible and convenient form of management for users. Using the software makes it easier to import, export, report and serve customers. Besides, this helps save time and money for shop owners to meet all the requirements that users set.

1.3 Aims

The coffee shop management application have to meet the demands below:

- Reliable and automatic database management.
- Updating database quickly, exactly and timely.
- Reducing the number of notes to store information.
- Having the ability to store information for a long time, ensures that it is convenient when needing to query a database.
- Fully manage personal information of staff members.
- Managing orders processing.
- Managing database for further information retrieval, data restoration, synchronization and advancement.

1.4 Functions

It is required to build easy-to-use management software from preparation to payment. So our group requested to build software with the following functions:

- Functions for managers: Add, delete, edit menu items, types of dishes, tables, manage employees, check invoices, edit invoices, add, change regulations, promotions, advertising incentives for stores, restore accounts for employees.
- Function of staff: view list of dishes, group of dishes, order dishes according to customer's request, make and pay bills, change the status of the table, search, ...
- The administrator who wants to use the system must have an account to log in to the system, currently the account with the most permissions is admin.
- Employees who want to use the basic functions of the system must have a login account with default permissions (employee account) to be allowed to use it.
- The number of items ordered can not exceed the number of items currently in stock.
- Customers who want to pay should contact the staff, the system will automatically issue a payment slip.
- The administrator will track through the monthly or daily statistics of the invoice, convenient to track revenue, convenient for managing inventory, items and types of items.

1.5 Scope of projects

Complete in creating and developing a management application that useful, friendly and easy to use for business.

The construction of the project application focuses more on key features: managing the process of order, payment and serving customers, managing guests' as well as employees' information.

No.	Scope of the project	Meaning
1	Drinks management in the menu	Add, search, update, delete drinks in the menu
2	Invoice management in the system database	Add, search, update, delete invoices in the system database

3	Customer management in the system database	Add, search, update customers' information in the system database
4	Goods management in the system database	Add, search, update, delete goods' information in the system database
5	Shipment management and import goods in the system database	Add, search shipment in the system database
6	Employee management in the database	Add, search, update, delete customers' information in the system database
7	Ordering process management	Make payment and process order in the system database
8	Calculating the total of bills	Calculating the total of bills
9	Calculating employees' salary	Calculating employees' salary
10	Calculating accumulated points of customers	Calculating accumulated points of customers
11	Showing the statics of revenues	Show the statics of revenues

12	Showing the statistics of customers	Show the statistics of customers
13	Showing the statistics of the number of drinks	Show the statistics of the number of drinks

Table 1.1 Scope of the project

1.6 Tools

While doing the final project, our group used several applications to support, draw for research and study, including:

- IDE: NetBeans
- Server: Microsoft SQL server
- Some other UI Design Tools: Draw.io, PowerDesigner, UML Star,..

CHAPTER 2: REQUIREMENT SPECIFICATION

2.1 Situation survey

First of all, we realized that Phuc Long company has limitations beside a lot of advanced functions such as: we have to wait for a long time to order because the process of input information is too long as well as the process of importing goods. So we made an appointment with Miss Hoang Anh – manager of Phuc Long at 63 Mac Thi Buoi street, Ben Nghe ward, District 1, Ho Chi Minh city to interview some questions that related to our management system of Phuc Long as well as the way it operates in daily life.

2.1.1 Interview

Interview plan

Company's name: Phuc Long

Interviewer: Le Thi Ngoc Hao

Date: 30/4/2022

No.	Topic of the question	Requirement	Starting Date	Ending Date
1	The process of order drinks and make payment	Clearly understand the process how to order	2/5/2022	2/5/2022
2	The process of storing customer's data	Clearly understand the process of collecting and analyzing (grouping) guest's contact and special needs	2/5/2022	2/5/2022
3	The process of manage and store staff member's data	Clearly understand the process of collecting and analyzing (grouping) staff member's data	2/5/2022	2/5/2022
4	The process of manage input goods that provide by supplier	Clearly understand the steps of importing goods to the chamber and how to store and manage it.	2/5/2022	2/5/2022
5	The process of serving in each table	Clearly understand the steps of order,make payment and serving customer in each table	2/5/2022	2/5/2022

6	The process of statistics	Clearly understand the statistical report based on quarter and annual database and sales.	2/5/2022	2/5/2022
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Table 2.1 Topic and requirement of question

INTERVIEW PLAN <i>Company's name: Phuc Long company</i>	
<u>Interviewee:</u> Ms. Hoang Anh – manager of Phuc Long Ms. Minh Anh - accountant of Phuc Long Mr. Minh - warehouseman of Phuc Long Mr. Kien - customer of Phuc Long <u>Interviewer:</u> Le Thi Ngoc Hao, Truong My Song Dan <u>Location:</u> Phuc Long 63 Mac Thi Buoi street, Ben Nghe ward, District 1, Ho Chi Minh city, in the staff room. <u>Target after interviewing:</u> Learn and understand the way Phuc Long operates. <u>Starting time:</u> 13h, 2/5/2022. <u>Ending time:</u> 21h, 2/5/2022.	
Details of the interview: <ul style="list-style-type: none"> ● Introduction ● Overview the operation of the coffee shop ● Overview the interview For the accountant: <u>Topic 1:</u> The process of storing customer's data <u>Topic 2:</u> The process of manage and store invoices in store <u>Topic 3:</u> The process of manage input invoices to Phuc Long's data <u>Topic 4:</u> The process of invoices statistics	Estimated time: 8 hours

For the warehouseman:

Topic 1: The process of storing goods' data

Topic 2: The process of manage and store goods' data

Topic 3: The process of manage input goods to Phuc Long's storage

Topic 4: The process of commodity statistics

For the manager:

Topic 1: The process of order drinking and make payment

Topic 2: The process of storing customer's data

Topic 3: The process of manage and store staff member's data

Topic 4: The process of manage input goods that provide by supplier

Topic 5: The process of serving in each table

Topic 6: The process of statistics

For the customer:

Topic 1: Introduce about customer's information

Topic 2: Customer's reason to become a vip member at Phuc Long

Topic 3: Difference of Phuc Long with others brand

Topic 4: Customer's opinion in limitation of Phuc Long

Topic 5: Customer's opinion in human resource management

Topic 6: Planning to stick with Phuc Long in the future

Overall Observation

Cost overrun

Table 2.2 Outline of interview

<p>Interviewee: Miss Hoang Anh – the manager at Phuc Long coffee and tea Date: 2/5/2022</p>		
<i>Table of questions and answers</i>		
Topic 1	<p><u>Question 1:</u> How many types of drinking in the coffee shop? How is the quality of each type ?</p> <p><u>Question 2:</u> Why should we divide drinking into different types ?</p>	<p><u>Answer 1:</u> Our coffee shop has various types of drinking and is divided into 5 groups: milk tea, fruit tea, coffee, ice blended and healthy drinking such as juice and smoothie. Moreover, we also serve bread for breakfast. Of course we just only use fresh and healthy ingredients because customer's health is our number one priority.</p> <p><u>Answer 2:</u> Diverse drinking will bring more choices for customers as well as aim for each type of individual. For example, coffee is mostly consumed by men, juice or smoothie is always the first-pick for losing weight and fruit tea is popular with teenagers nowadays.</p>
Topic 2	What customer's information do we need to save?	We have a card called membership. When you first buy in our coffee shop, you will be able to get this card. This card will store all basic information about you such as name, address, telephone number and points to get discount or update to higher rank. We have member rank, vip rank and platinum rank.
Topic 3	<p><u>Question 1:</u> What employee's information do we need to save?</p>	<p><u>Answer 1:</u> When you become a part of our family, you have to fill in a paper which includes your name, telephone number, email, address, day of birth,..</p>

	<u>Question 2:</u> How to manage employees?	<u>Answer 2:</u> All the data and the information of employees will be stored in the system in a clear way.
Topic 4	What information should I take note when entering the goods that are provided by the supplier?	All the goods that enter into the warehouse have to take note carefully without mistake. We have to check the quantity, price, date, supplier's name, supplier's address as well.
Topic 5	Could you mind telling me the process of serving customers at each table ?	Our coffee shop is now operating by the way called "Self-serving". You have to order and get your drink by yourself. But if you face any difficulty, our staff is always ready to help you.
Topic 6	<u>Question 1:</u> Where will be bills and revenue stored? <u>Question 2:</u> How do you summarize and analyze all the bills as the revenue?	<u>Answer 1:</u> All of the orders and receipts will be stored monthly in a private computer. <u>Answer 2:</u> All the receipts and bills will be saved after shift-working. Then, we have to summarize and compare the revenue in a day in order to check if have any mistake or not.

Table 2.3 Questionnaire and recorded answers of manager

Interviewee: Ms Minh Anh – the accountant at Phuc Long coffee and tea Date: 2/5/2022		
<i>Table of questions and answers</i>		
Topic 2	What customer's information do we need to save?	Being an accountant in Phuc Long for several years, I think we just need to save some basic information like name, sex and score they have. We can save the year of birth too if you need.
Topic 3	<u>Question 1:</u> What employee's information do we need to save?	<u>Answer 1:</u> I don't know much about employee management because I'm just an accountant but I think we need to save some basic information

	<p>like name, ID of employee, sex, day of birth and others information we can see in their CV but we just save some information that we think it is important</p> <p><u>Answer 2:</u> Saving their data in our software</p> <p><u>Question 2:</u> How to manage employees?</p>	
Topic 4	<p><u>Question 1:</u> What information should I take note when entering the goods that are provided by the supplier?</p>	<p><u>Answer 1:</u> We have a private software to manage our bills.</p> <p><u>Answer 2:</u> As I said, we consider the number of bills per day, month and year and give it to managers to aggregate revenue</p>

Table 2.4 Questionnaire and recorded answers of accountant

<p>Interviewee: Mr. Minh – the warehouseman at Phuc Long coffee and tea Date: 2/5/2022</p> <p style="text-align: center;"><i>Table of questions and answers</i></p>		
Topic 1	What goods' information do we need to save?	We save the main information about that good like name, export company, quantity, date of goods
Topic 2	How to manage goods?	Like what accountants do, we enter each good import for a day to summarize at the end of the month. I think that the suitable way for us and accountants too because it easy to manage quantity of each good
Topic 3	What information should I take note when entering the goods in the storage?	The data entry of the goods is very important because it is easy to cause errors, so it is necessary to carefully enter the quantity and the total amount of the goods
	<u>Question 1:</u> Where will be bills and revenue stored?	<u>Answer 1:</u> After enter all the goods, we give the bill of goods for accountant to summarize and analyze it

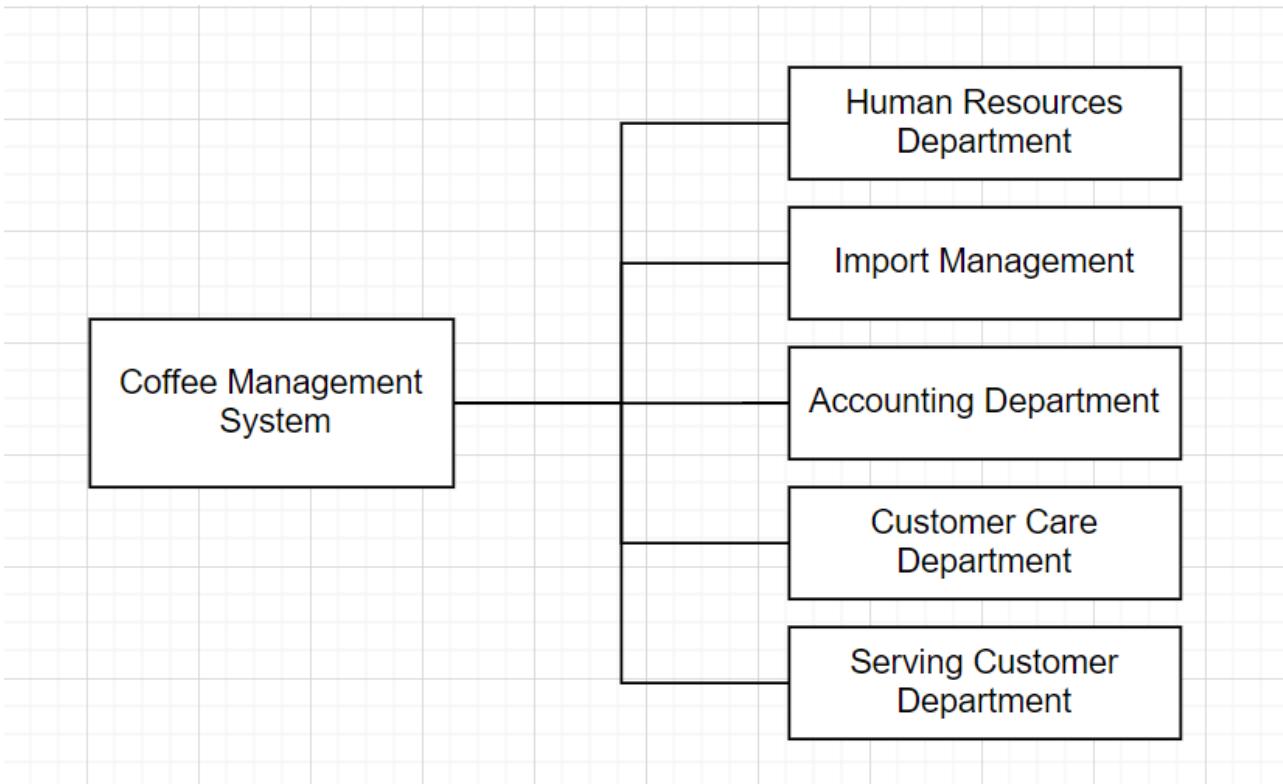
Topic 4		
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Table 2.5 Questionnaire and recorded answers of warehouseman

<p>Interviewee: Mr Kien - Vip member at Phuc Long coffee and tea. Date: 2/5/2022</p>		
<i>Table of questions and answers</i>		
Topic 1	Can I ask you some information about yourself?	I'm Kien and I'm an officer and I usually work at Phuc Long when I don't have anything to do in my company
Topic 2	What do you like at Phuc Long? What is the reason for you to become a vip member?	I like the space and decoration of Phuc Long. I feel more focused on work but also more relaxed so Phuc Long becomes my favorite place when I want to do my work.
Topic 3	What do you think makes Phuc Long stand out from the competition at the moment?	I think the management of the staff system, diverse menu and customer service makes Phuc Long stand out the most. The way they take care of their customers and strict system makes Phuc Long become more professional.
Topic 4	What do you think is Phuc Long's limitation?	There are not really promotions or deep discounts for customers. In addition, the price of Phuc Long's drink is also a problem when it is quite high compared to the common ground.
Topic 5	If you are a manager at Phuc Long, what will you do to manage your employees?	I think if I were the manager at Phuc Long, I would keep the current Phuc Long system because in my opinion, Phuc Long's system is stable and sustainable in the future because it is managed on a separate system.
Topic 6	Do you still want to stick with Phuc Long in the future?	Yes, of course. Phuc Long is still my best choice at the moment.

Table 2.6 Questionnaire and recorded answers of member

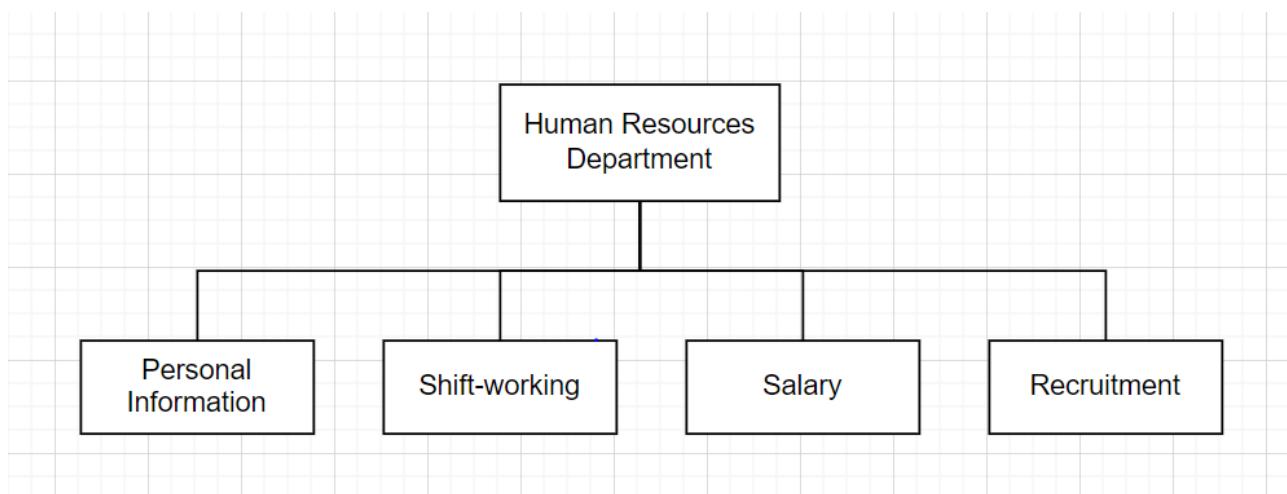
2.1.2 Survey of existing system.



Picture 2.4 Existing system of Coffee Management System

2.1.3 Business process

2.1.3.1 Human Resources Department

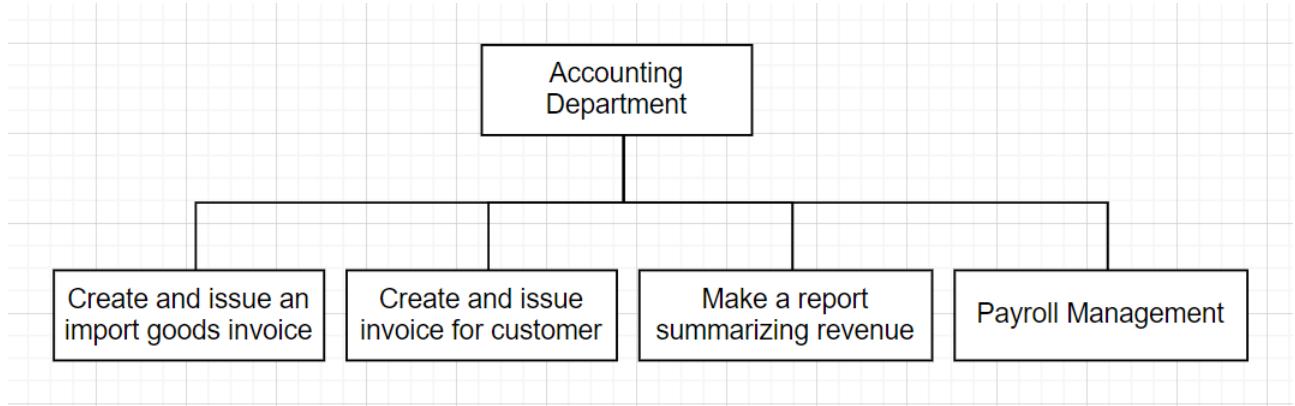


Picture 2.5 Human Resources Department

The Human Resources Department is to supervise and evaluate the working process of member staff in the coffee shop. This department includes of:

- Personal information of staff member
 - Import employee's information into the system database.
 - Update / Delete / Add employee's regular data, information in the system.
 - Stored hours, day, shift-working, extra-hours to export salary
- Shift-working
 - Arrange individual working schedules of employees.
- Salary
 - Negotiate suitable salary for employee based on the position.
- Recruitment
 - Recruit and select new employees into the coffee shop.

2.1.3.2 Accounting Department

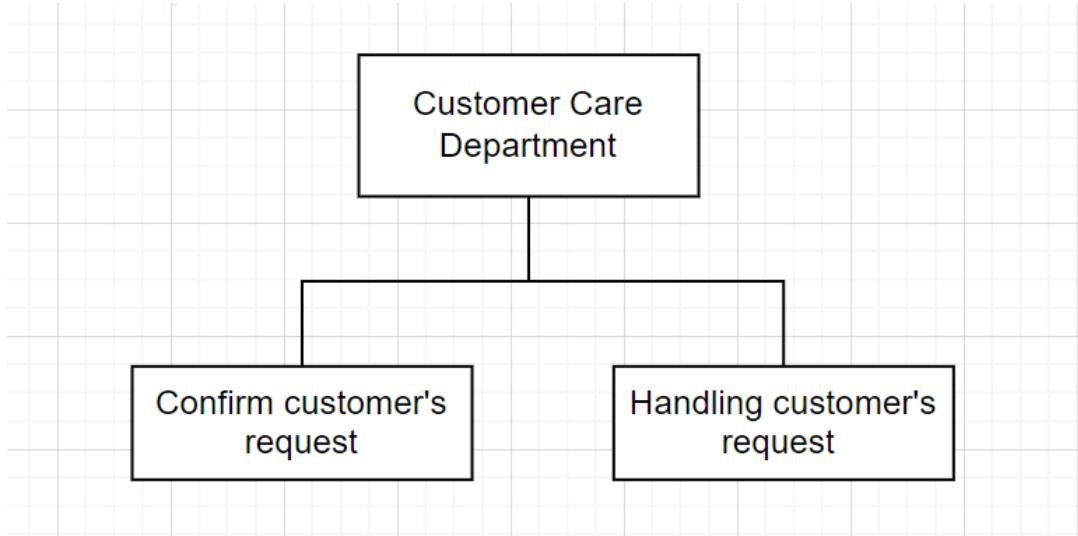


Picture 2.6 Accounting Department

Accounting department refers to the division that receive and handle all things that linked to finance, responsible for managing the overall economic of the business which includes of:

- Create and issue an import goods invoice
 - Create the invoice when goods is imported into the warehouse, which consists of basic information like price, quantity, name of goods,...
 - Export the invoice of imported goods and store into the system database
- Create and issue invoice for customer
 - Create the invoice when a customer orders drinking, which consists of basic information such as employee's id, total money, name of drinking,...
 - Export the invoice for customer and store into the system database
- Make the report summarizing revenue
 - Manage and prepare financial statements, payment off bills, customer bills, payroll.
- Payroll management
 - Calculate employee's salary, bonus, benefit accurately before making the payment to individuals.

2.1.3.3 Customer Care Department

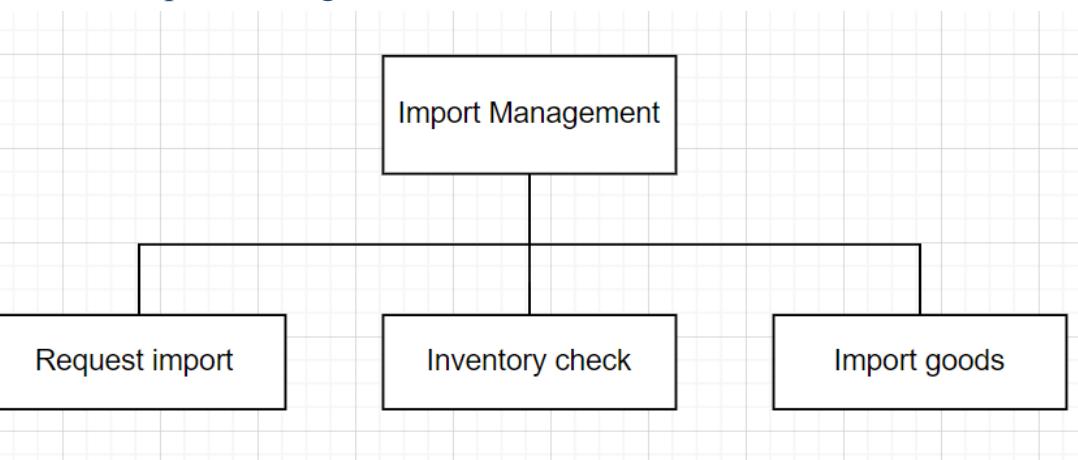


Picture 2.7 Customer Care Department

Customer Care Department is a department has a mission to advise, help, answer all the customer's question in order to satisfy and meet the needs of customer as well as achieve the business's goals, this department consists of:

- Confirm customer's request
 - Customer care department will receive customer's request in different ways through social media such as facebook, fanpage,..
- Handling customer's request
 - After receiving a customer's request, the Customer Care Department will reply and guide the customer to solve the problem.
- Moreover, the Customer Care Department usually asks the customer about the satisfaction as well as experience about the service, space, hygiene, safety and quality of the drinking.

2.1.3.4 Import Management



Picture 2.8 Import Management Department

Import Management is a department that is responsible for import goods into the warehouse, which consists of:

- Request import
 - Import management checks goods in the warehouse. This department will send requests to the supplier to import new goods.
- Inventory check
 - Import management checks if goods are filled, still remains or not.
- Import goods
 - Import goods into the warehouse and store the details into the system database.

2.1.3.5 Serving Customer Department

Serving customer department is responsible for serving customers in the coffee shop, which consists of activities such as bringing drinks for customers, cleaning up the table, attracting more customers and introducing promotions to customers.

2.2 Software requirements

2.2.1 Functional requirements

The system must satisfy:

- Saving requirements:
 - + Saving employee's information: employee's ID, employee's name, position, telephone number, sexual, working-starting date, working-finishing date, status of working.
 - + Saving customer's information: customer's ID, customer's name, telephone number, accumulated points.
 - + Saving goods' information: goods' ID, goods' name, price, quantity.
 - + Saving drinking's information: drinking's ID, drinking's name, price.
 - + Saving bills/transaction's information.
- Searching requirements:
 - + Searching employee's information
 - + Searching drinking's information
 - + Searching goods' information
 - + Searching customer's information

- + Searching bills/transaction information
- Calculating requirements:
 - + Calculating total of bills.
 - + Calculating employee's salary
 - + Calculating accumulated points of customer
- Statistics requirements:
 - + Showing the statistics of revenue
 - + Showing the statistics of the number of drinks.
 - + Showing the statistics of customers.
- Beside those functions, the system must satisfy:
 - + Query function: the system must be able to meet questions and answers demanded from users.
 - + Synthesizing and reporting functions: allow staff to track and supervise the operation of the coffee shop.
 - + Updating function: the system must be able to self update accurate, timely data and minimize human interventions and mistakes.
 - + Automatic functions: this maximize the convenience of users with manual activities

2.2.2 Non-functional requirements

- Interface: multilingual usage, user-friendly interface.
- Quality attributes
 - Evolutionary feature
 - + Updating and upgrading versions are simple to conduct.
 - Exploitability:
 - + The interface is engaging and user-friendly.
 - + The instruction and description are intelligible.
 - Efficiency:
 - + The application works well, stable and reliable.
 - Compatibility:
 - + The system performs stably on different platforms and devices.

No.	Requirements name	Computer Skills	Time to get used to	Time to process	Meaning

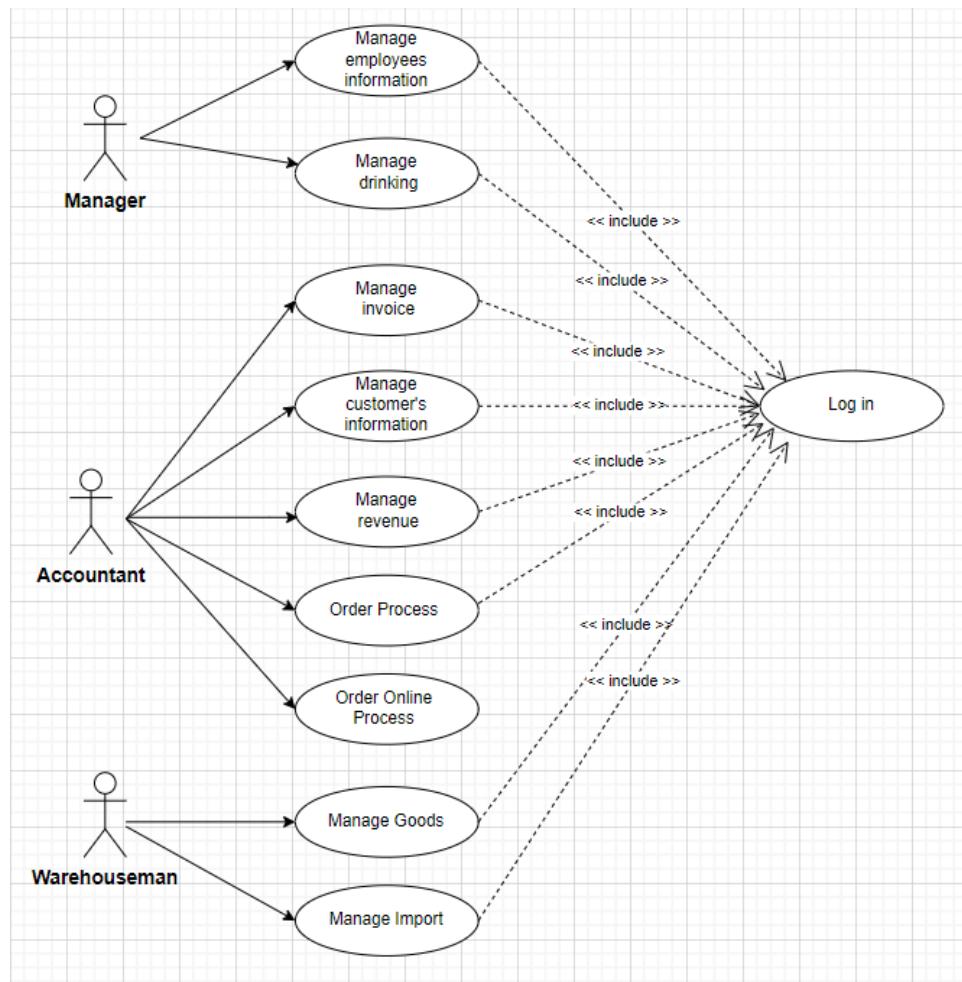
1	Managing drinking in the menu	A	1 minute	10s	Add, search, update, delete drinks in the menu
2	Managing invoice in the system database	A	1 minute	10s	Add, search, update, delete invoice in the system database
3	Managing customer in the system database	A	1 minute	10s	Add, search, update customers' information in the system database
4	Managing goods in the system database	A	1 minute	10s	Add, search, update, delete goods' information in the system database
5	Managing shipment and import goods in the system database	A	1 minute	10s	Add, search shipment in the system database
6	Managing employee in the database	A	1 minute	10s	Add, search, update, delete customers' information in the system database
7	Managing order process	A	1 minute	10s	Make payment and process order in the system database

8	Calculating the total of bill	A	1 minute	12s	Calculate the total of bills
9	Calculating employees' salary	A	1 minute	12s	Calculate employees' salary
10	Calculating accumulated points of customer	A	1 minute	12s	Calculating accumulated points of customer
11	Showing the statistics of revenue	A	1 minute	14s	Show the statistics of revenue
12	Showing the statistics of customer	A	1 minute	14s	Show the statistics of customer
13	Showing the statistics of number of drinkings	A	1 minute	14s	Show the statistics of number of drinkings

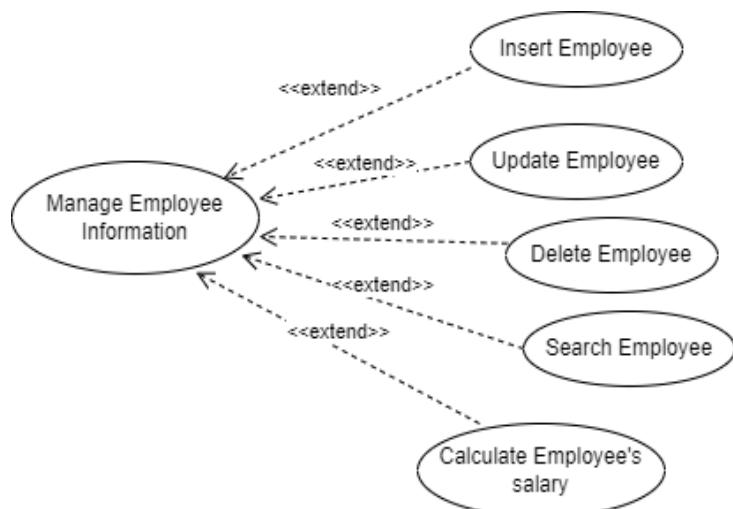
Table 2.7 Software requirements

CHAPTER 3: ANALYSIS AND DESIGN

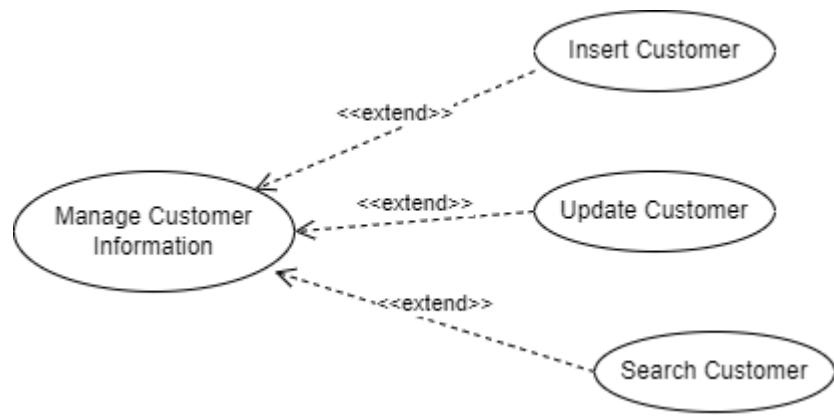
3.1 Use-case Diagram



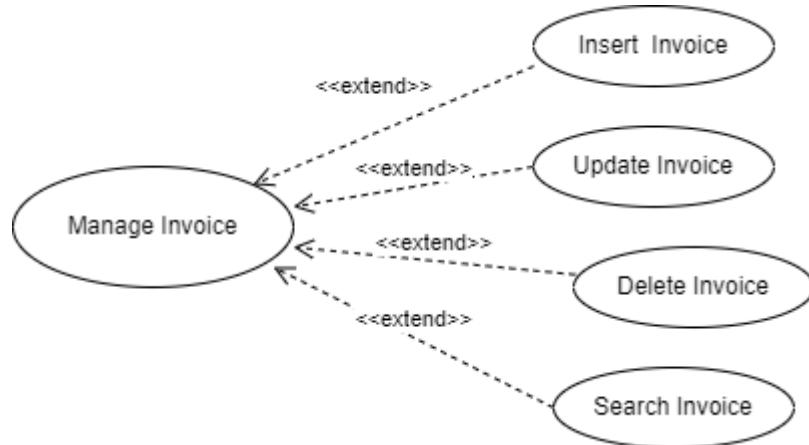
Picture 3.1 Use-case Diagram of the system



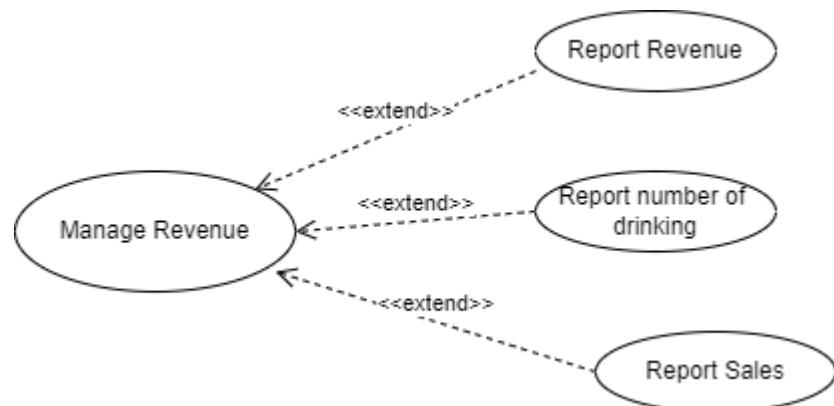
Picture 3.2 Use-case Diagram of Manage Employee Information



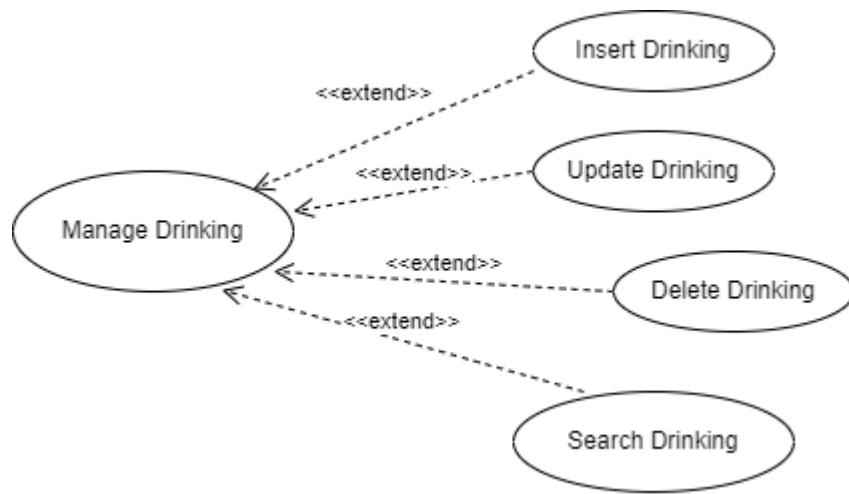
Picture 3.3 Use-case Diagram of Manage Customer Information



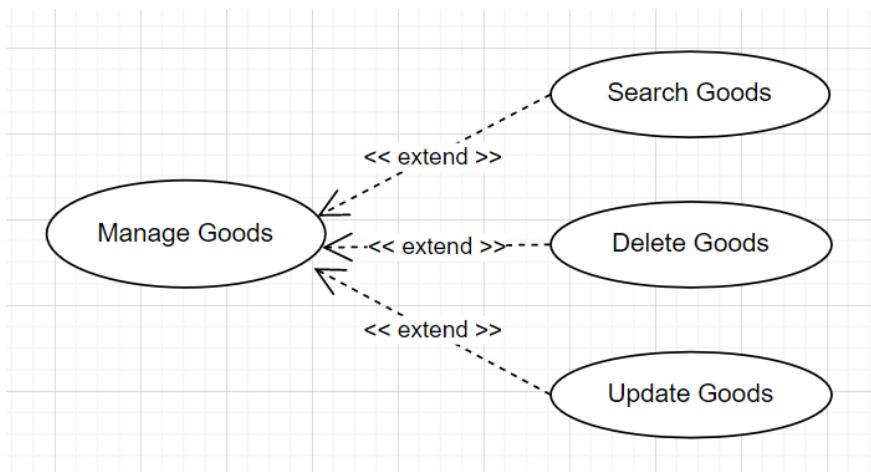
Picture 3.4 Use-case Diagram of Manage Invoice



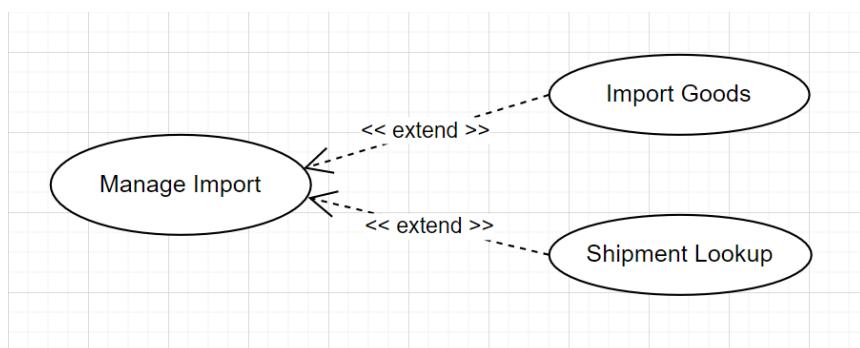
Picture 3.5 Use-case Diagram of Manage Revenue



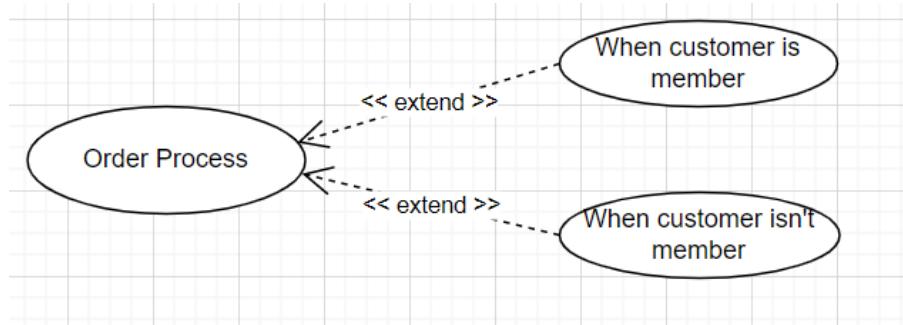
Picture 3.6 Use-case Diagram of Manage Drinking



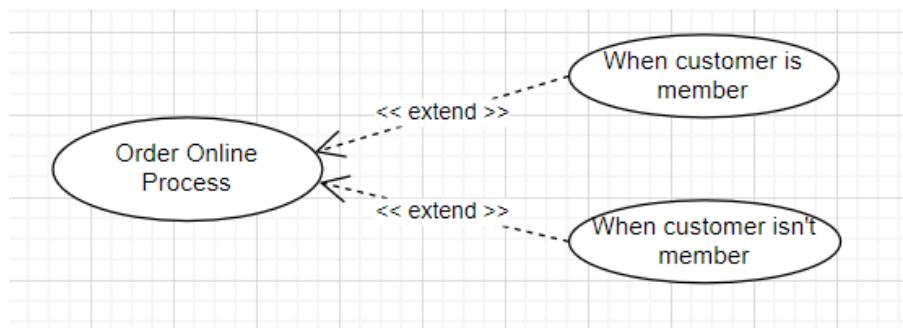
Picture 3.7 Use-case Diagram of Manage Goods



Picture 3.8 Use-case Diagram of Manage Import



Picture 3.9 Use-case Diagram of Order Process



Picture 3.10 Use-case Diagram of Order Online Process

3.2 List of actors

No	Actor	Meaning
1	Manager	People can use all functions in the system.
2	Accountant	People do activities related to make payment, customers' information
3	Warehouseman	People do activities related to managing warehouses.

Table 3.1 List of actors of the system

3.3 List of use cases

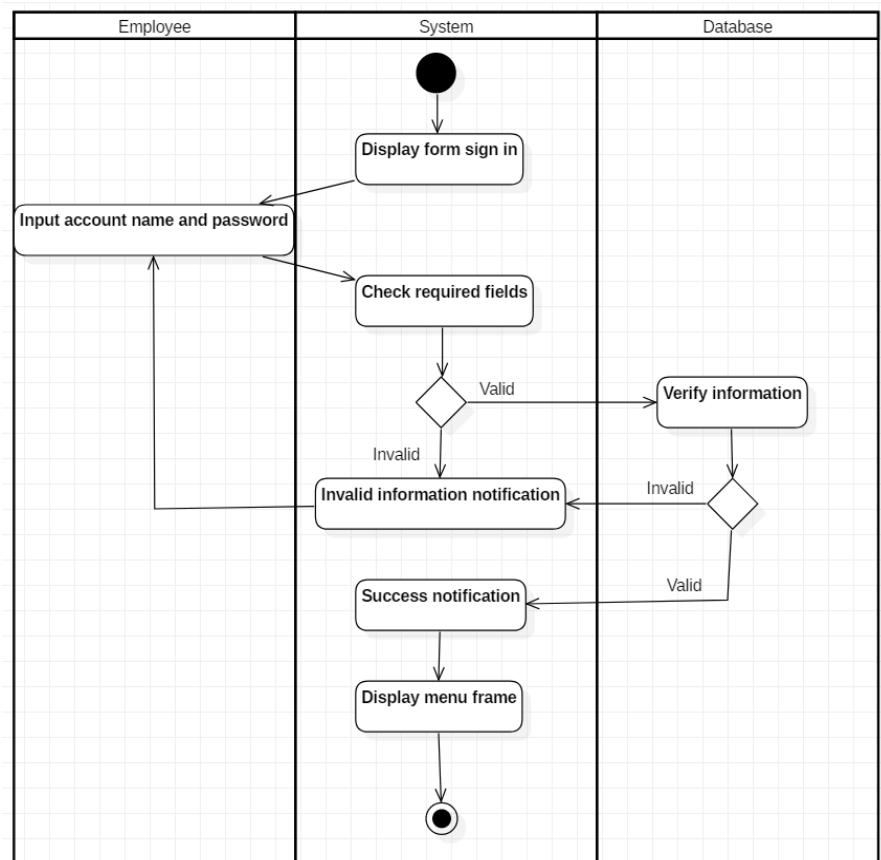
No	Use Case	Meaning
1	Login	Allow user to login the system
2	Managing goods	Warehouseman uses functions to update/delete/search to manage goods
3	Managing invoices	Accountant uses functions insert/update/delete/search to manage invoices
4	Managing revenue	Accountant uses functions to manage revenue
5	Managing employees' information	Manager uses functions to insert/update/delete/search/show employees' salary to manage employees
6	Managing customers' information	Accountant uses functions to insert/update/delete/search to manage customers
7	Managing drinks	Manager use functions insert/update/delete/search to manage drinks
8	Managing import	Warehouseman uses functions to import goods and shipment lookup
9	Order process	Accountant make order after customer paying
10	Online order process	Accountant make order when having online order

Table 3.2 List of use cases

3.4 Describe use cases and activity diagrams

3.4.1 Use Case Login.

- Use Case name: Login Account
- Describe: the user enters username (Employee ID) and password to access to the application
- Preconditions: the user has existing account (when manager creates an account, password will be created)
- Postconditions: change into the manager's menu frame, accountant's menu frame or warehouseman's menu frame based on employee position
- Relationship: the user and the employee management system
- Events flow:

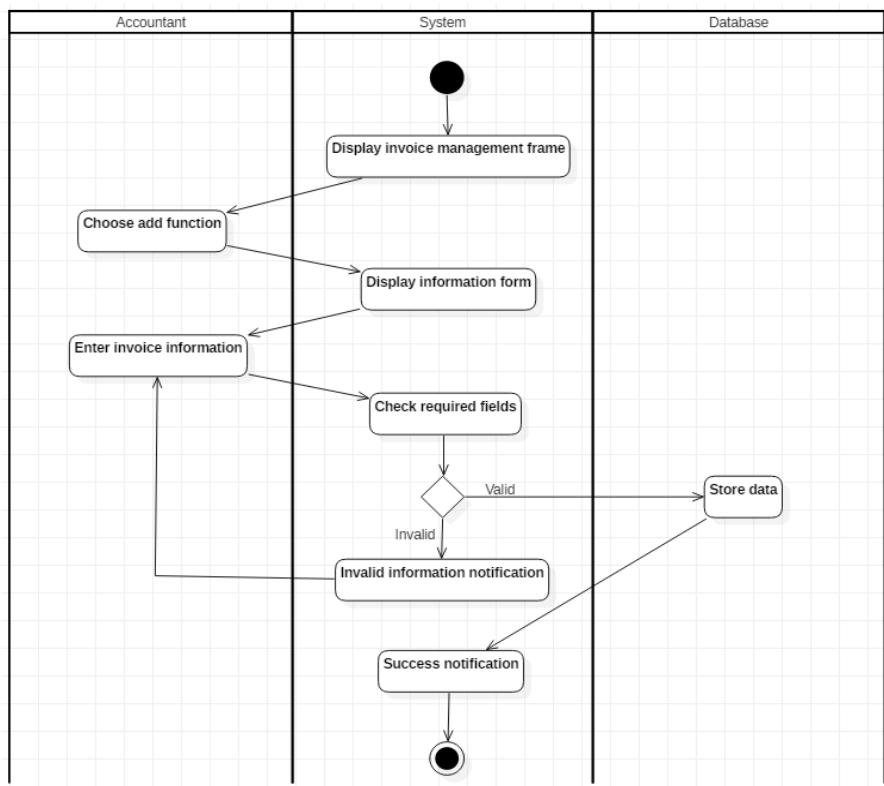


Picture 3.4.1 Login activity diagram

3.4.2 Use Case Invoices Management

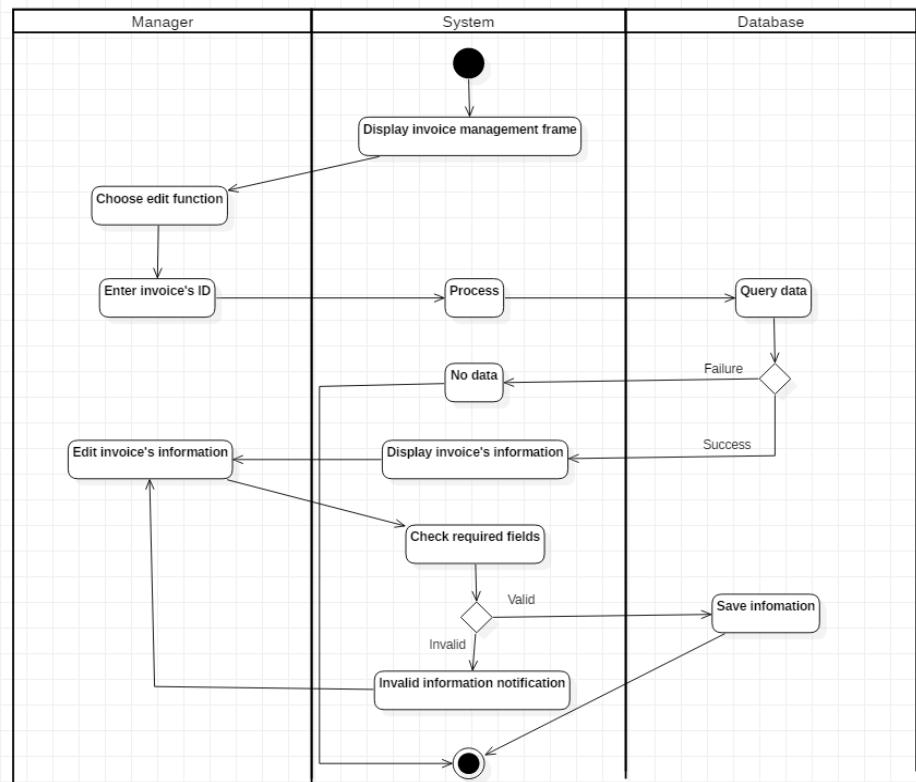
- Use Case name: Invoices Management
- Describe: After the customer picks a drink in the menu, the accountant makes a payment and prints out bill for the customer
- Preconditions: The accountant must access to the system successfully
- Postconditions: The bill's information stored in database, display success notification and close frame
- Relationship: the accountant and orders
- Events flow:

3.4.2.1 Insert Invoice



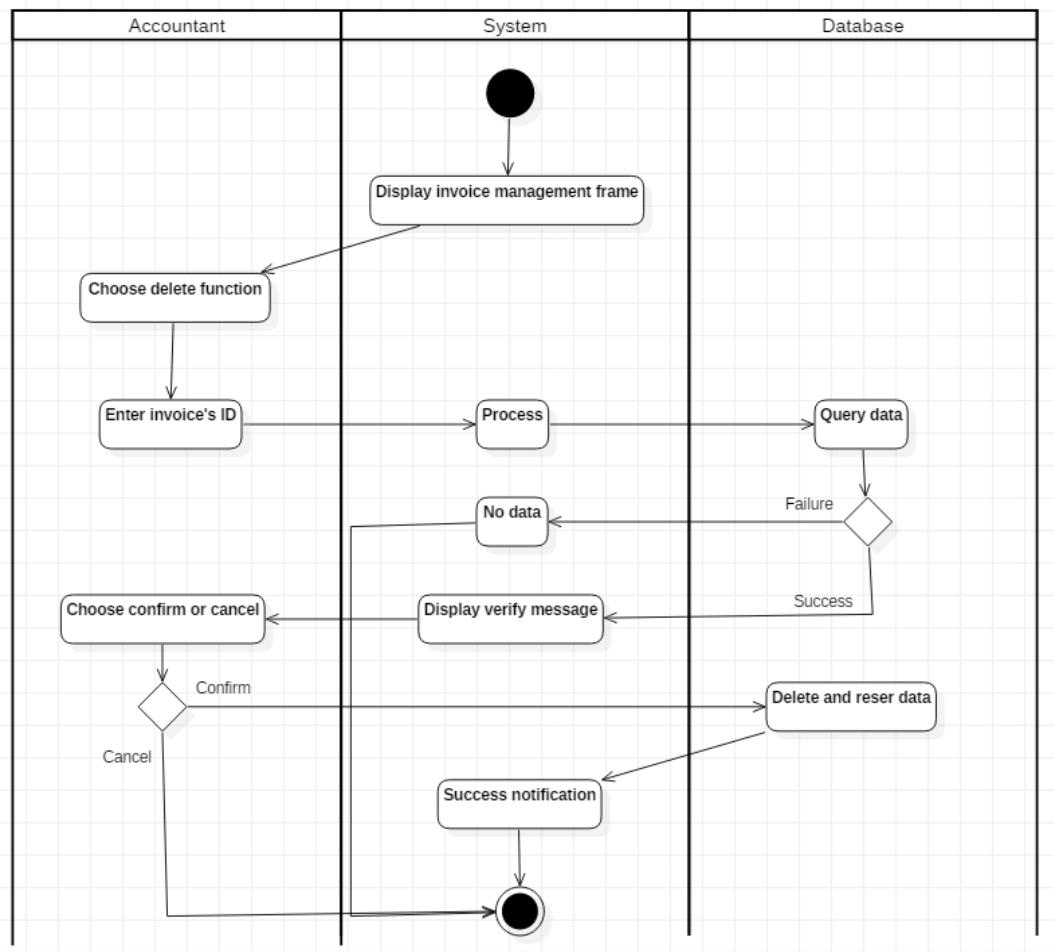
Picture 3.4.2 Insert invoice activity diagram

3.4.2.2 Edit Invoice



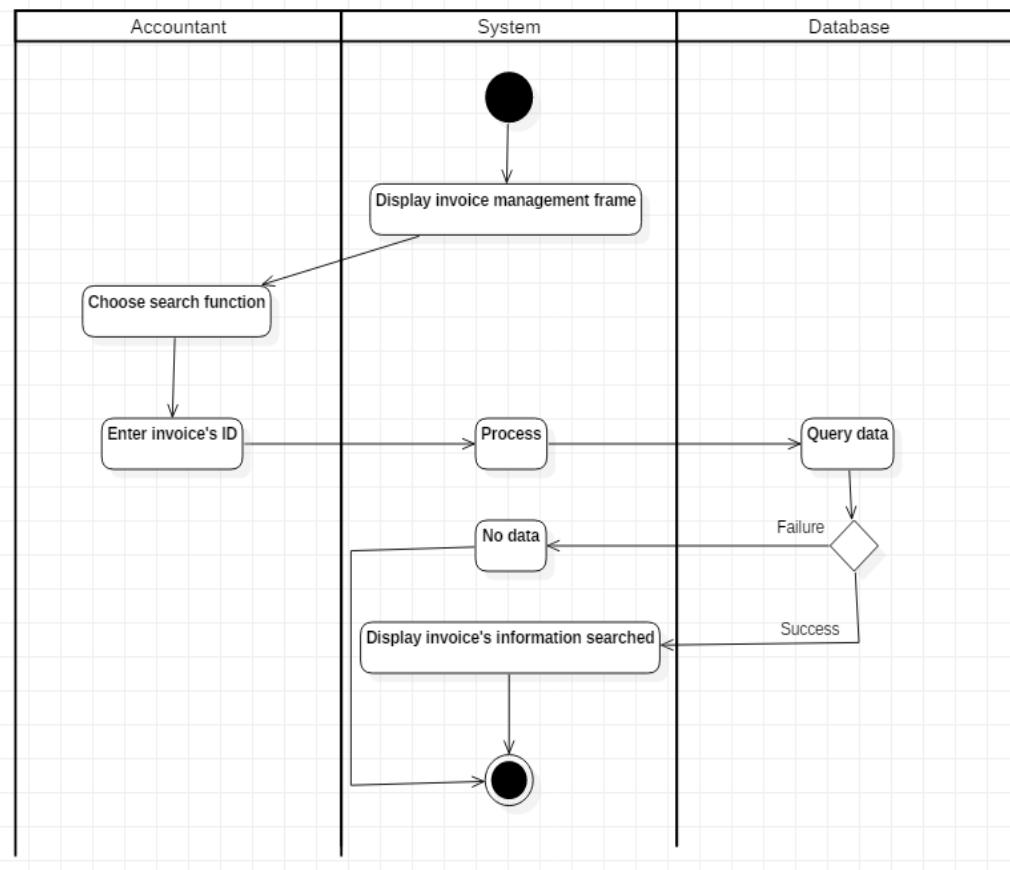
Picture 3.4.3 Edit invoice activity diagram

3.4.2.3 Delete Invoice



Picture 3.4.4 Delete invoice activity diagram

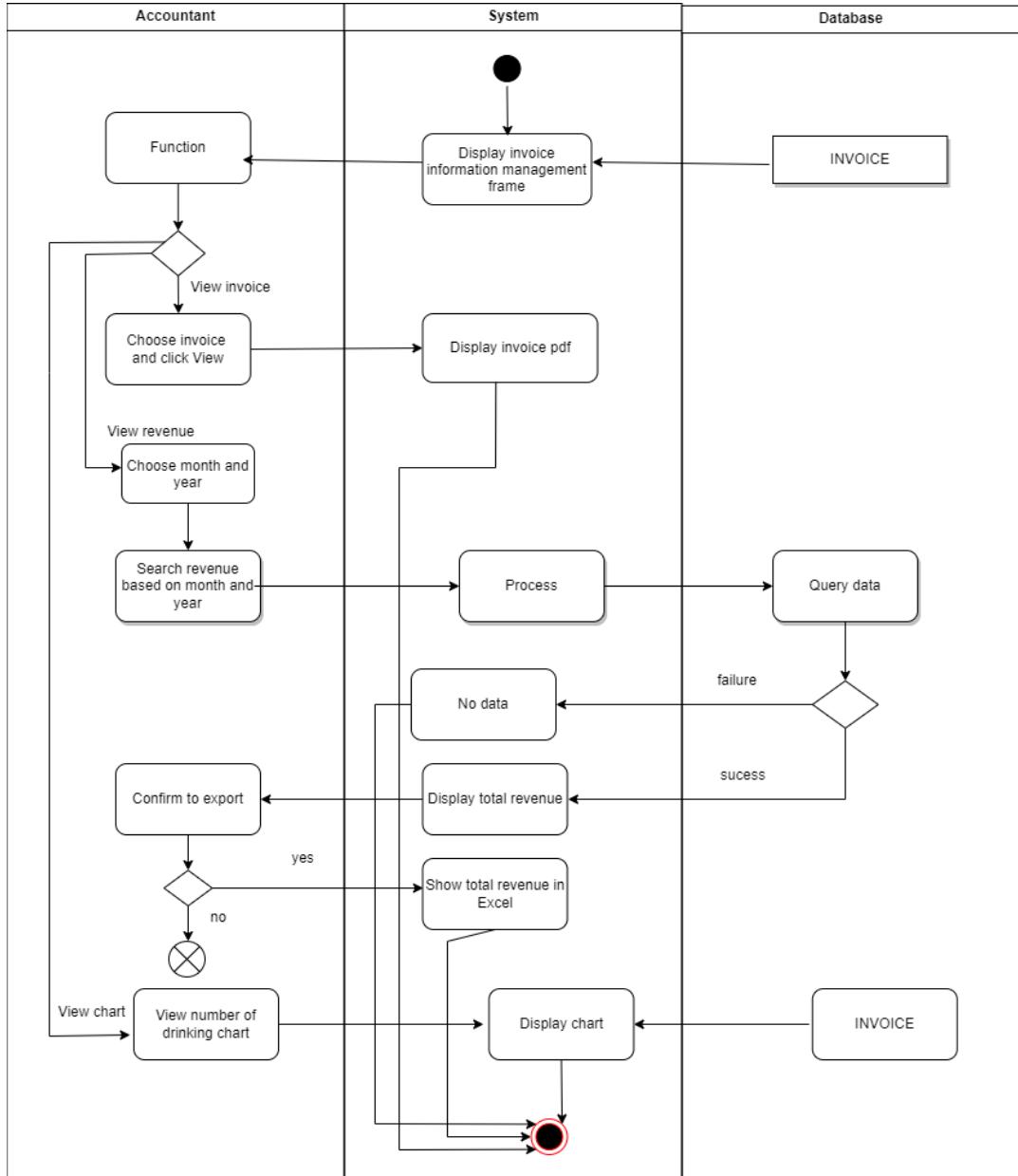
3.4.2.4 Search Invoice



Picture 3.4.5 Search invoice activity diagram

3.4.3 Revenues Management

- Use Case name: Revenues Management
- Describe: The accountant can manage revenues of the coffee shop, show the revenues, sales, the number of drinks that sold in a month or a year
- Preconditions: The accountant must access to the system successfully
- Postconditions: display pdf, excel or chart based on user selection
- Relationship: the accountant and the invoice management system
- Events flow:

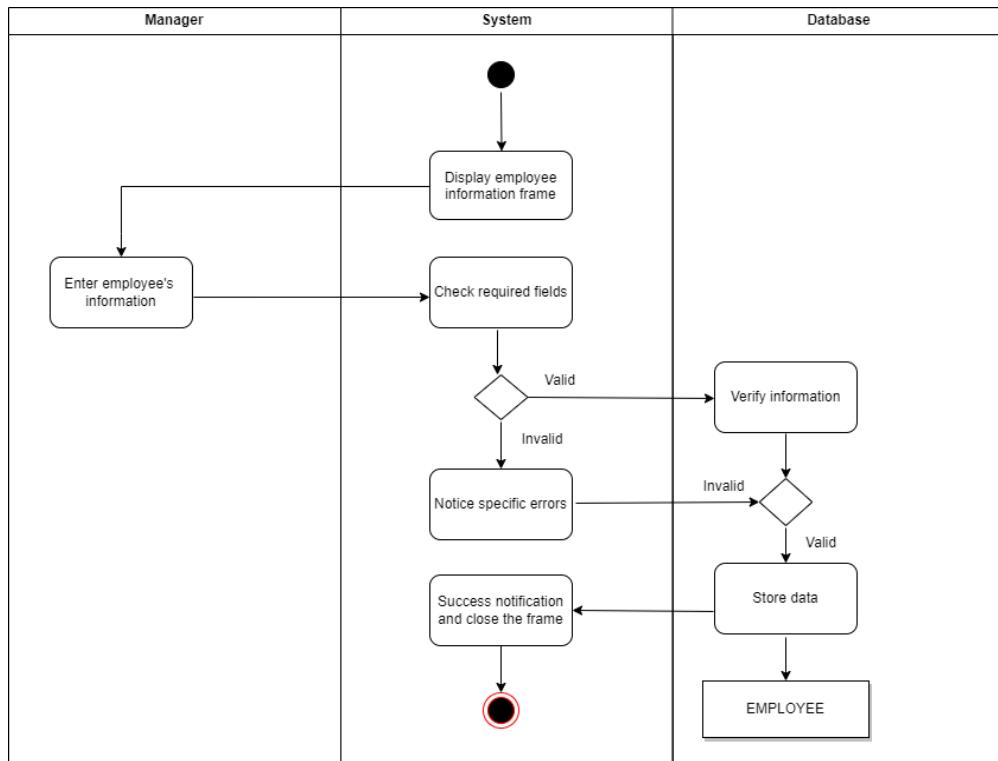


Picture 3.4.6 Revenue management activity diagram

3.4.4 Employees Management

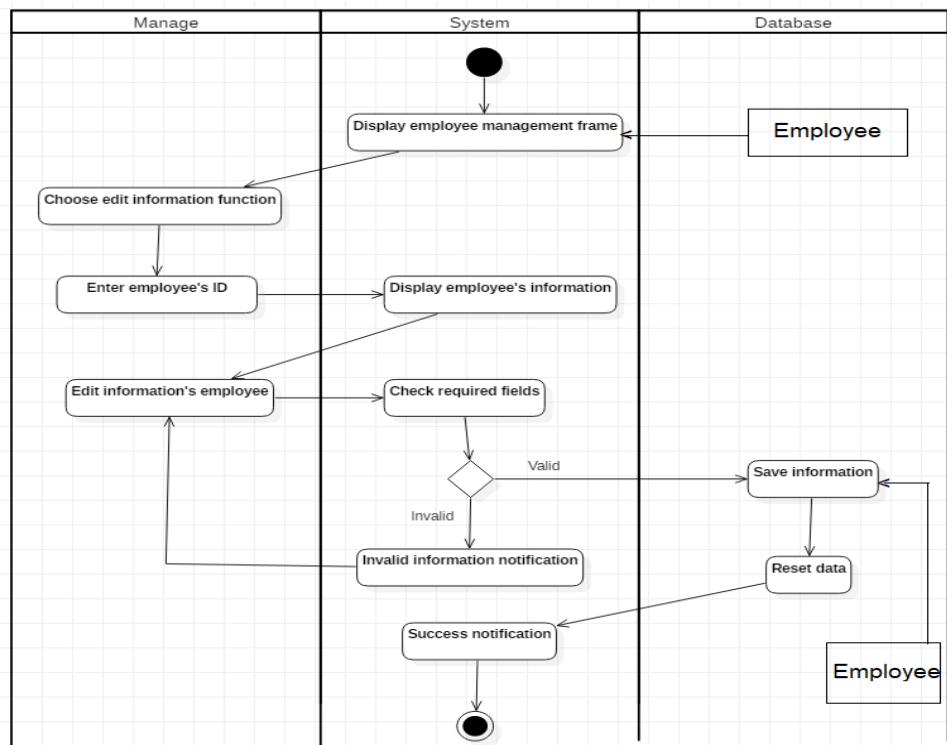
- Use Case name: Employees Management
- Describe: The manager can insert, update, delete, search employees' information or view employees' salary by a month or a year.
- Preconditions: the manager must access the system successfully
- Postconditions: the data stored in database, display information searched, display employee's salary
- Relationship: the manager and the employee management system
- Events flow:

3.4.4.1 Insert Employee



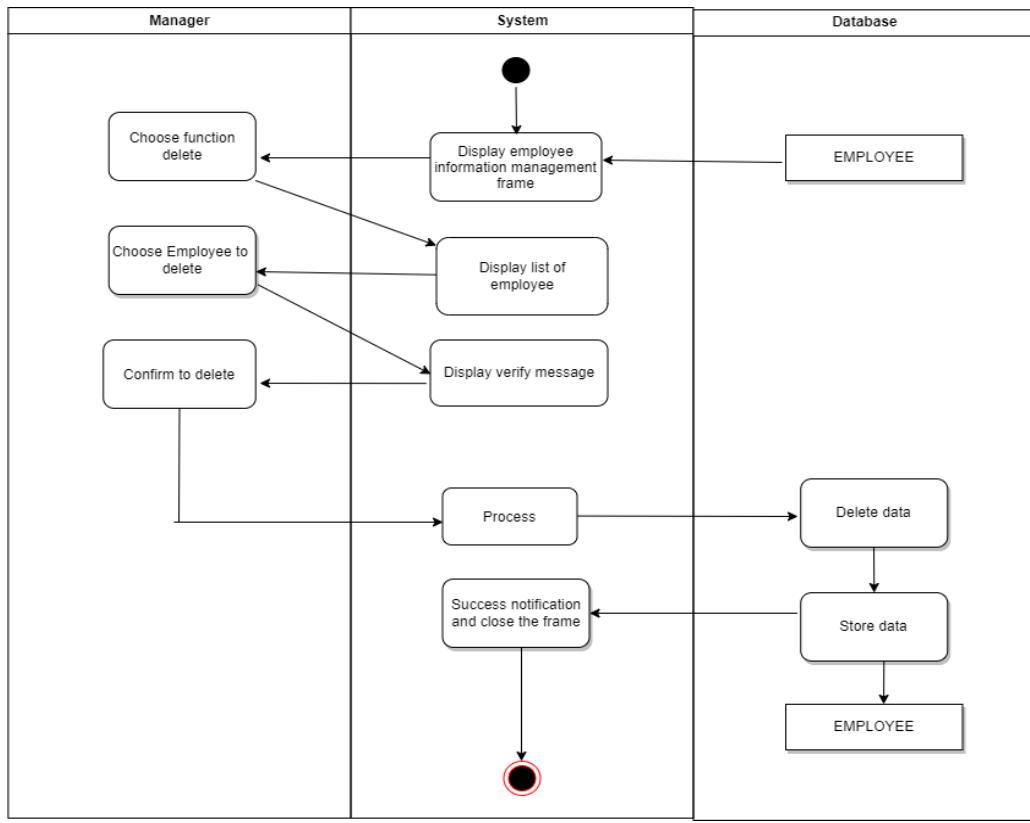
Picture 3.4.7 Insert employee activity diagram

3.4.4.2 Edit Employee



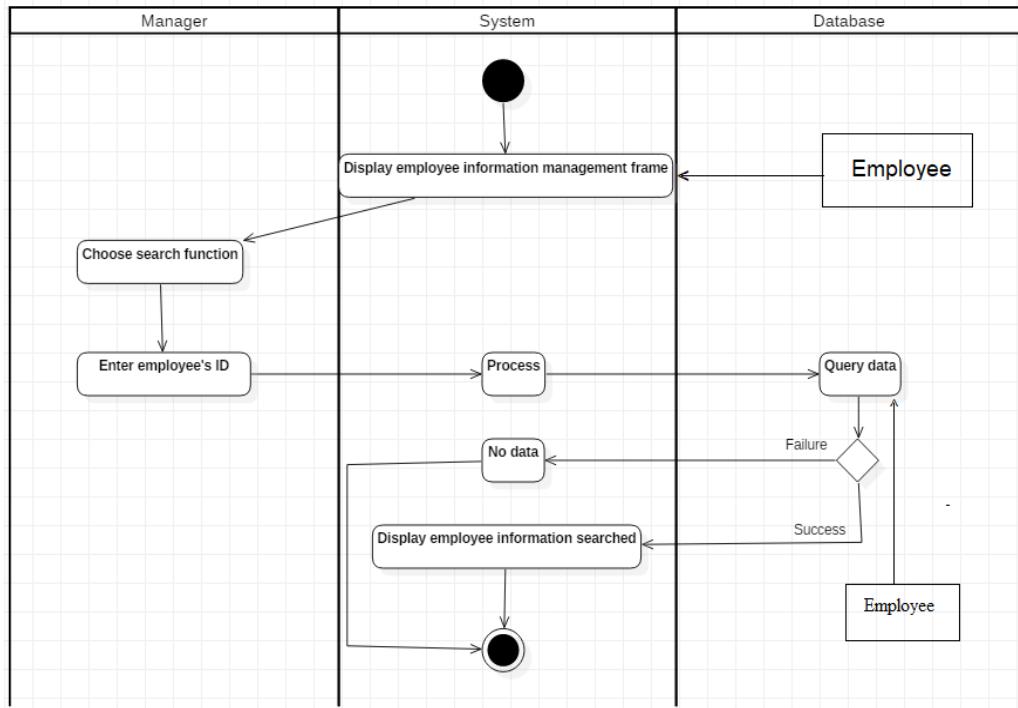
Picture 3.4.8 Edit employee activity diagram

3.4.4.3 Delete Employee



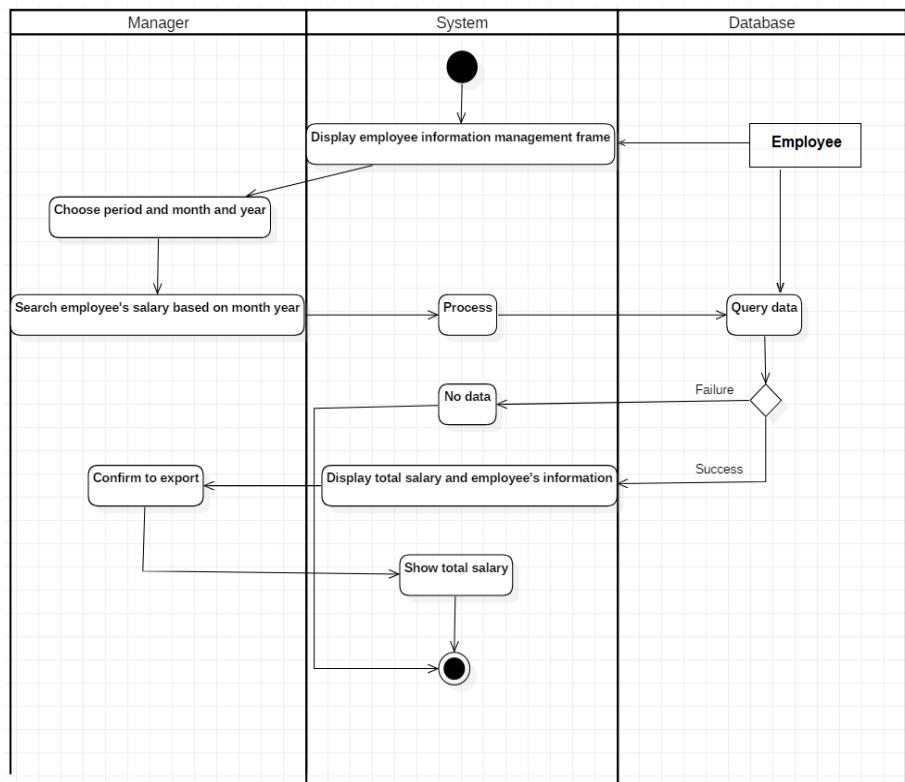
Picture 3.4.9 Delete employee activity diagram

3.4.4.4 Search Employee



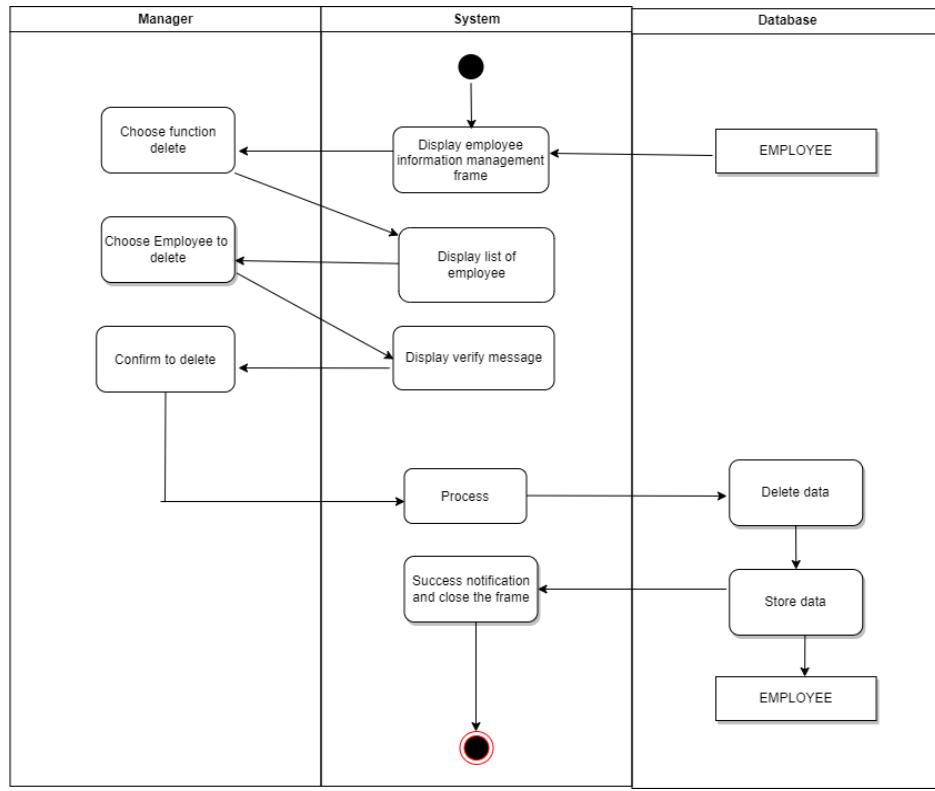
Picture 3.4.10 Search employee activity diagram

3.4.4.5 Employee's salary report



Picture 3.4.11 Show employee's salary report activity diagram

3.4.4.6 Delete Employee

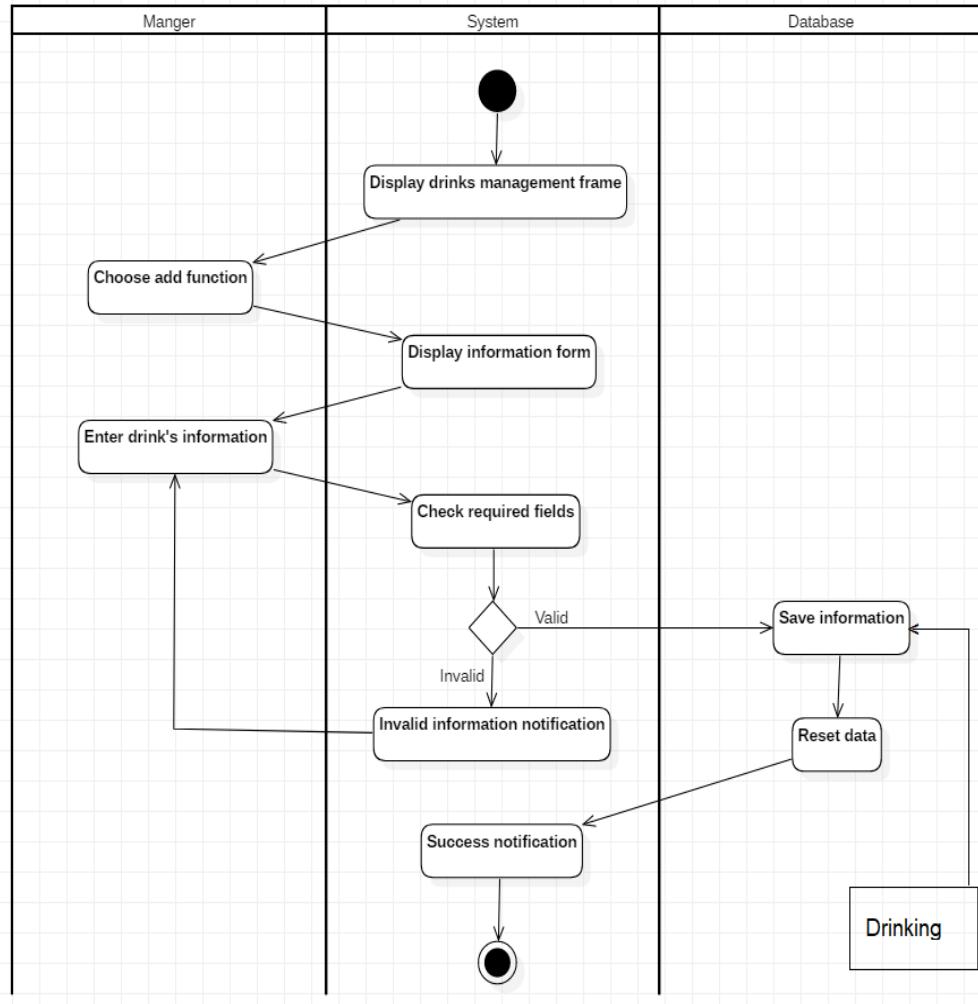


Picture 3.4.12 Delete employee activity diagram

3.4.5 Drinks Management

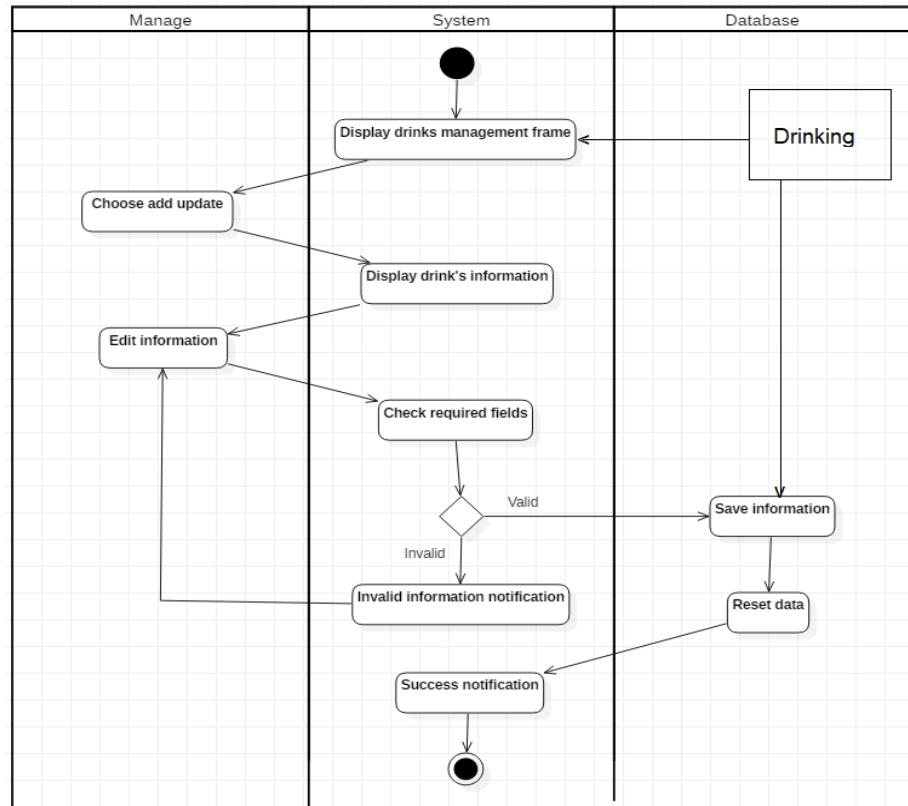
- Use Case name: Drinks Management
- Describe: the manager can insert, update, delete, search drinks' information
- Preconditions: the manager must access to the system successfully
- Postconditions: the data stored in the database, display information searched.
- Relationship: the manager and the drinks management system
- Events flow:

3.4.5.1 Insert Drinks



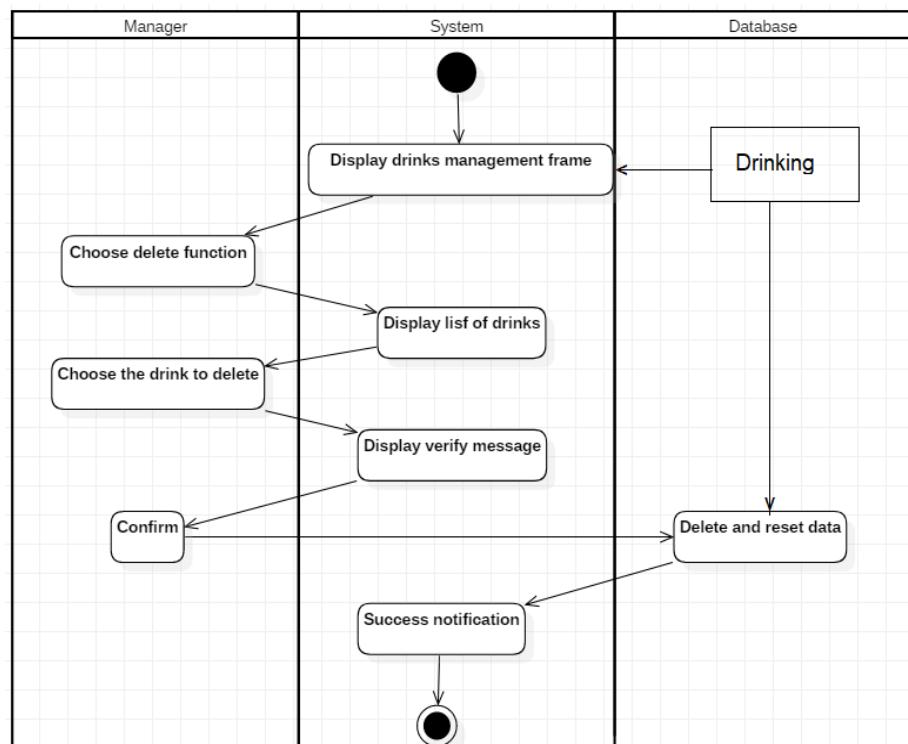
Picture 3.4.13 Insert drinks activity diagram

3.4.5.2 Edit Drinks



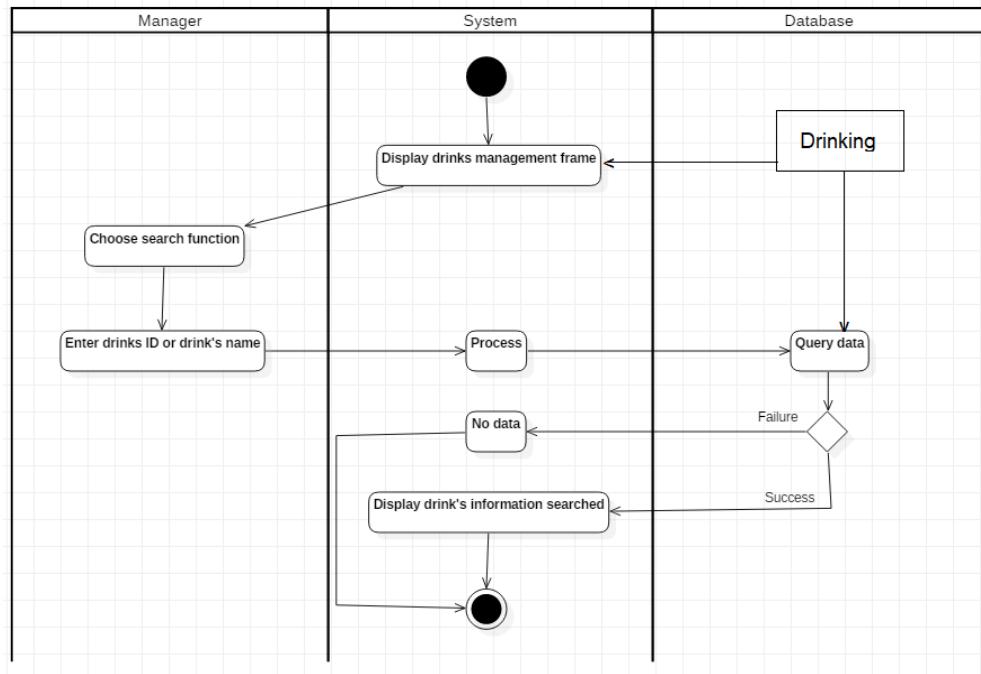
Picture 3.4.14 Edit drinks activity diagram

3.4.5.3 Delete Drinks



Picture 3.4.15 Delete drinks activity diagram

3.4.5.4 Search Drinks

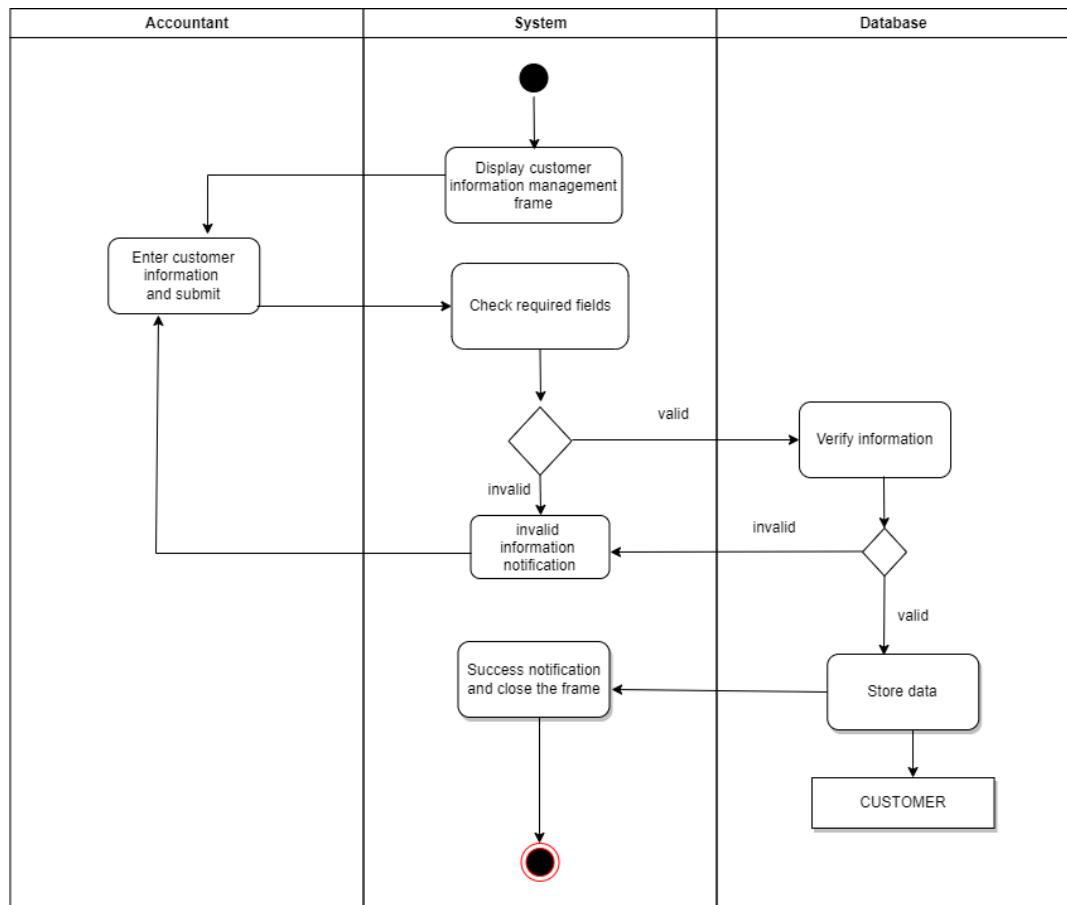


Picture 3.4.16 Search drinks activity diagram

3.4.6 Customers Management

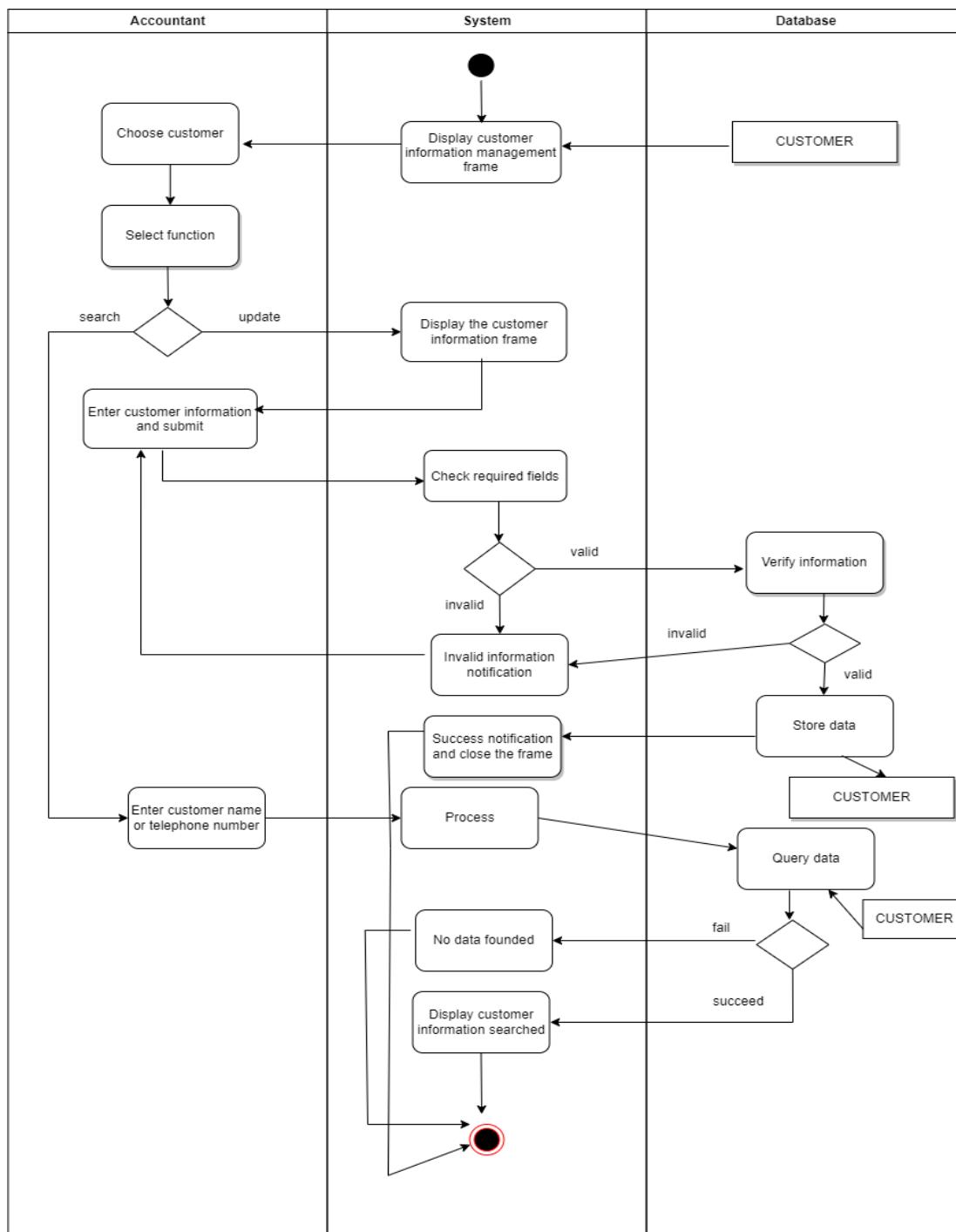
- Use Case name: Customer management
- Describe: The accountant can insert, update and search customers' information
- Preconditions: The accountant must access the system successfully
- Postconditions: The data stored in database, display information searched
- Relationship: The accountant and the customers' information management system
- Events flow:

3.4.6.1 Insert Customer



Picture 3.4.17 Insert customer activity diagram

3.4.6.2 Update/Search Customer

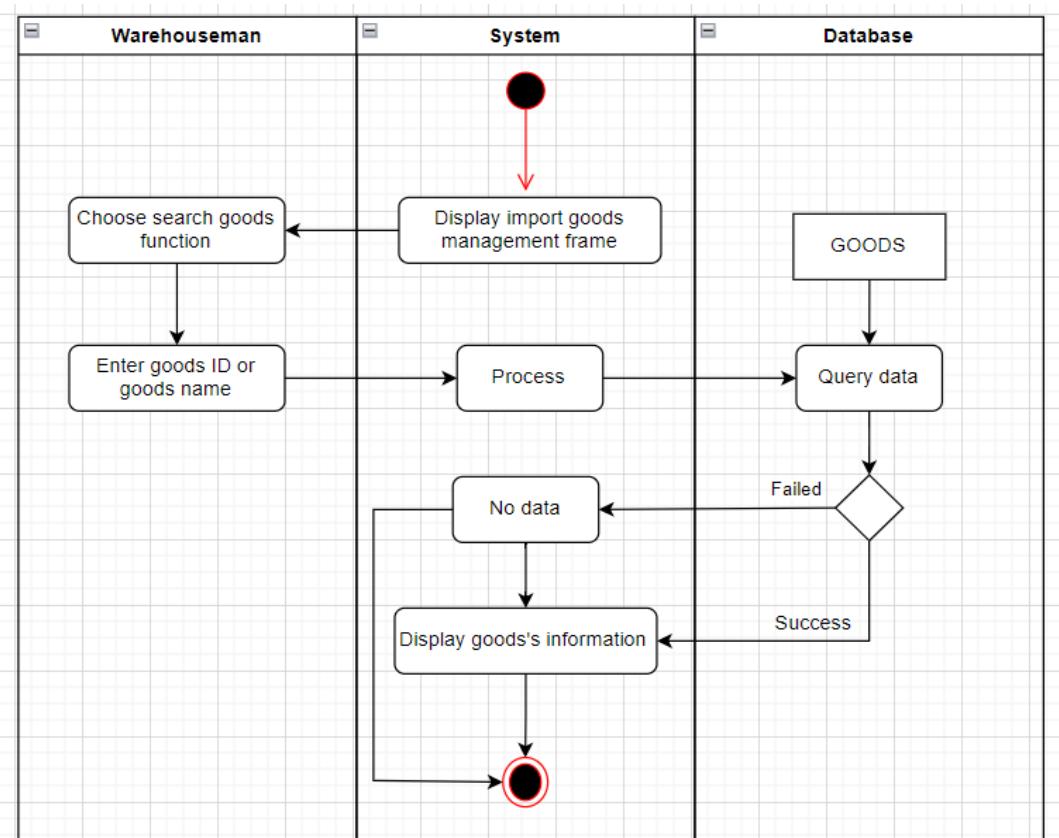


Picture 3.4.18 Update/Search customer activity diagram

3.4.7 Goods Management

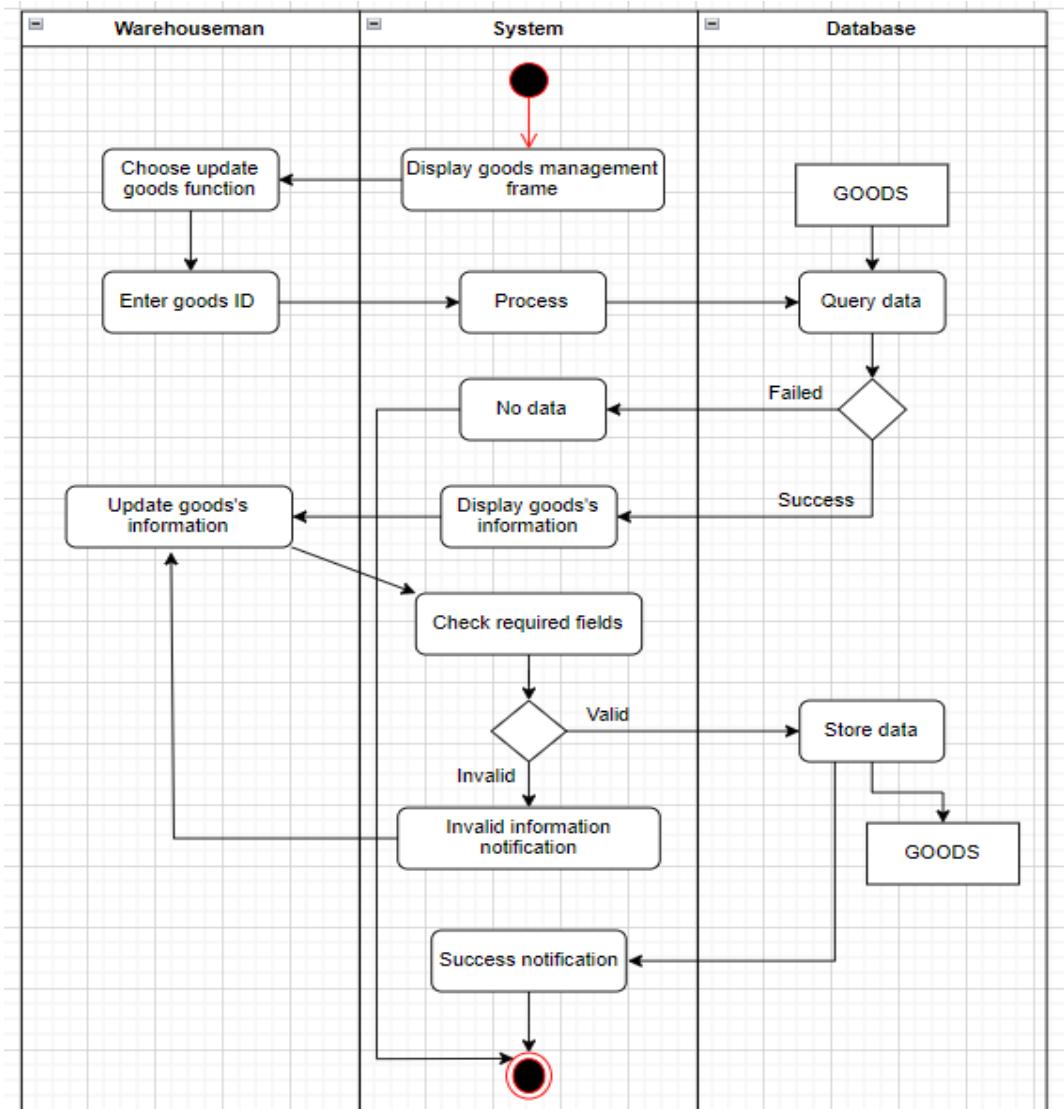
- Use Case name: Goods management
- Describe: The warehouseman can update, delete and search goods' information
- Preconditions: The warehouseman must access the system successfully
- Postconditions: The data stored in database, display information searched
- Relationship: The warehouseman and importing goods management system
- Events flow:

3.4.7.1 Search Goods



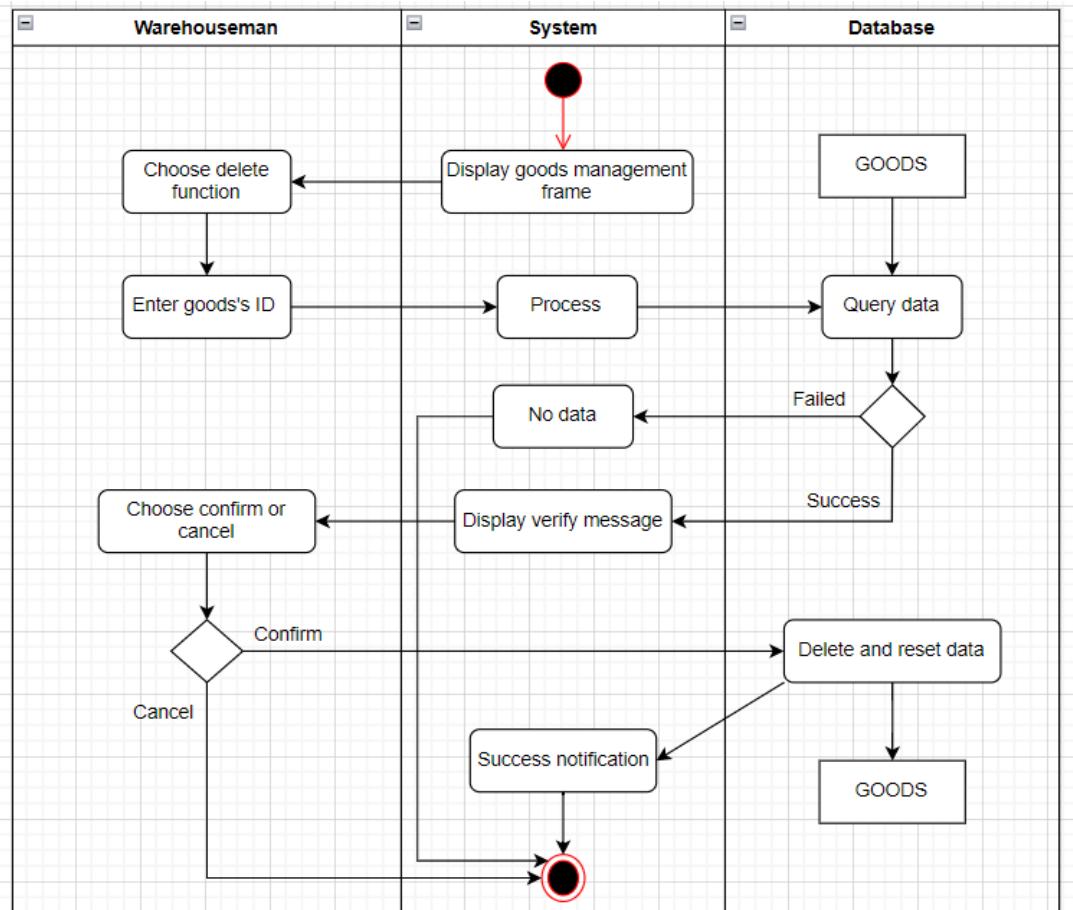
Picture 3.4.19 Search goods activity diagram

3.4.7.2 Edit Goods



Picture 3.4.20 Search goods activity diagram

3.4.7.3 Delete Goods

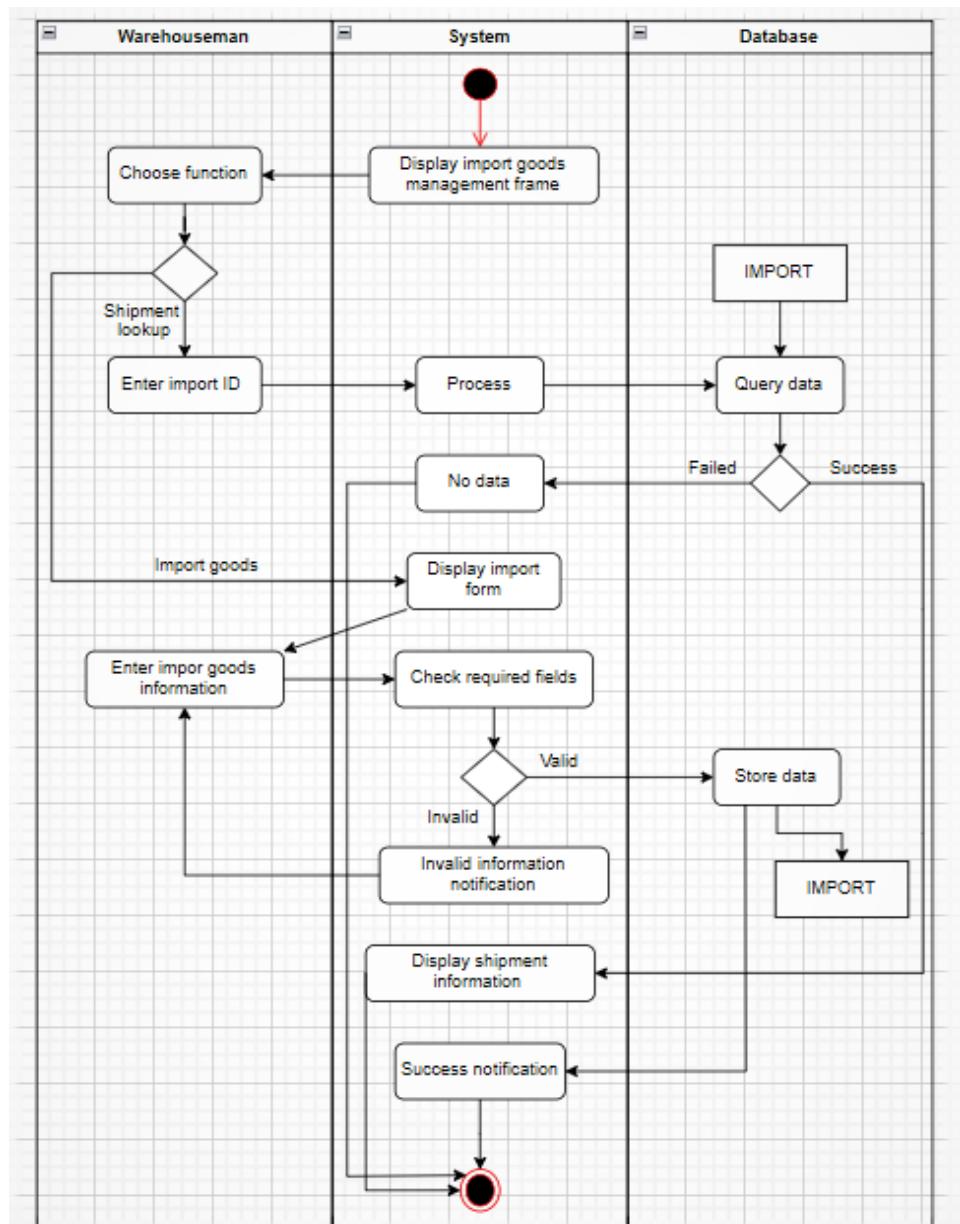


Picture 3.4.21 Delete goods activity diagram

3.4.8 Import Management

Importing Goods and Shipment Lookup

- Use Case name: Import management
- Describe: The warehouseman can import goods and shipment lookup
- Preconditions: The warehouseman must access the system successfully
- Postconditions: The data stored in database, display information searched
- Relationship: The warehouseman and the import management system
- Events flow:

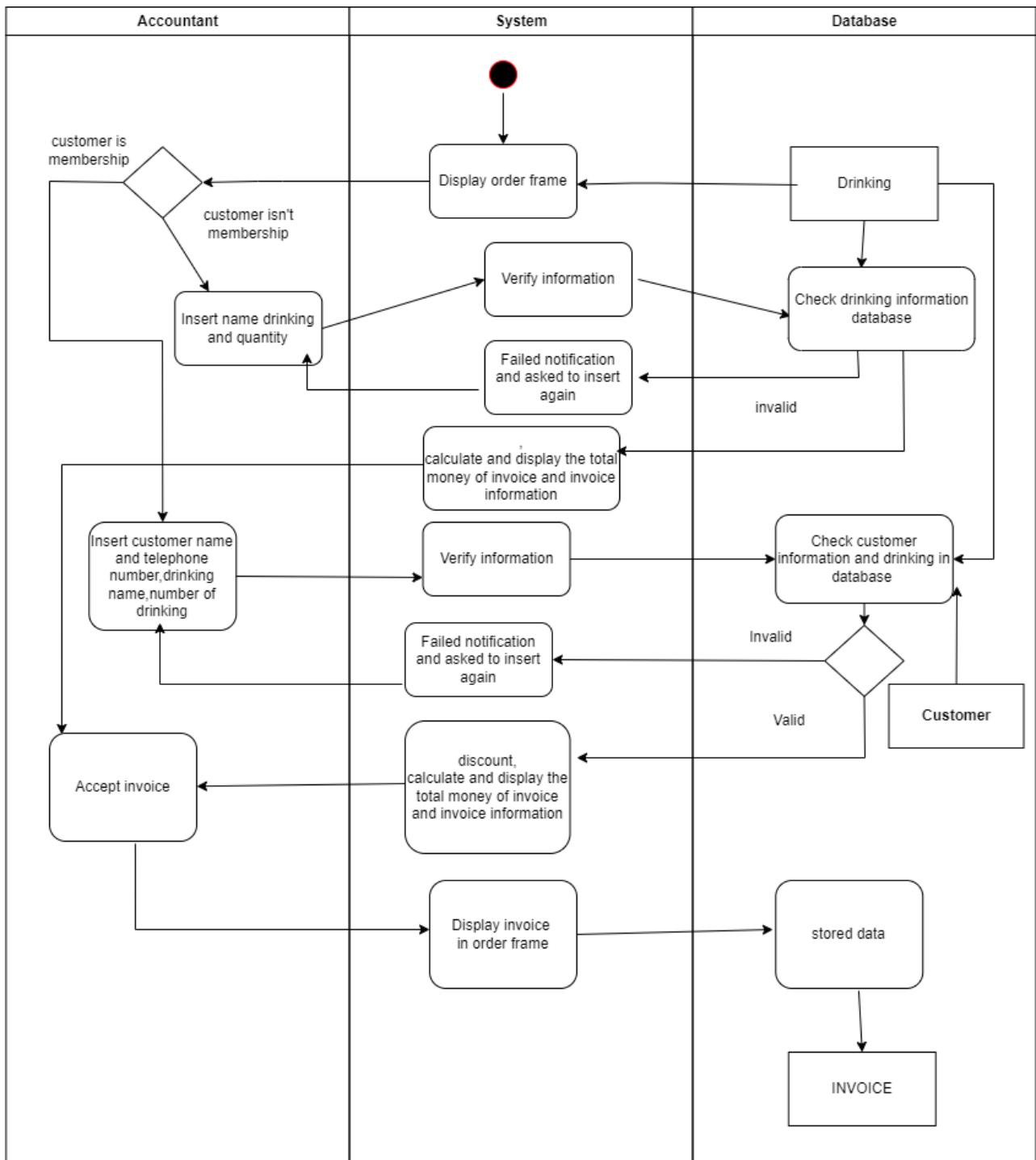


Picture 3.4.22 Import management activity diagram

3.4.9 Order Process

- Use Case name: Order process
- Describe: The accountant makes orders for customers after picking drinks, then discounts and calculates total money based on membership.
- Preconditions: The accountant must access the system successfully
- Postconditions: The data stored in database, display information of invoices

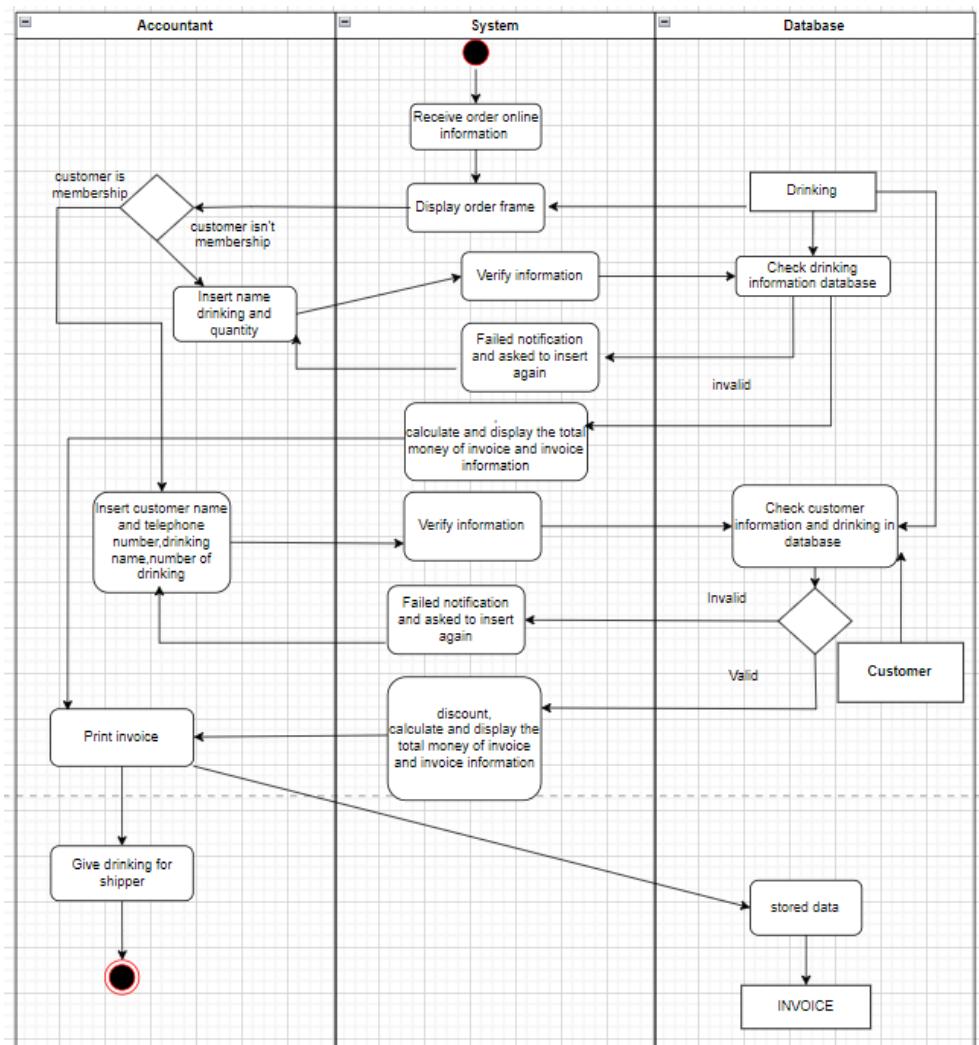
- Relationship: The invoice, the drink, the customer and the order management system
- Event flows:



Picture 3.4.23 Order process activity diagram

3.4.10 Order Online Process

- Use Case name: Order online process
- Describe: System receive order online information and after the accountant makes orders for customers base on order information, then discounts and calculates total money based on membership.
- Preconditions: The accountant must access the system successfully
- Postconditions: The data stored in database, display information of invoices
- Relationship: The invoice, the drink, the customer, the employees and the order management system
- Event flows:

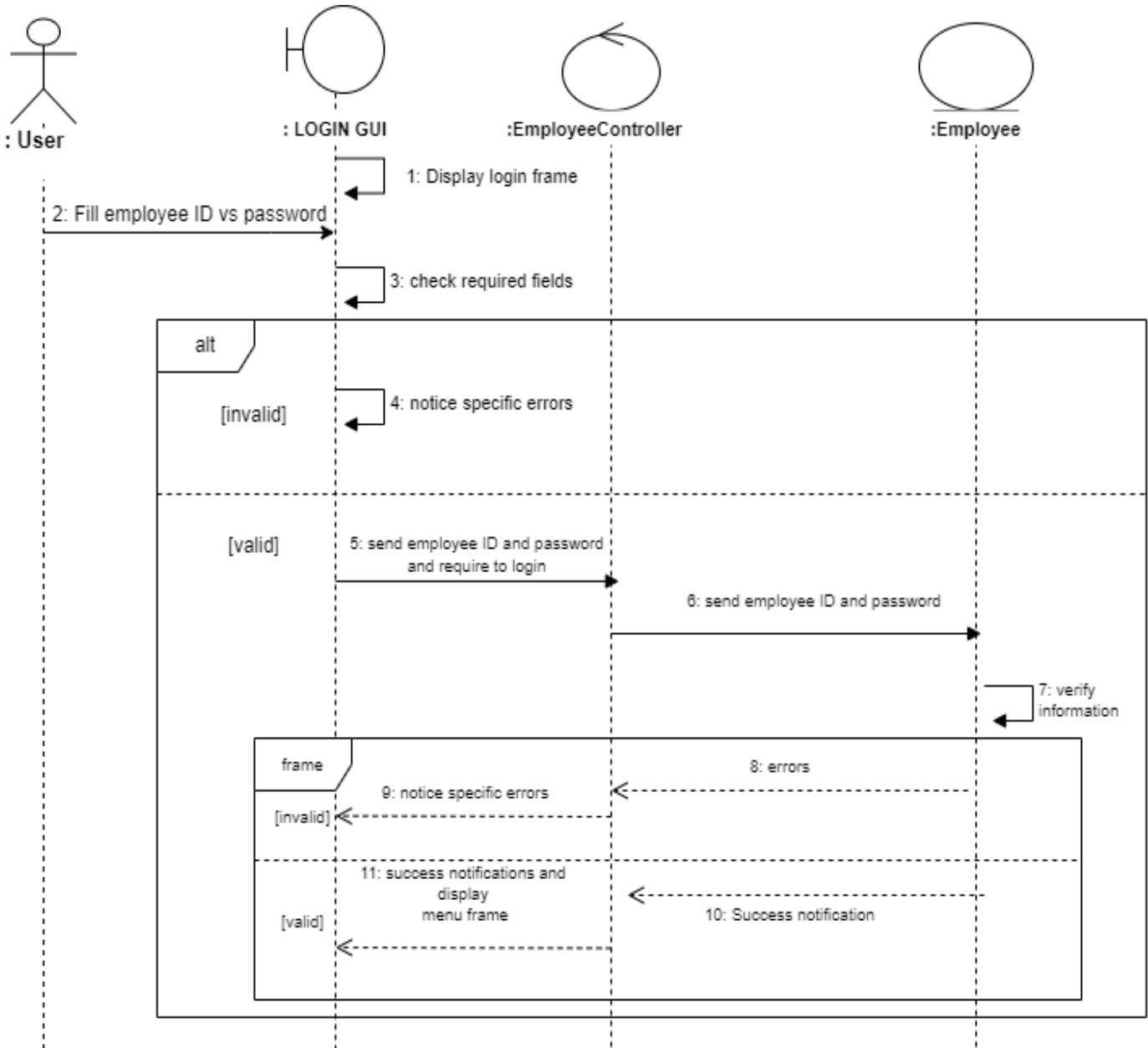


Picture 3.4.24 Online order process activity diagram

3.5. Sequence Diagram and Class Diagram

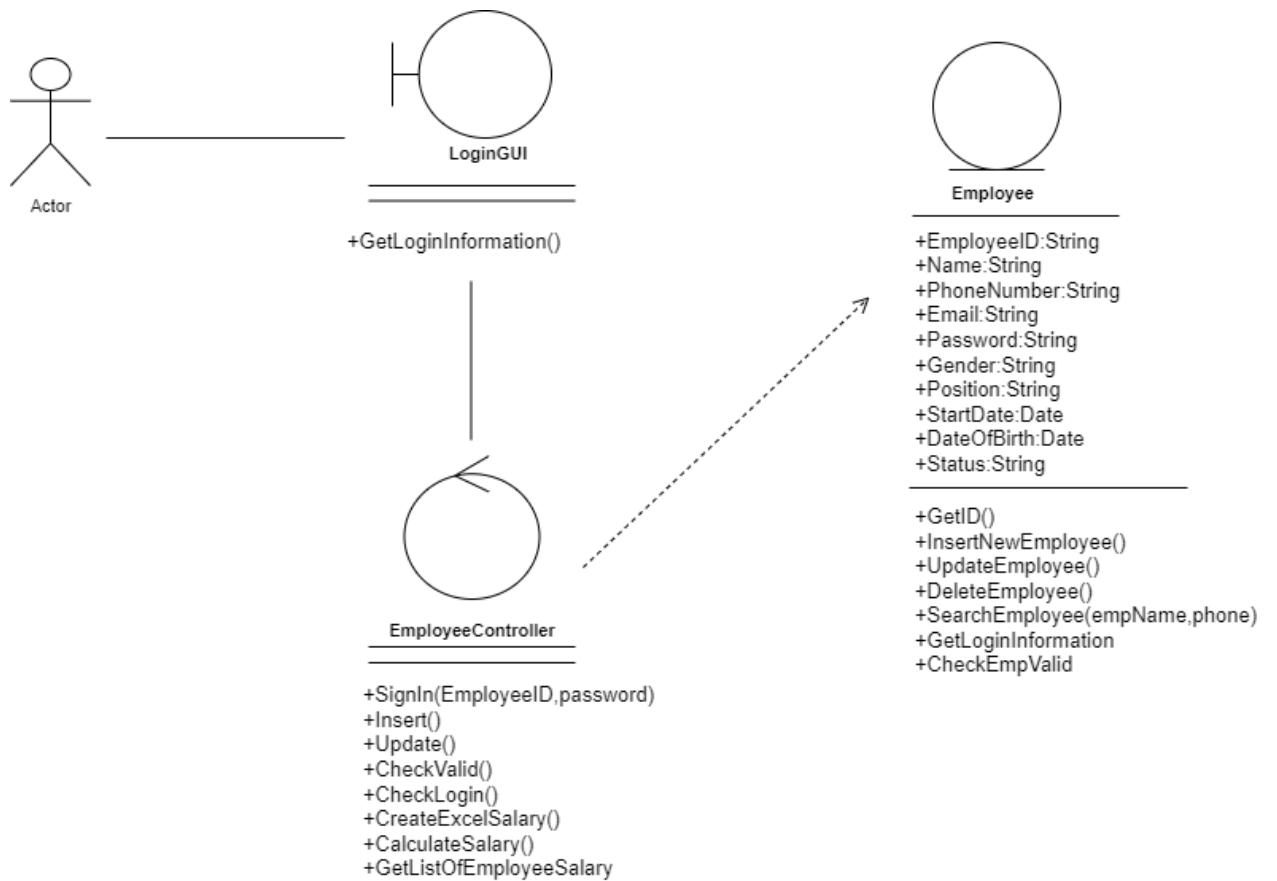
3.5.1 Login

o Sequence Diagram



Picture 3.5.1 Login sequence diagram

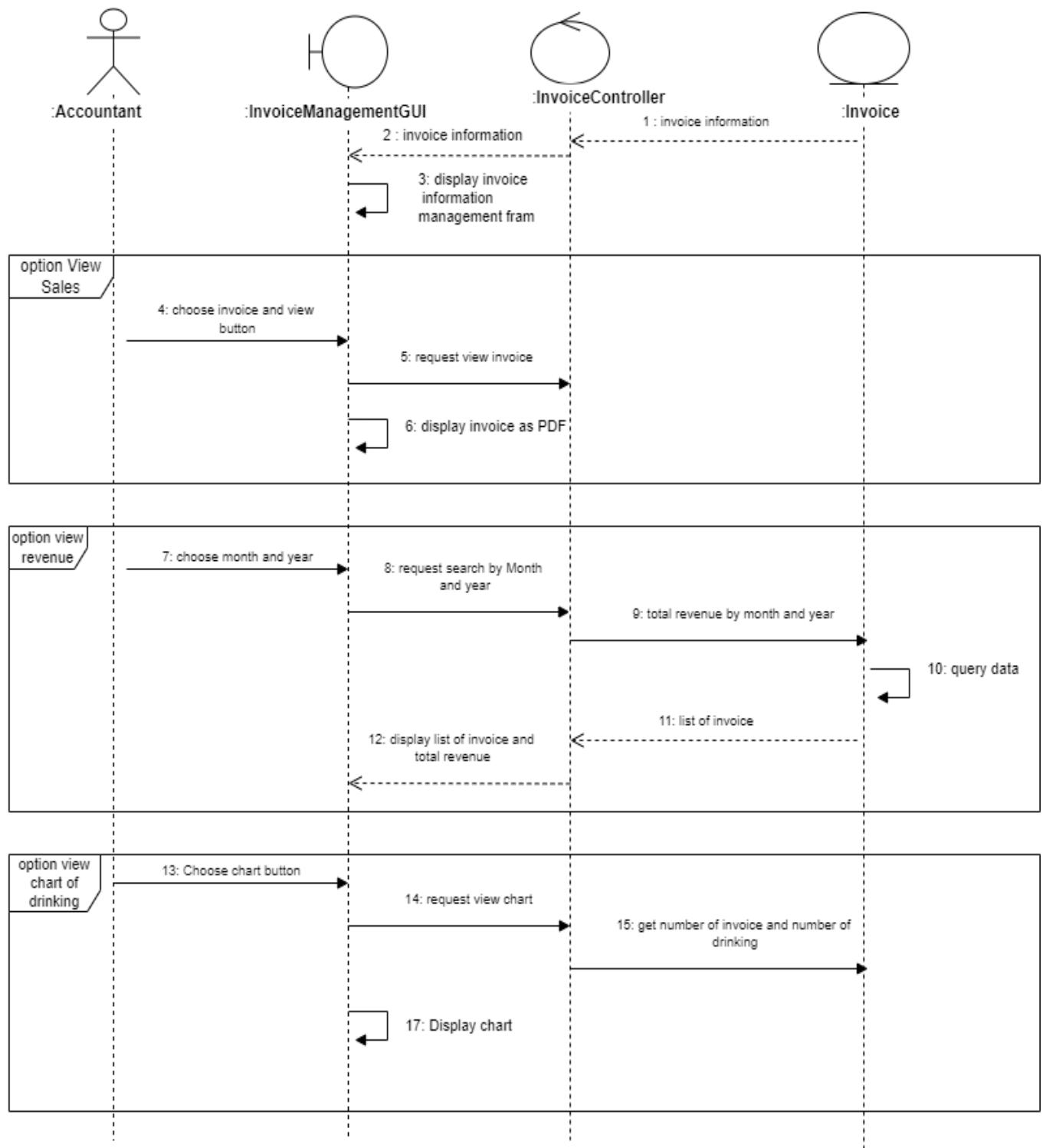
o Class Diagram



Picture 3.5.2 Login class diagram

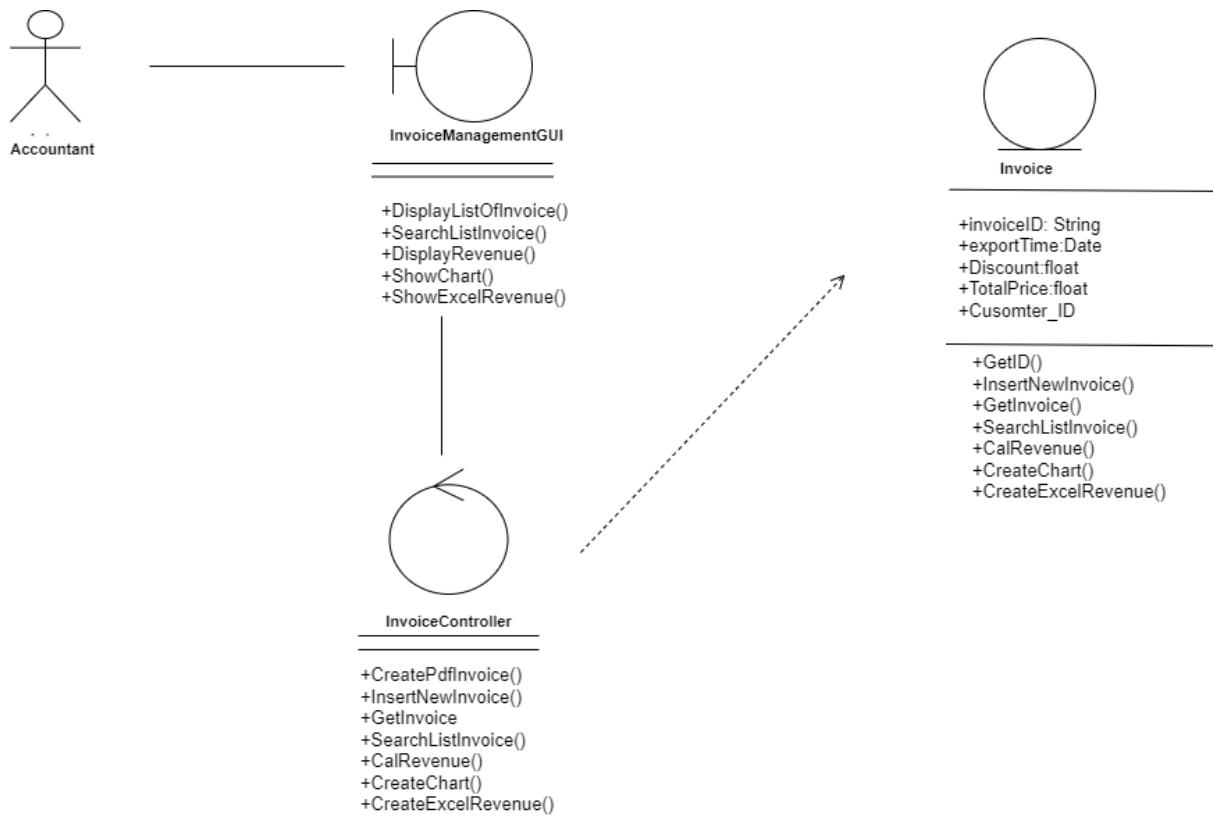
3.5.2 Revenue Management

- o Sequence Diagram



Picture 3.5.3 Revenue management sequence diagram

o Class Diagram

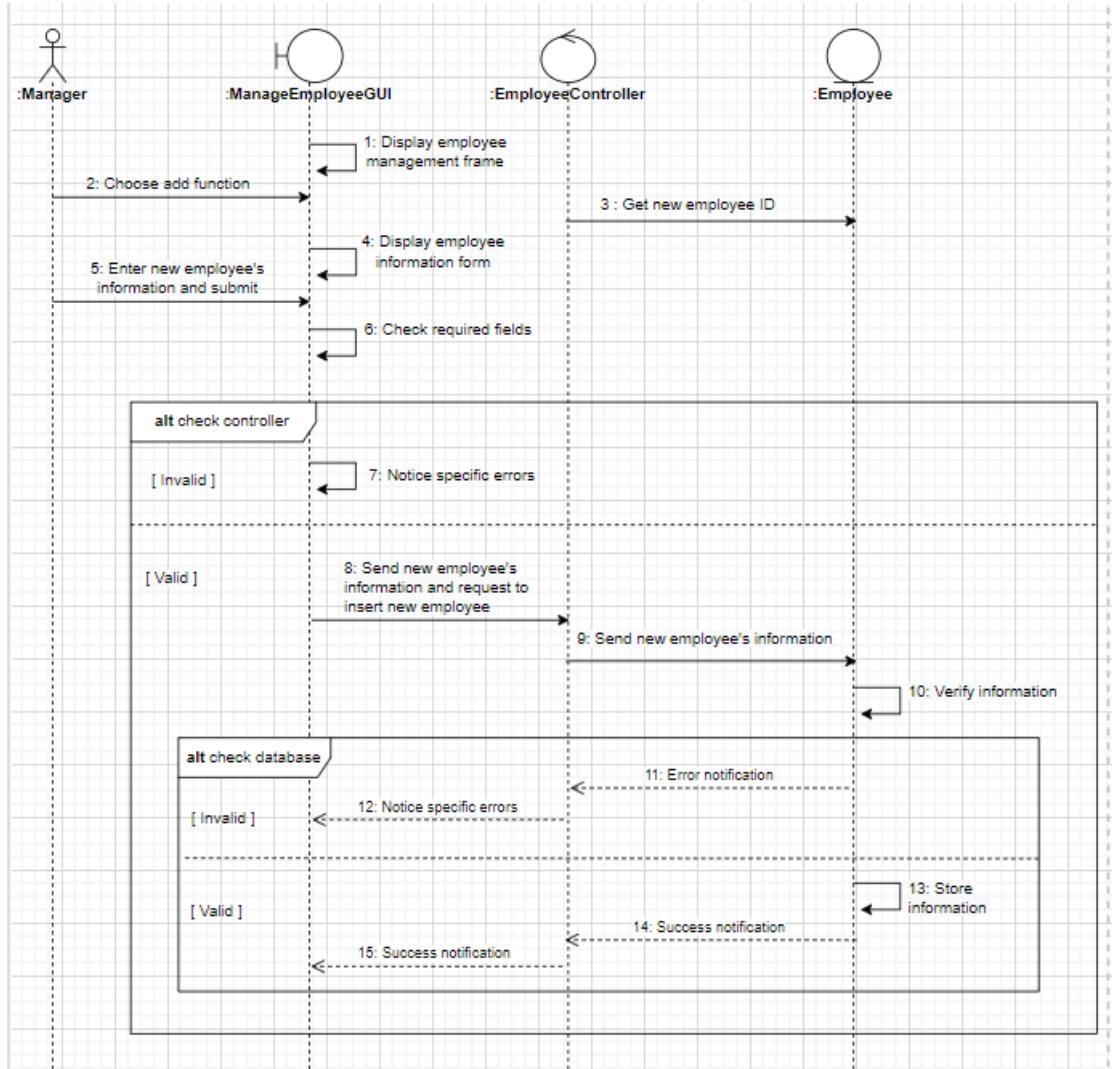


Picture 3.5.3.1 Revenue management class diagram

3.5.3 Employees Management

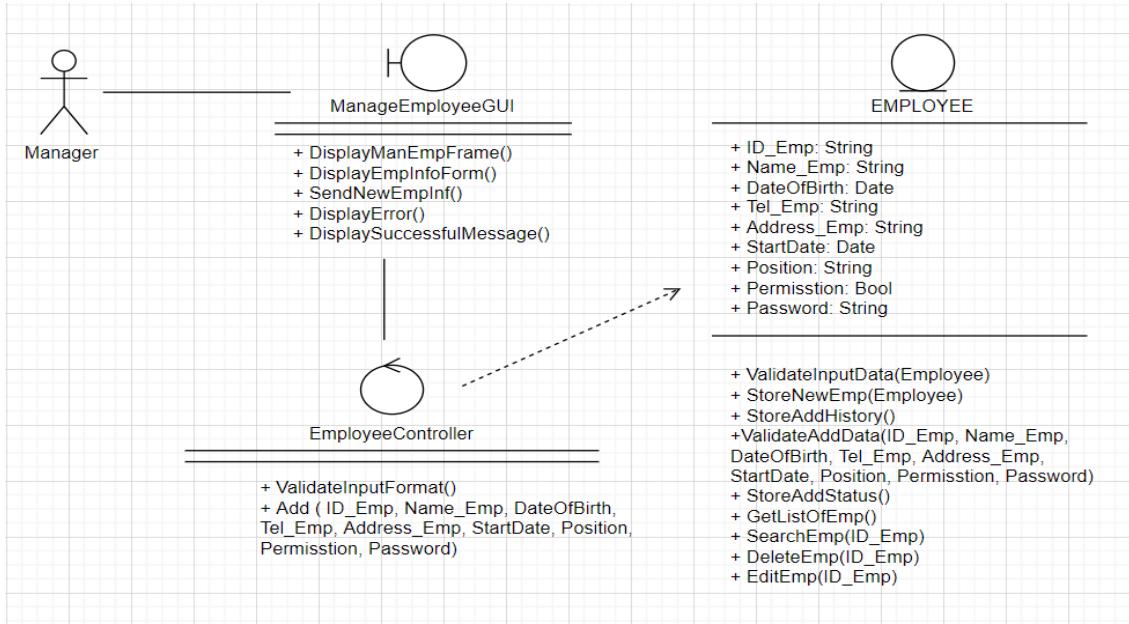
3.5.3.1 Insert employees

- Sequence Diagram



Picture 3.5.4 Insert employee sequence diagram

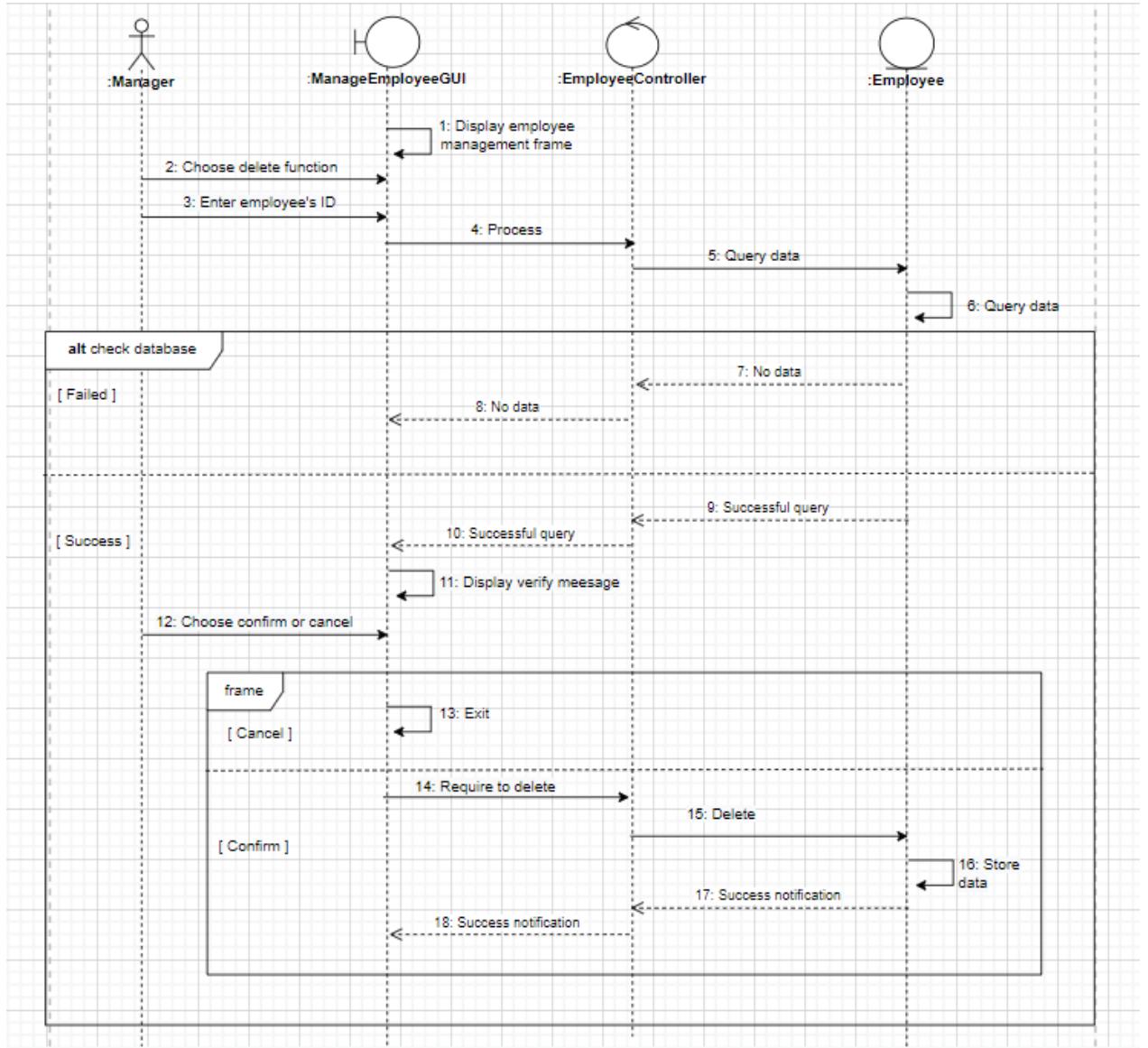
- Class Diagram



Picture 3.5.5 Insert employee class diagram

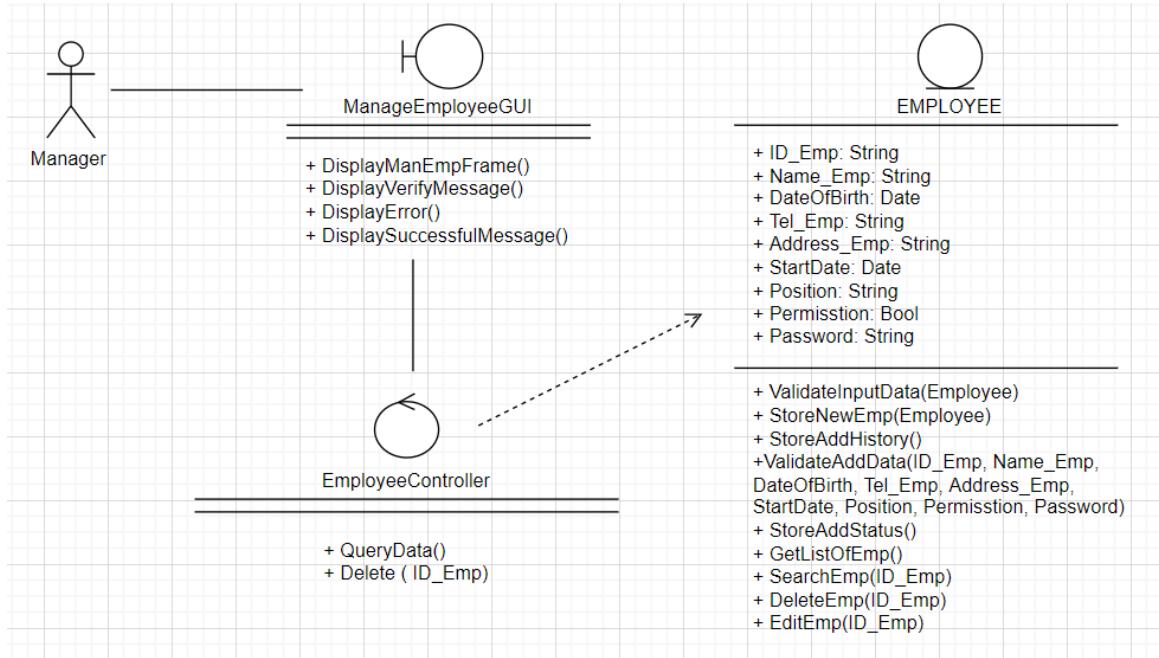
3.5.3.2 Delete Employee

- Sequence Diagram



Picture 3.5.6 Delete employee sequence diagram

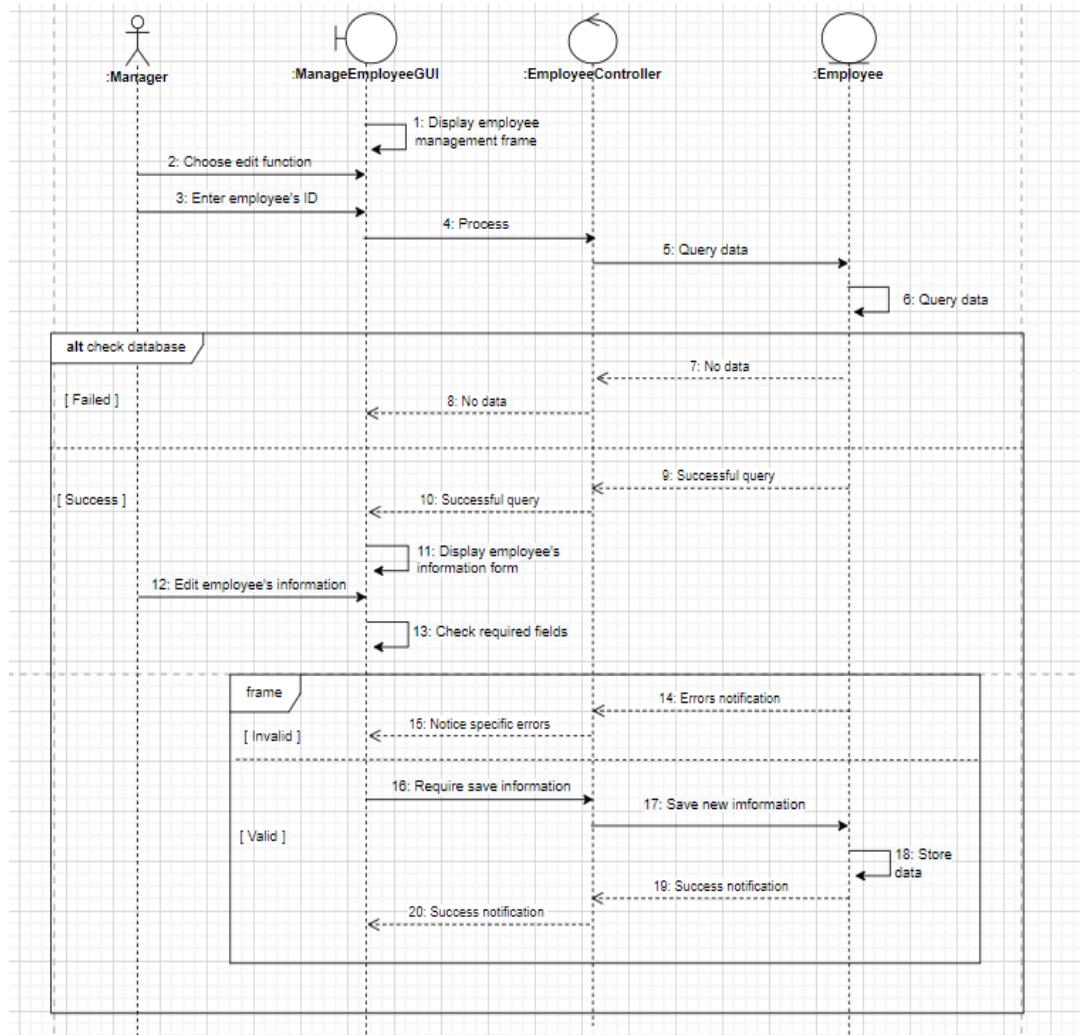
o Class Diagram



Picture 3.5.7 Delete employee class diagram

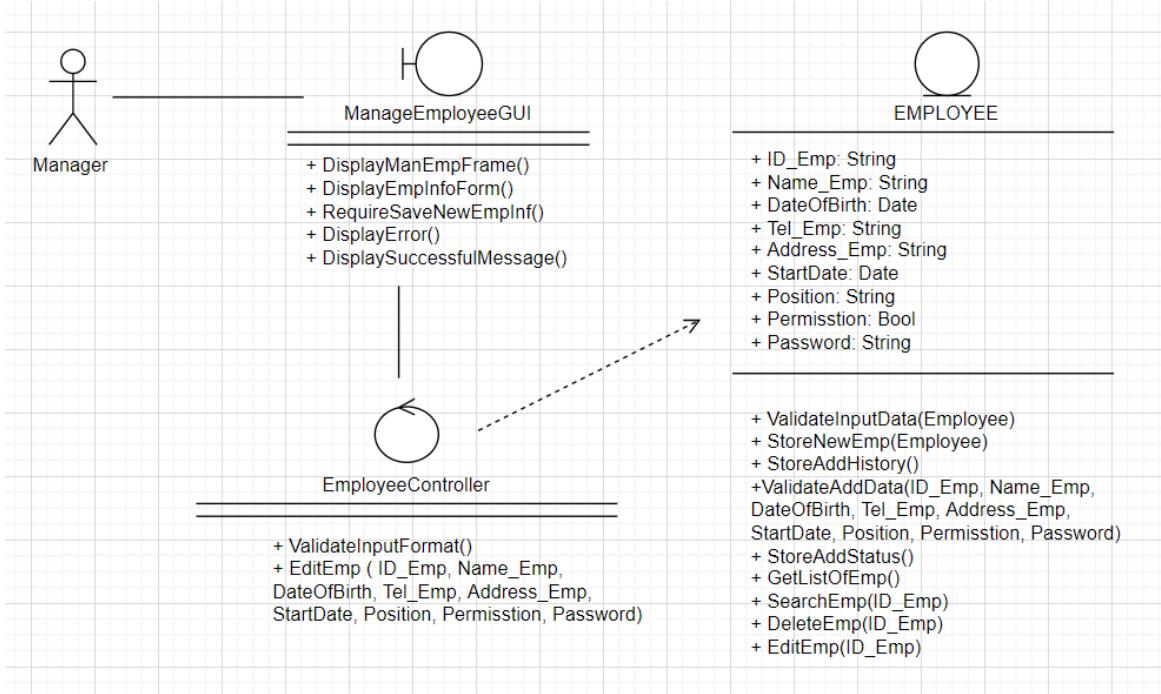
3.5.3.3 Edit Employee Information

- Sequence Diagram



Picture 3.5.8 Edit employee sequence diagram

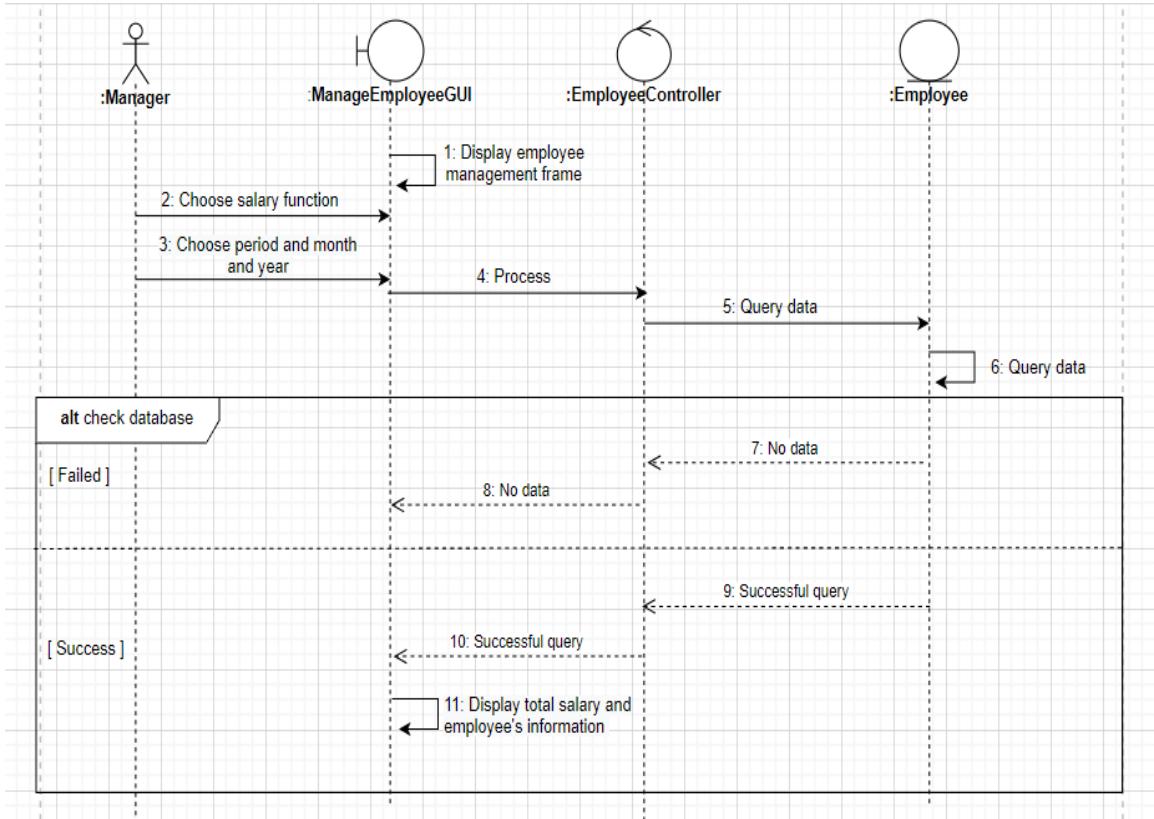
o Class Diagram



Picture 3.5.9 Edit employee class diagram

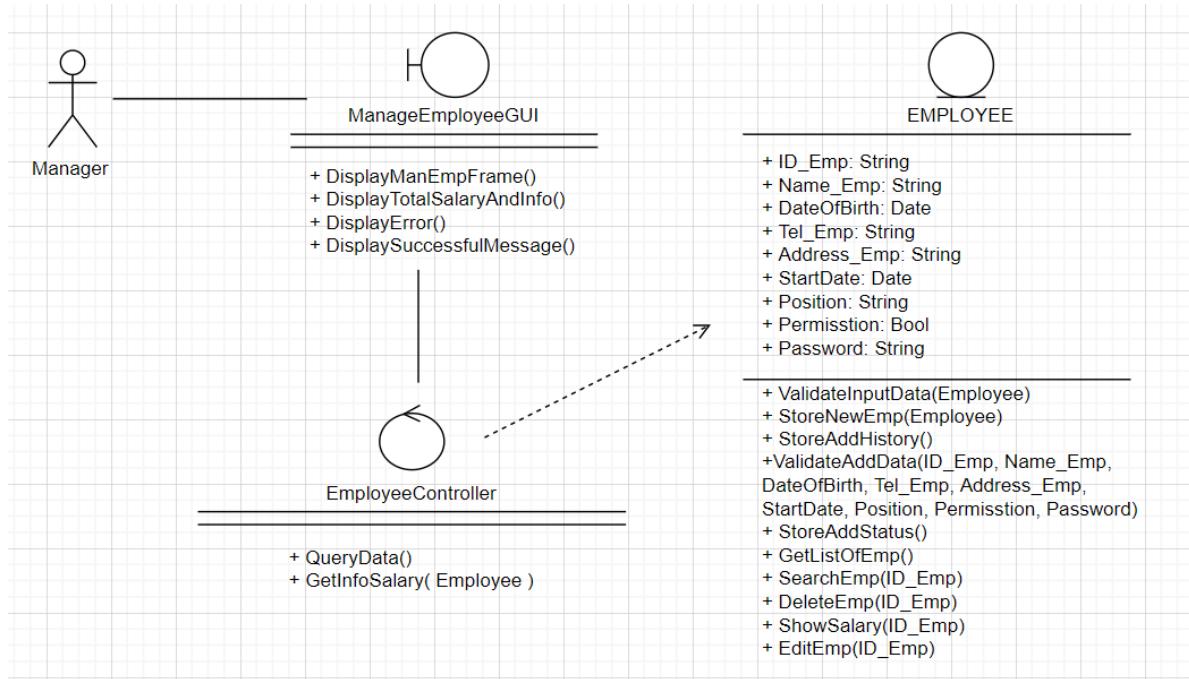
3.5.3.4 View employee's salary

- Sequence Diagram



Picture 3.5.10 Employee's salary sequence diagram

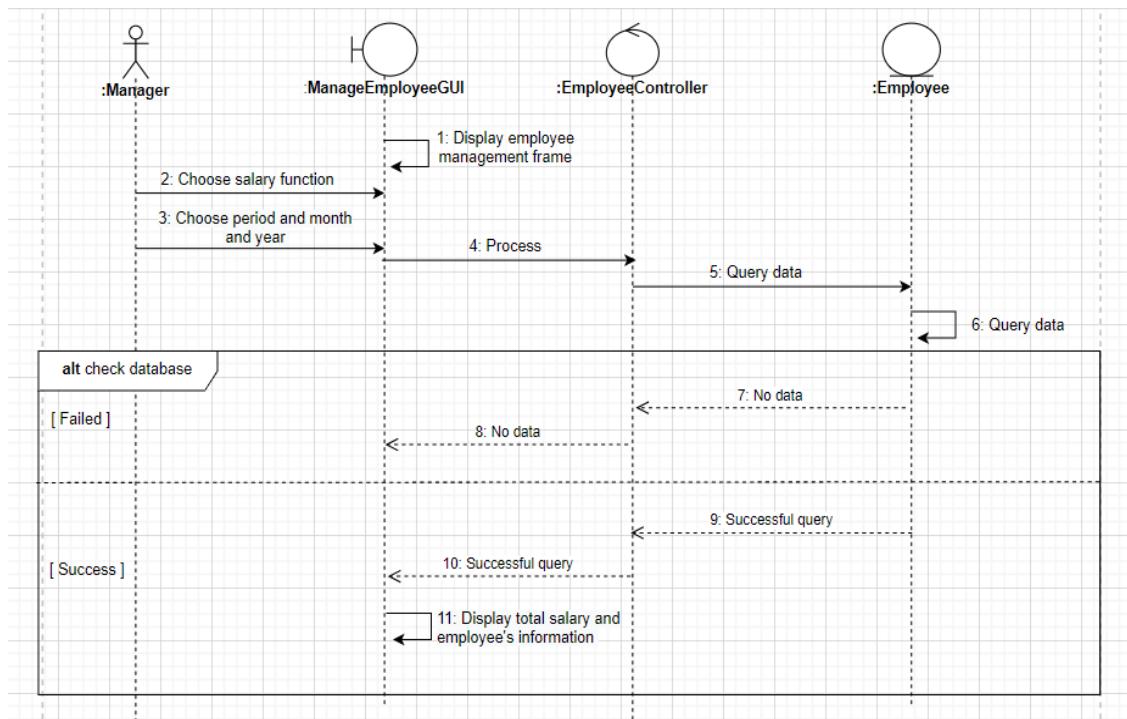
o Class Diagram



Picture 3.5.11 Employee's salary class diagram

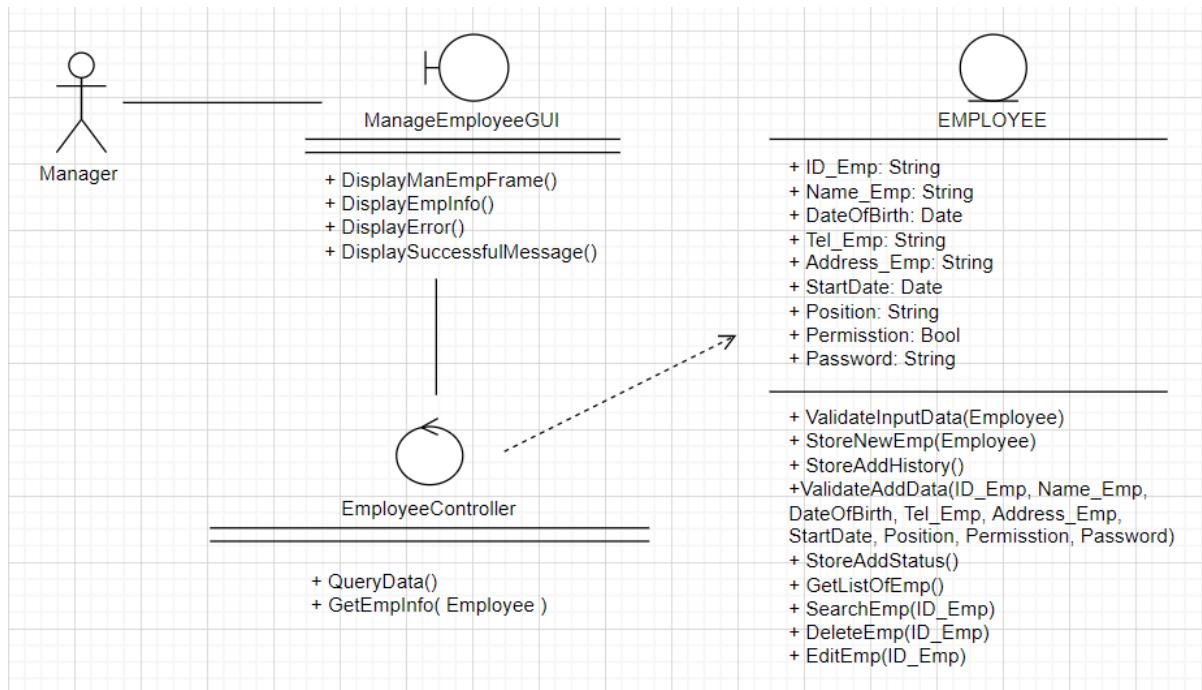
3.5.3.5 Search Employee

o Sequence Diagram



Picture 3.5.12 Search employee sequence diagram

o Class Diagram

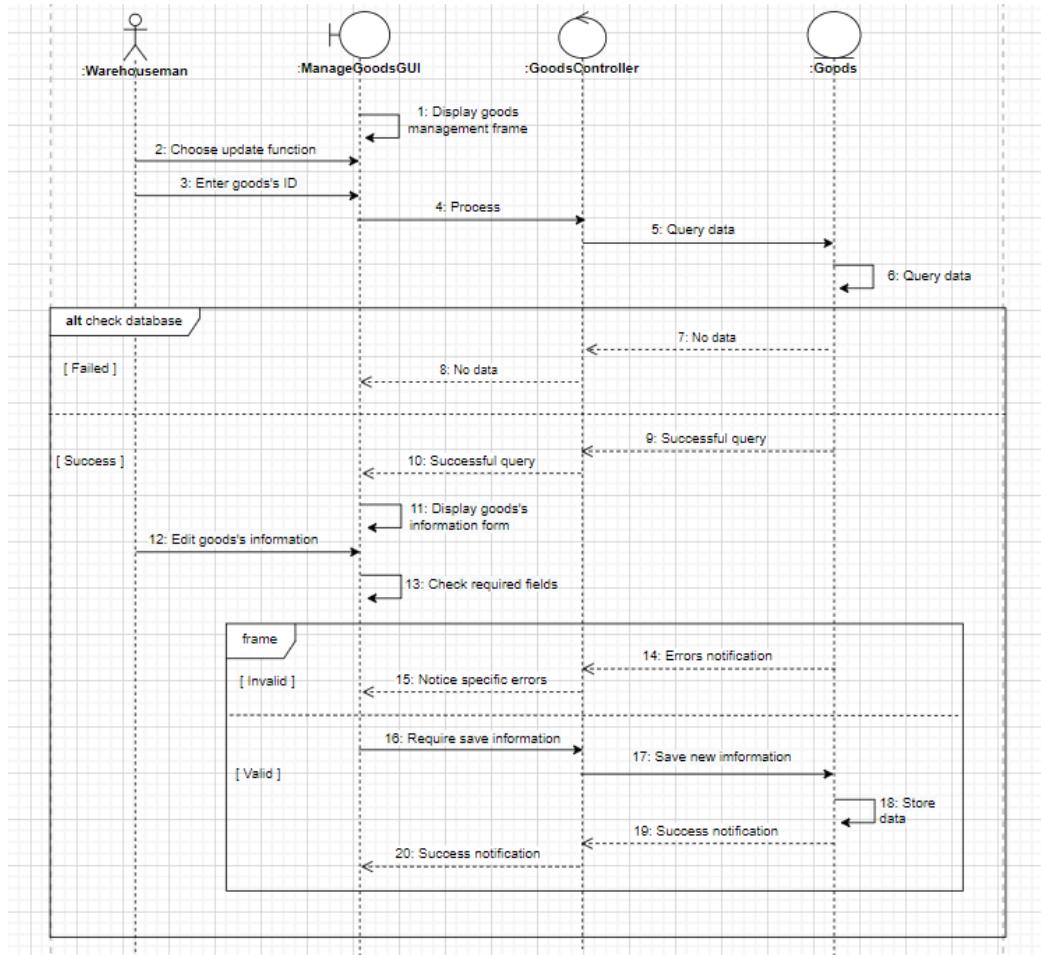


Picture 3.5.13 Search employee class diagram

3.5.4 Goods Management

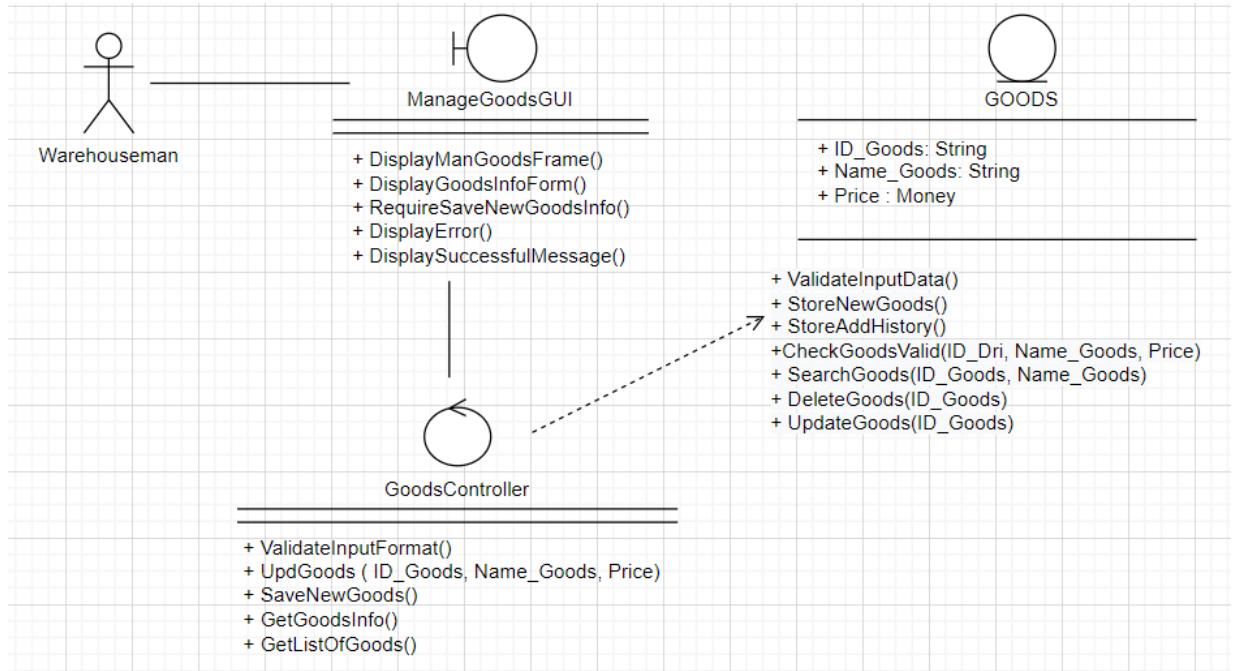
3.5.4.1 Edit goods

- o Sequence Diagram



Picture 3.5.14 Edit goods sequence diagram

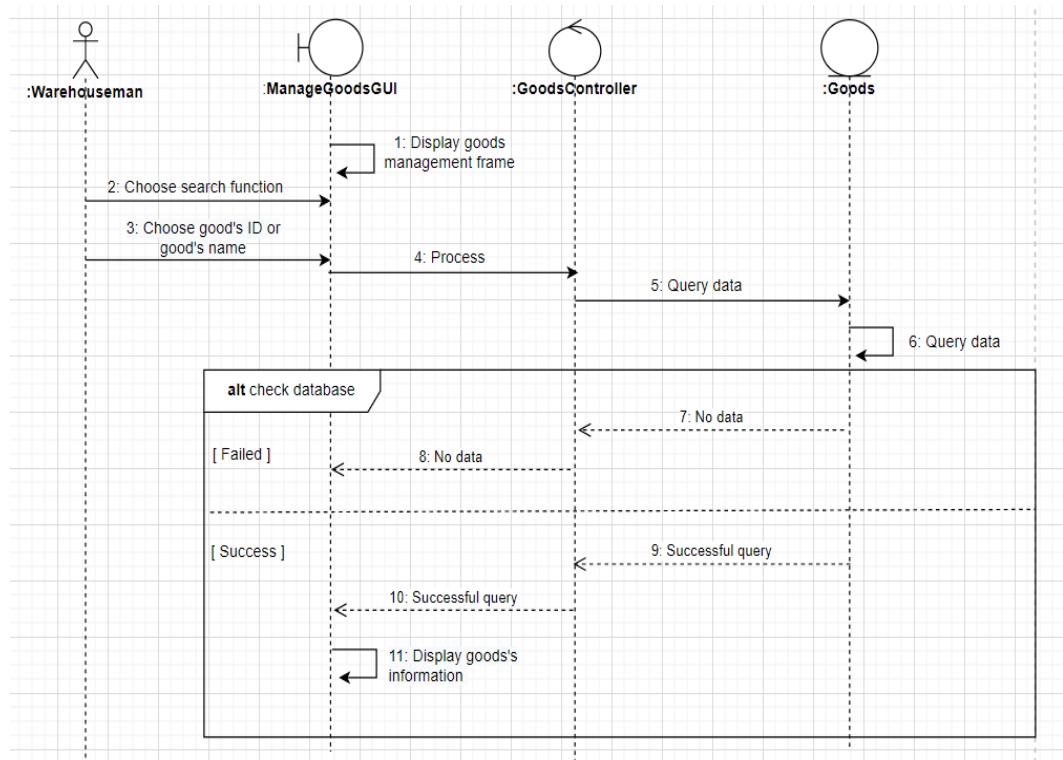
- o Class Diagram



Picture 3.5.15 Edit goods class diagram

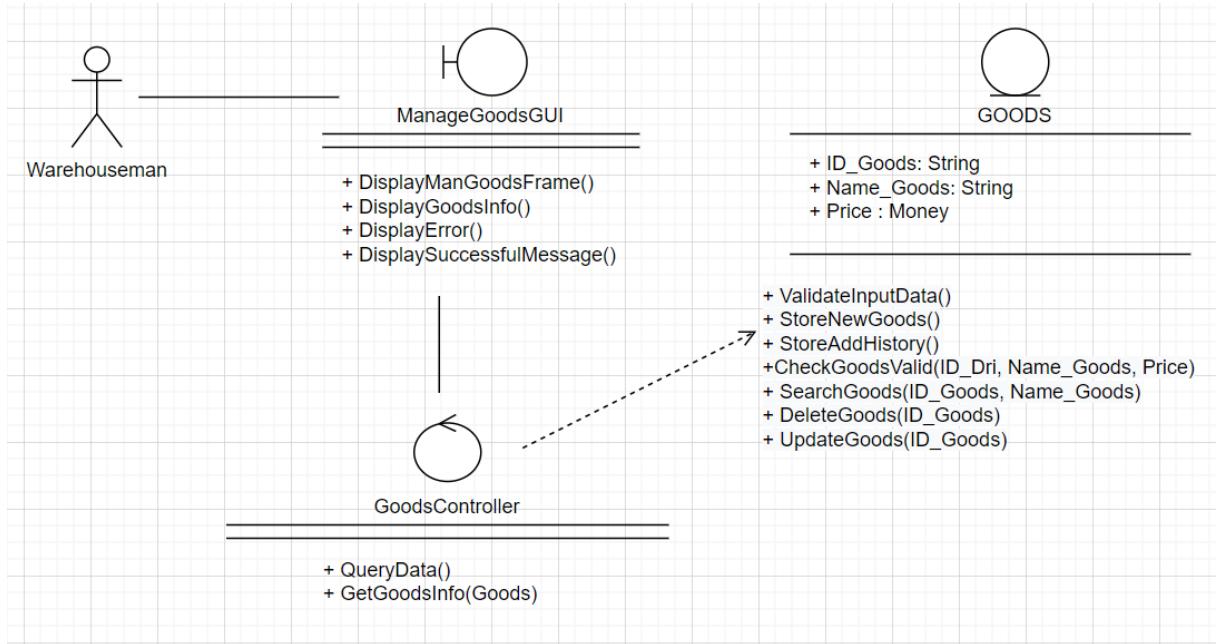
3.5.4.2 Search goods

- Sequence Diagram



Picture 3.5.16 Search goods sequence diagram

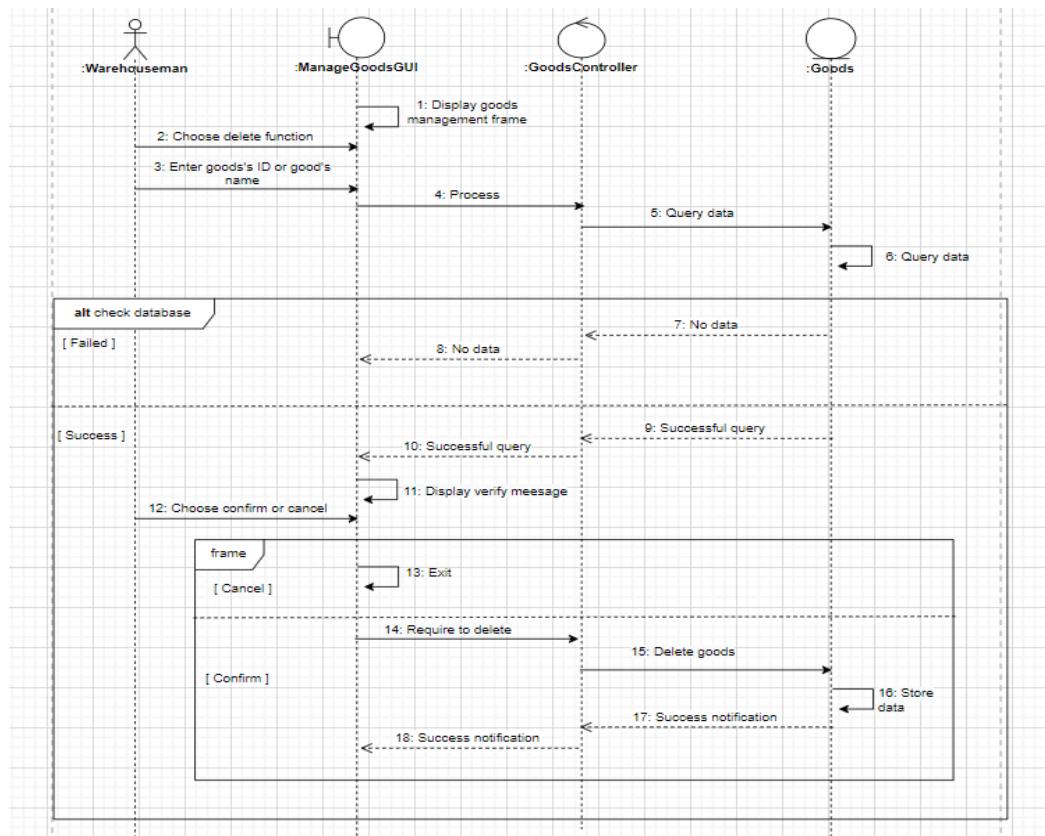
o Class Diagram



Picture 3.5.17 Search goods class diagram

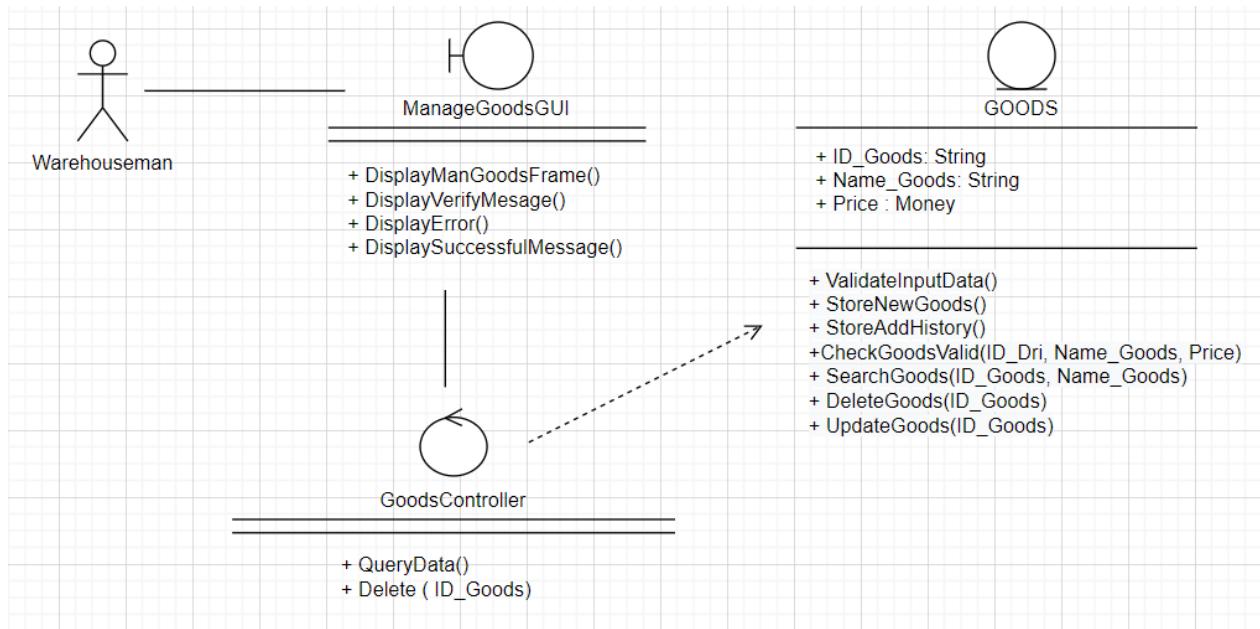
3.5.4.3 Delete goods

o Sequence Diagram



Picture 3.5.18 Delete goods sequence diagram

o Class Diagram

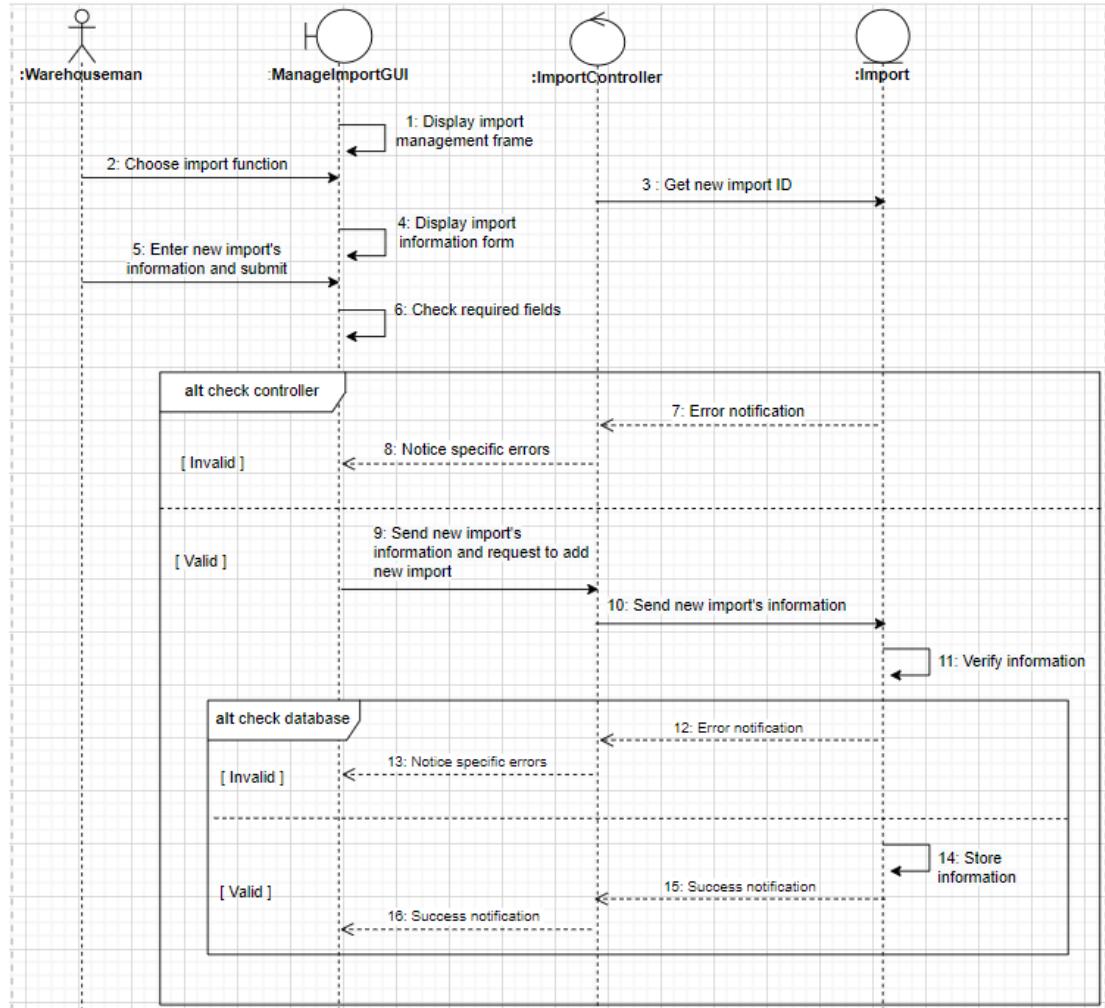


Picture 3.5.19 Delete goods sequence diagram

3.5.5 Import Management

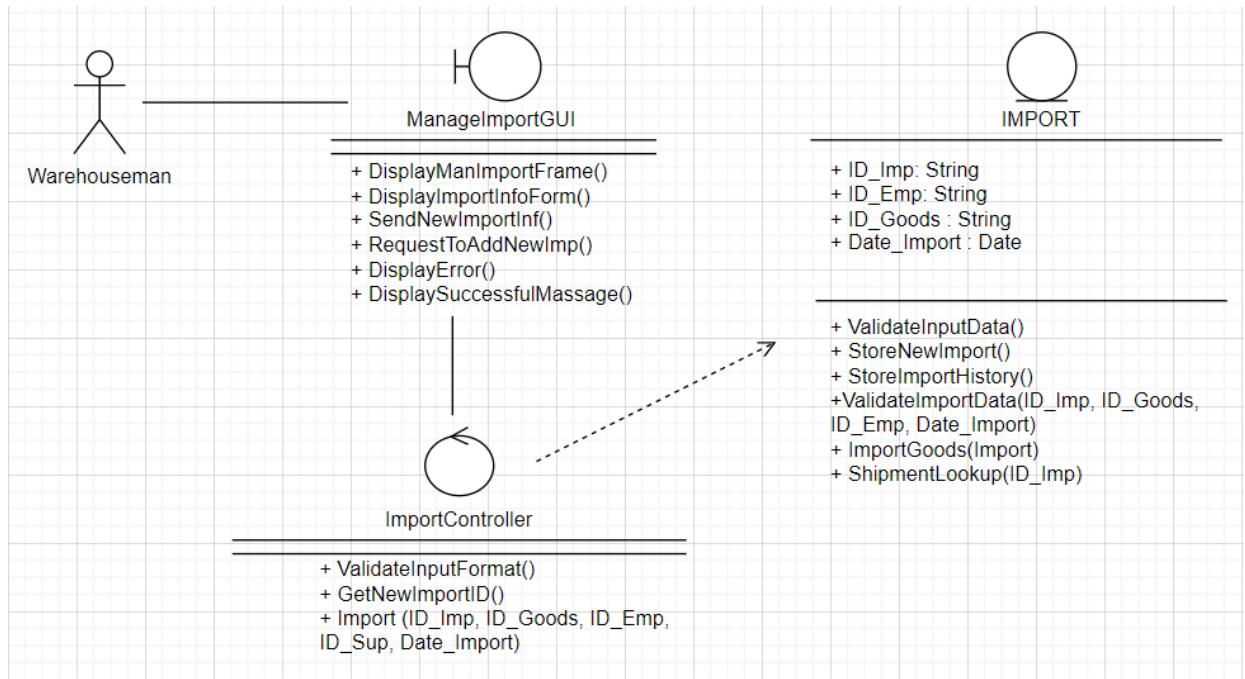
3.5.5.1 Import goods

- o Sequence Diagram



Picture 3.5.20 Import goods sequence diagram

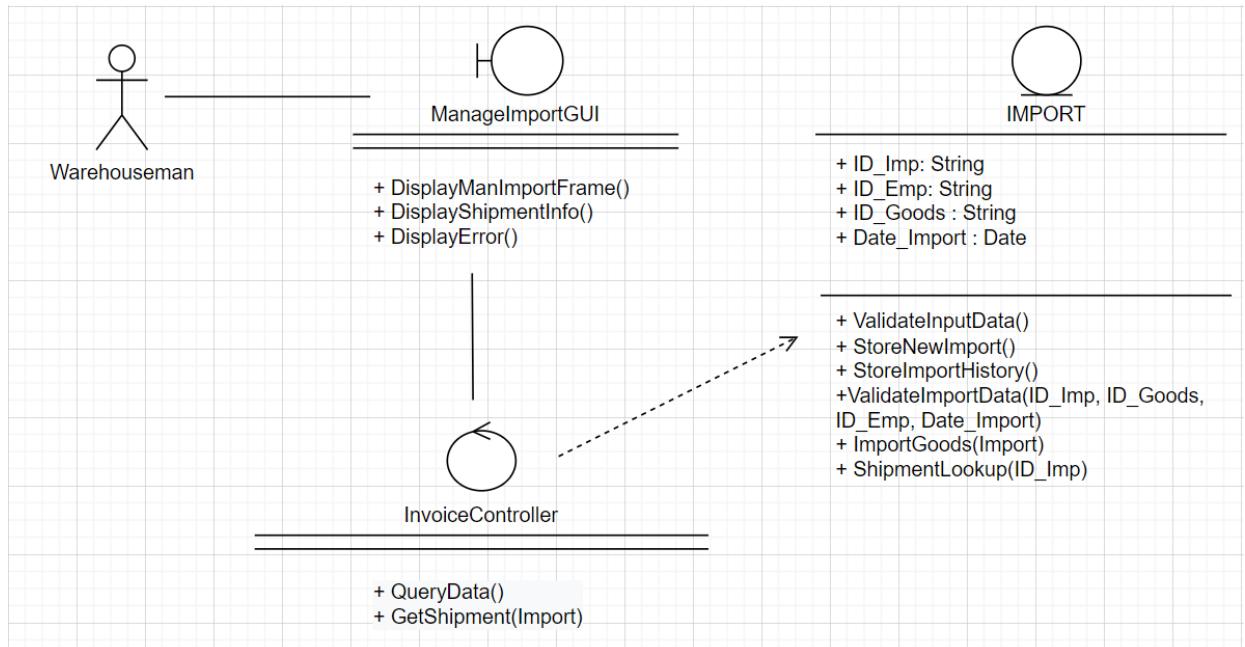
- o Class Diagram



Picture 3.5.21 Import goods class diagram

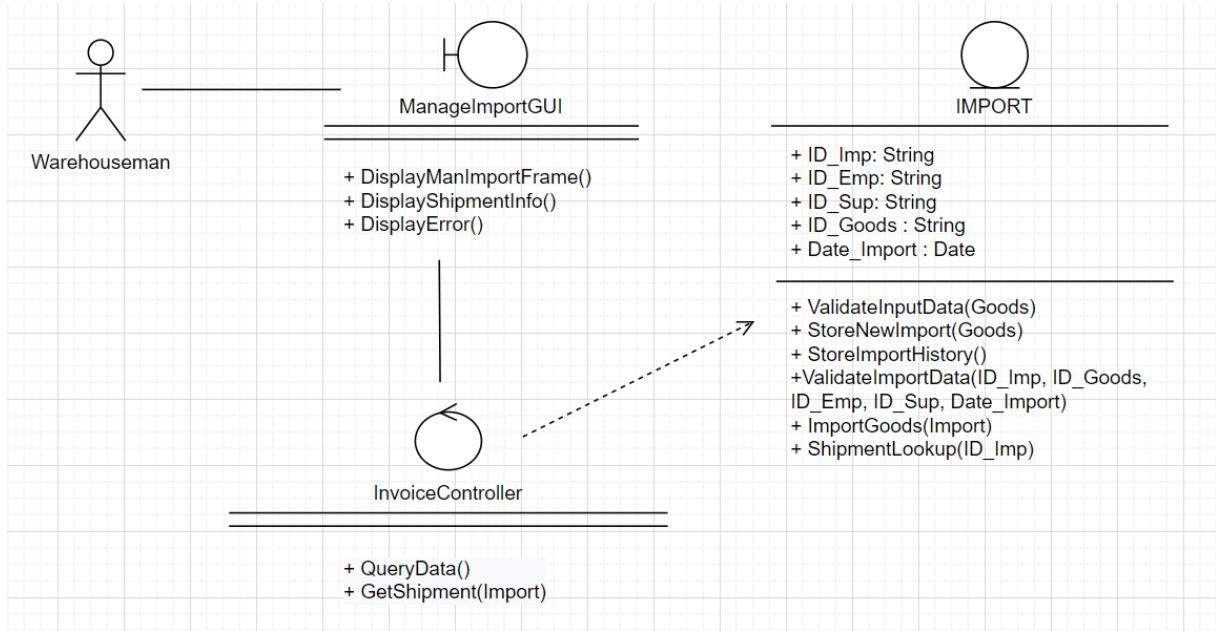
3.5.5.2 Shipment Lookup

- o Sequence Diagram



Picture 3.5.22 Shipment Lookup sequence diagram

- o Class Diagram

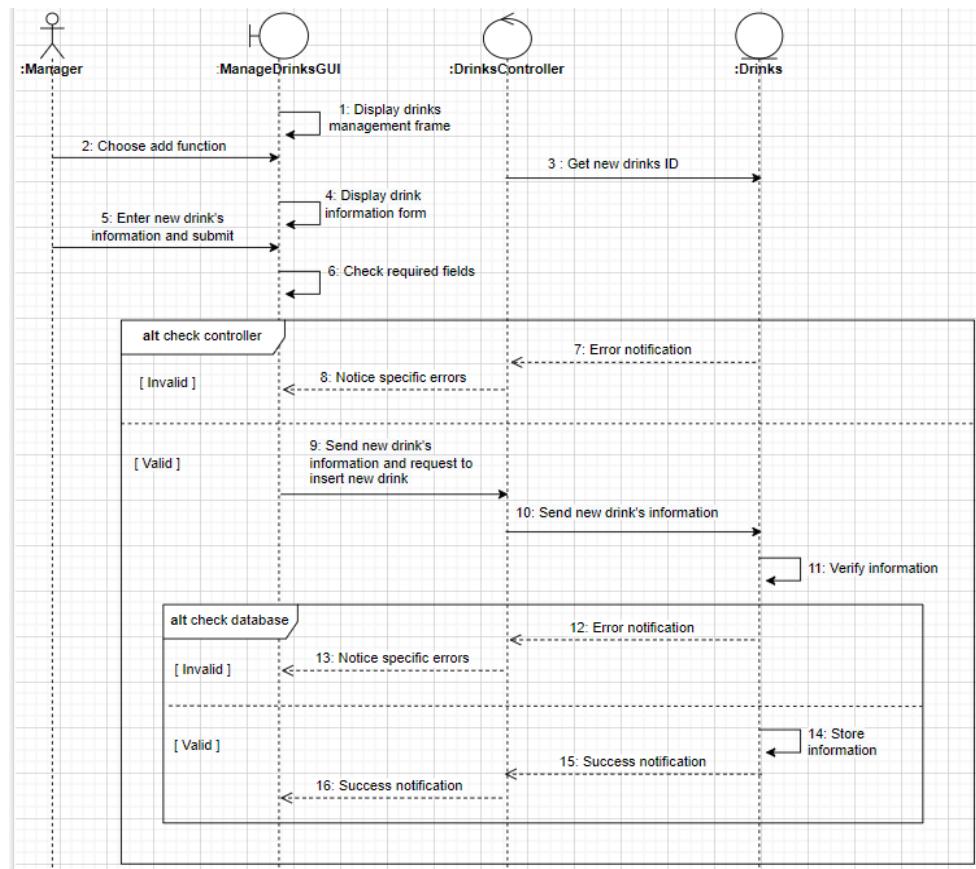


Picture 3.5.23 Shipment Lookup class diagram

3.5.6 Drinks Management

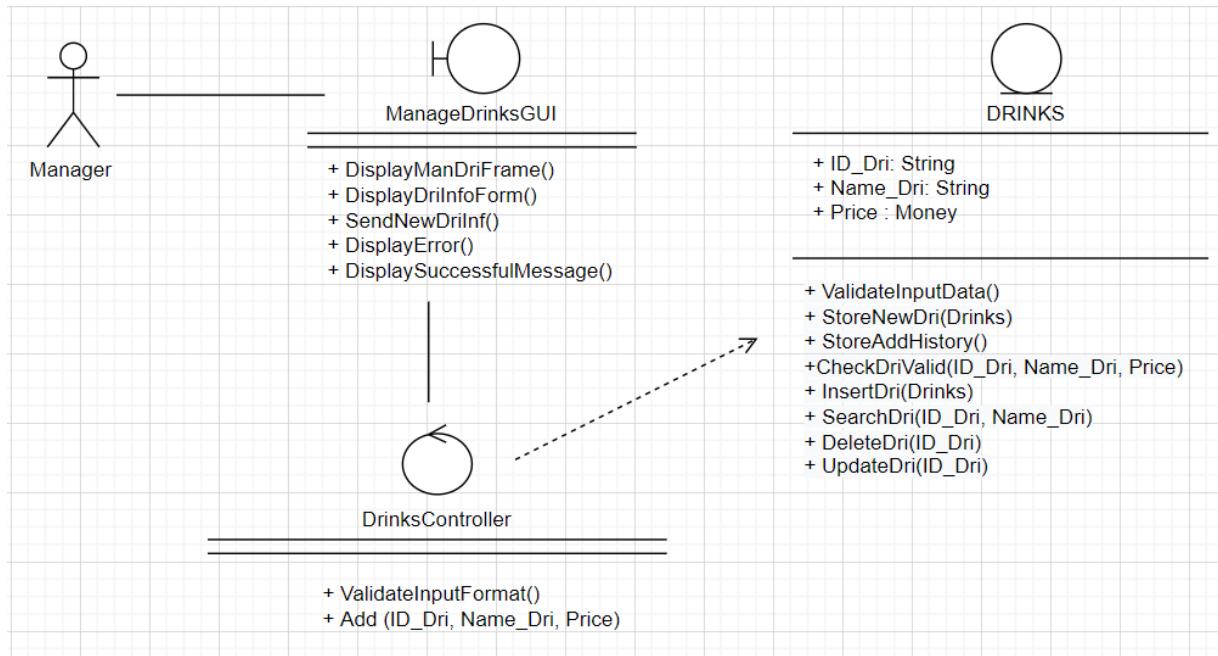
3.5.6.1 Insert drinks

- Sequence Diagram



Picture 3.5.24 Insert drinks sequence diagram

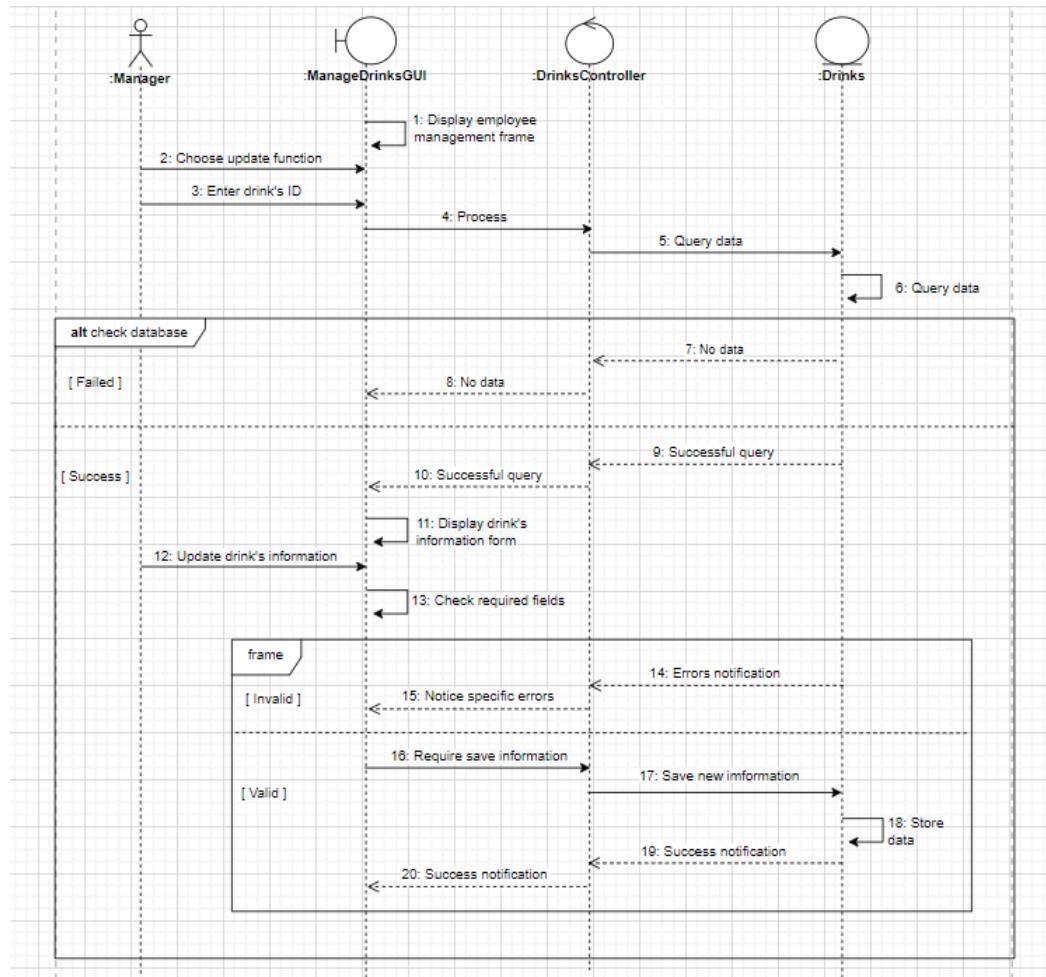
o Class Diagram



Picture 3.5.25 Insert drinks class diagram

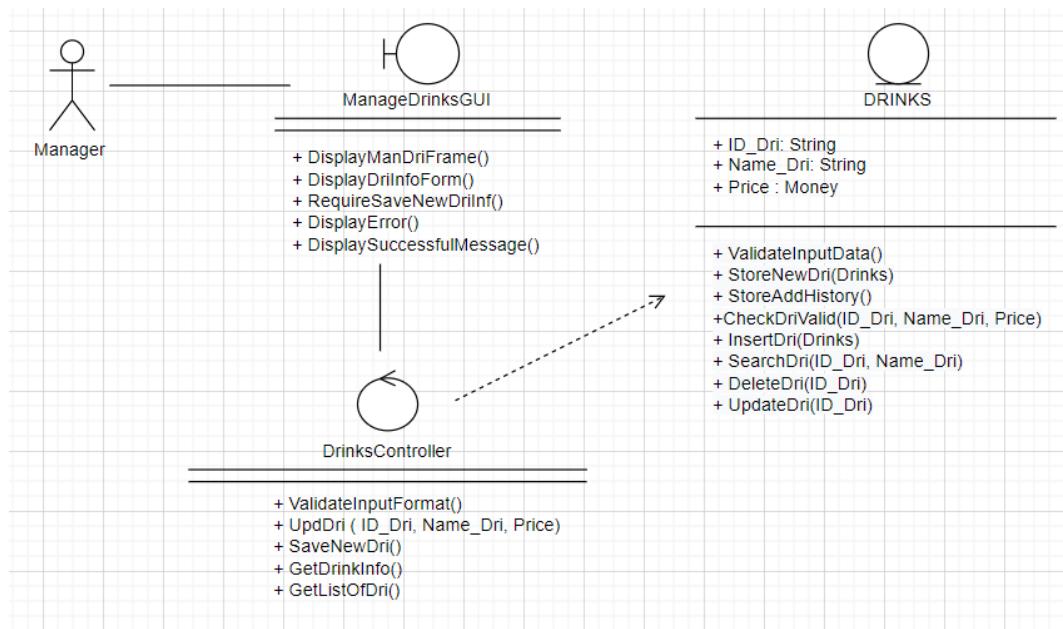
3.5.6.2 Update drinks

- o Sequence Diagram



Picture 3.5.26 Update drinks sequence diagram

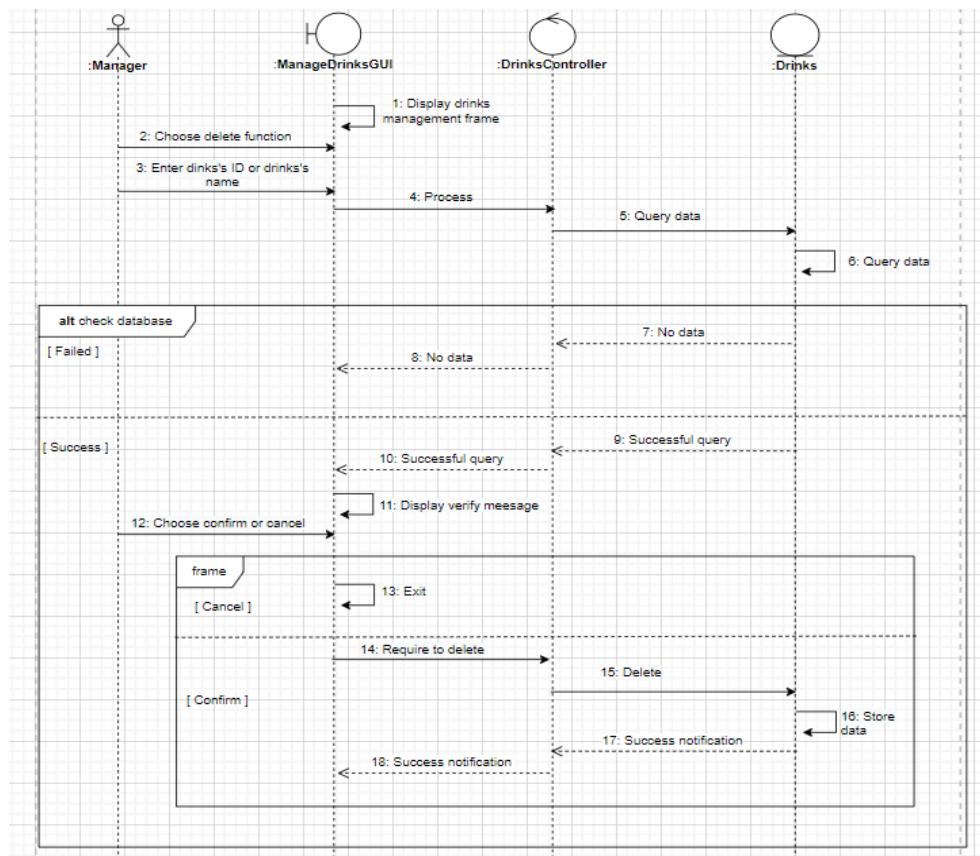
- o Class Diagram



Picture 3.5.27 Update drinks class diagram

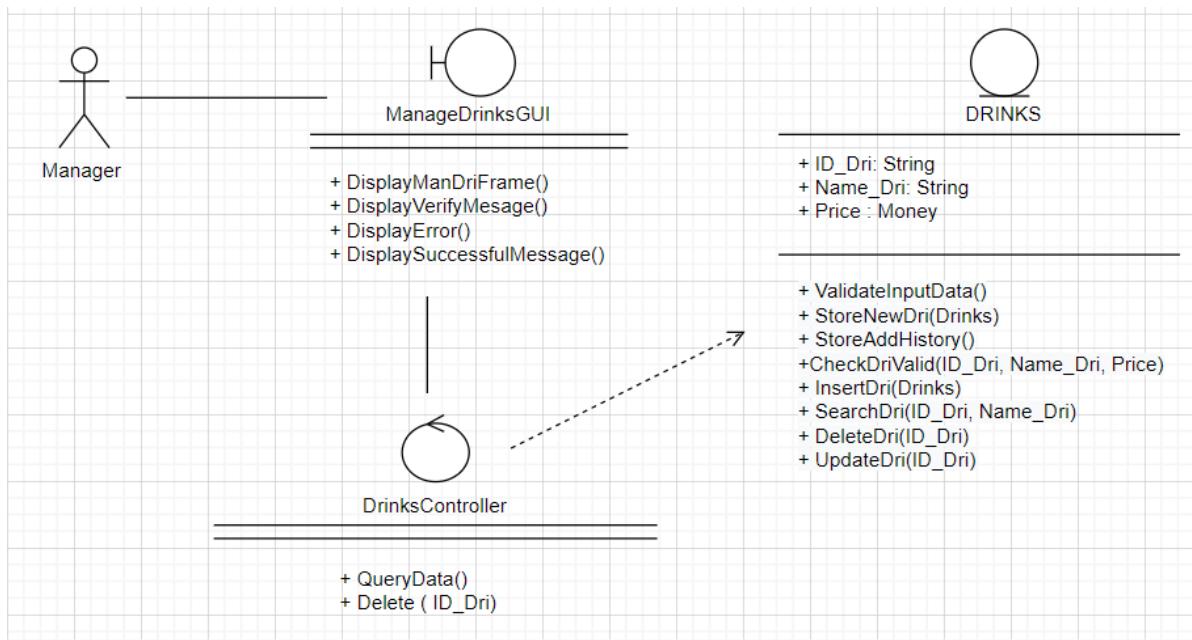
3.5.6.3 Delete drinks

- Sequence Diagram



Picture 3.5.28 Delete drinks sequence diagram

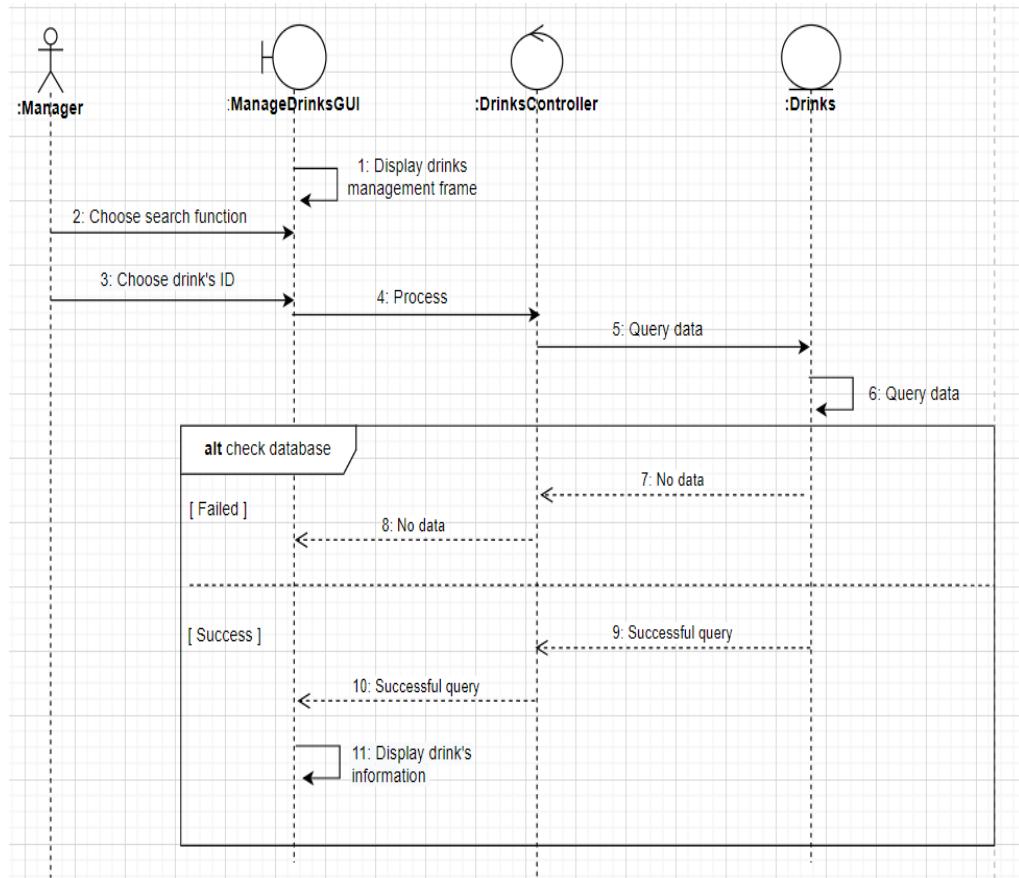
o Class Diagram



Picture 3.5.29 Delete drinks class diagram

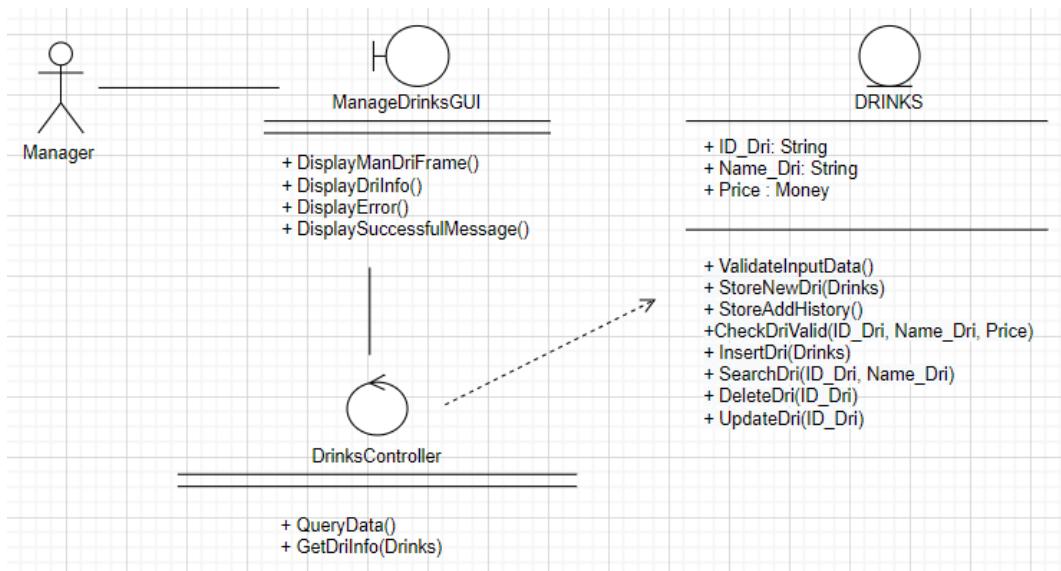
3.5.6.4. Search drinks

o Sequence Diagram



Picture 3.5.30 Search drinks sequence diagram

o Class Diagram

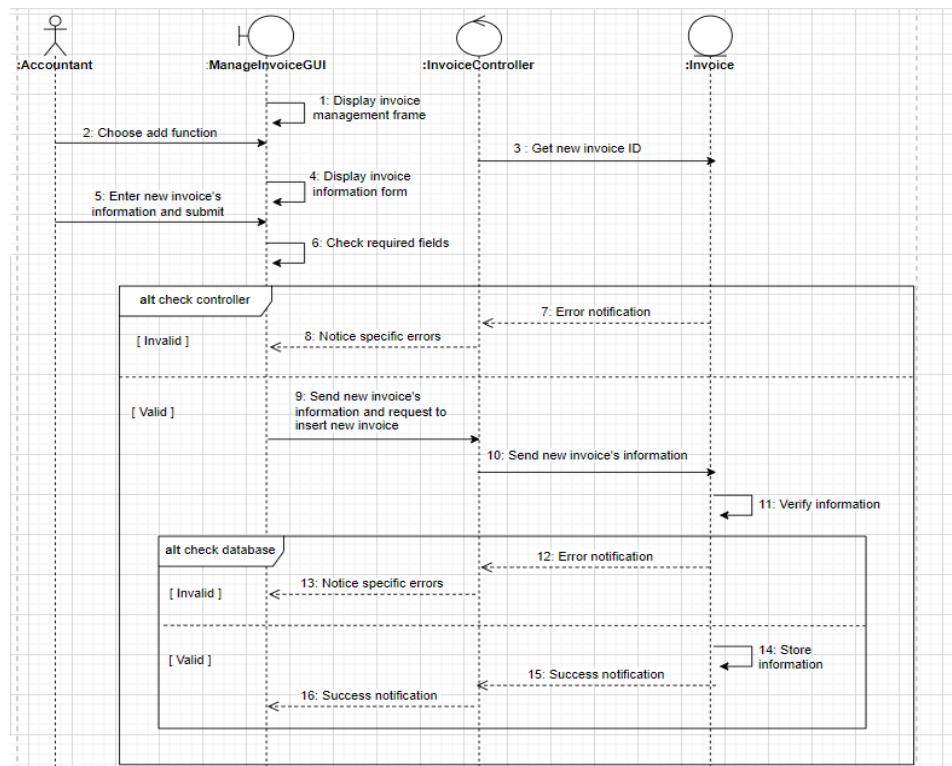


Picture 3.5.31 Search drinks class diagram

3.5.7 Invoices Management

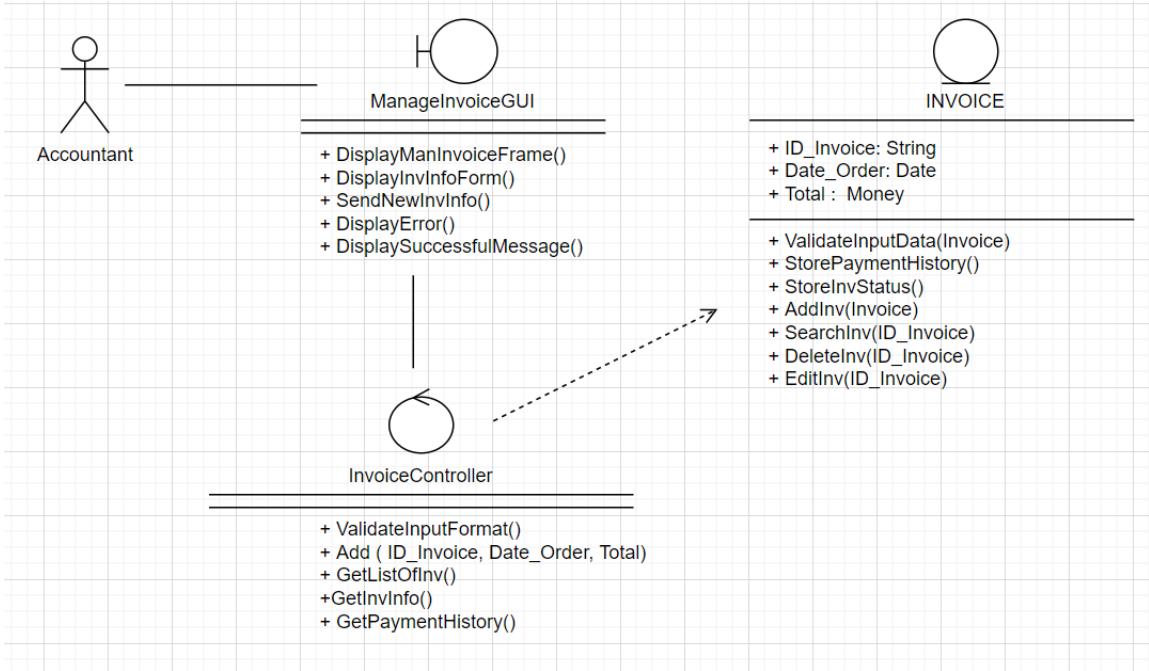
3.5.7.1 Insert Invoice

- o Sequence Diagram



Picture 3.5.32 Insert invoice sequence diagram

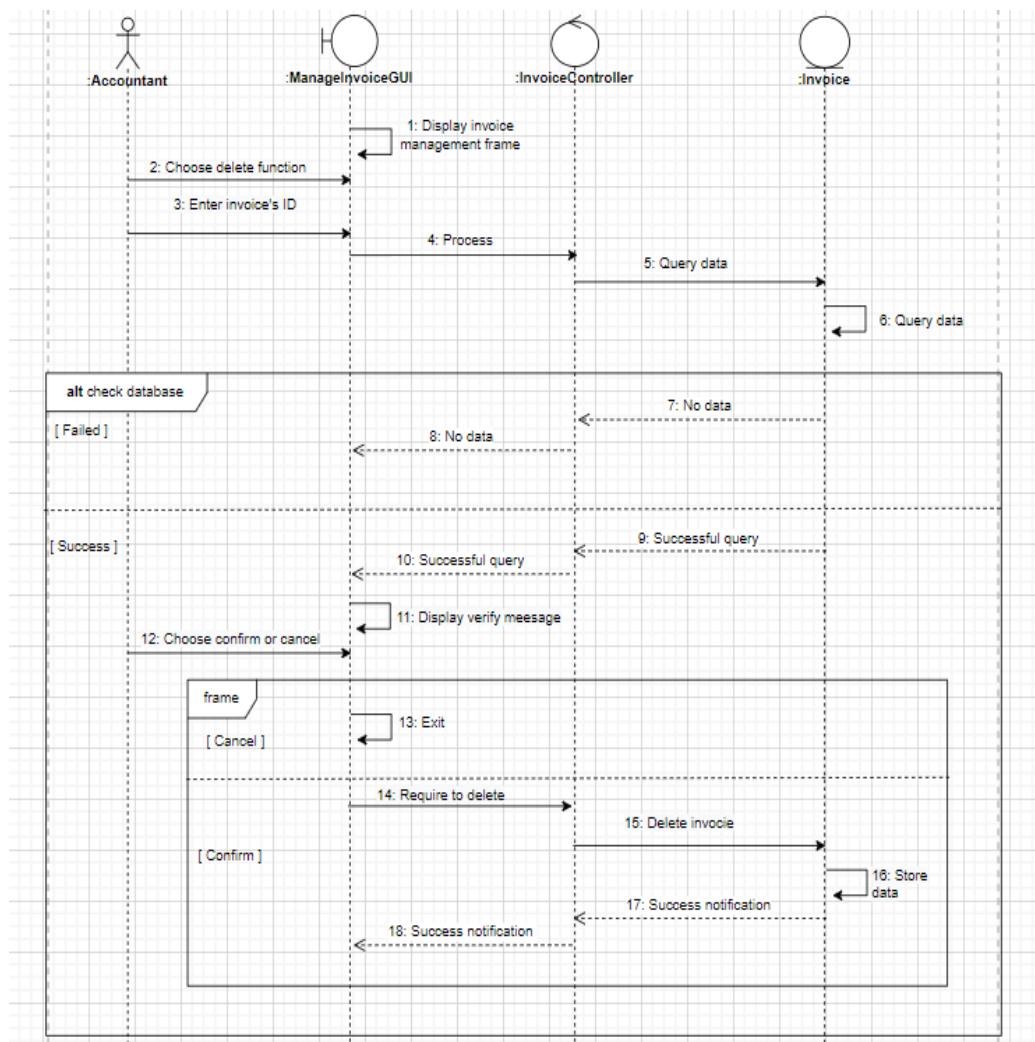
- o Class Diagram



Picture 3.5.33 Insert invoice class diagram

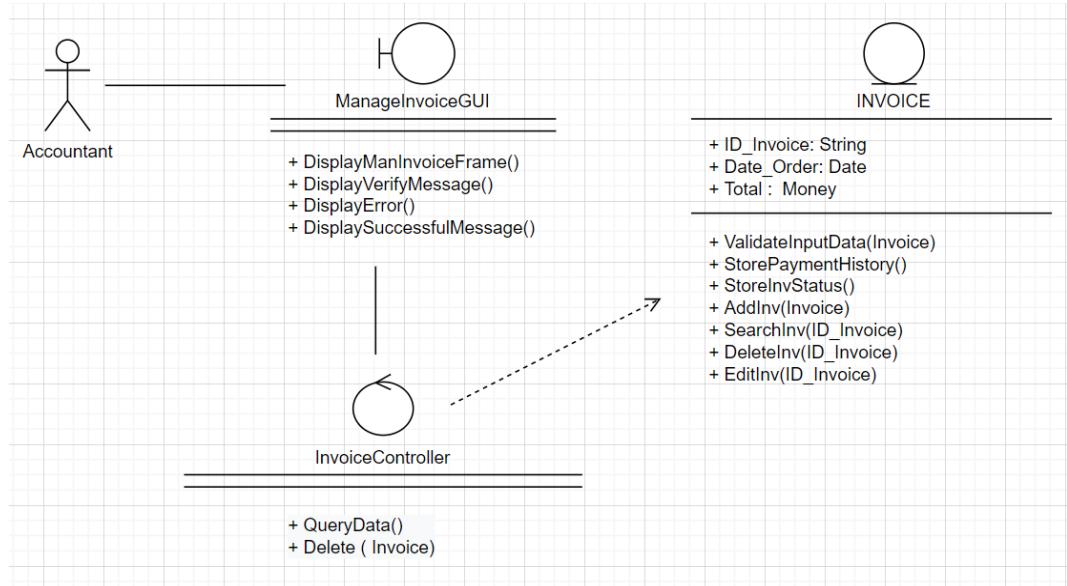
3.5.7.2 Delete Invoice

- Sequence Diagram



Picture 3.5.34 Delete invoice sequence diagram

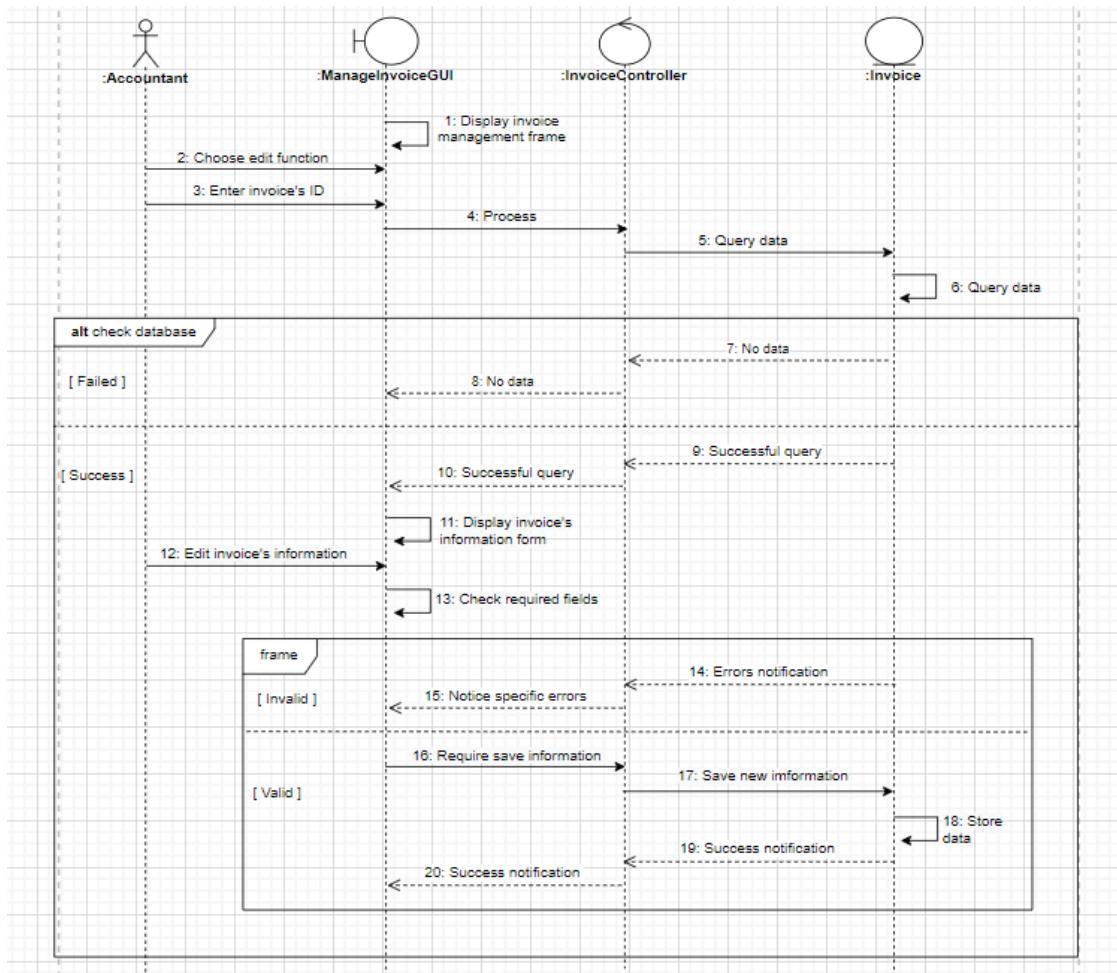
o Class Diagram



Picture 3.5.35 Delete invoice class diagram

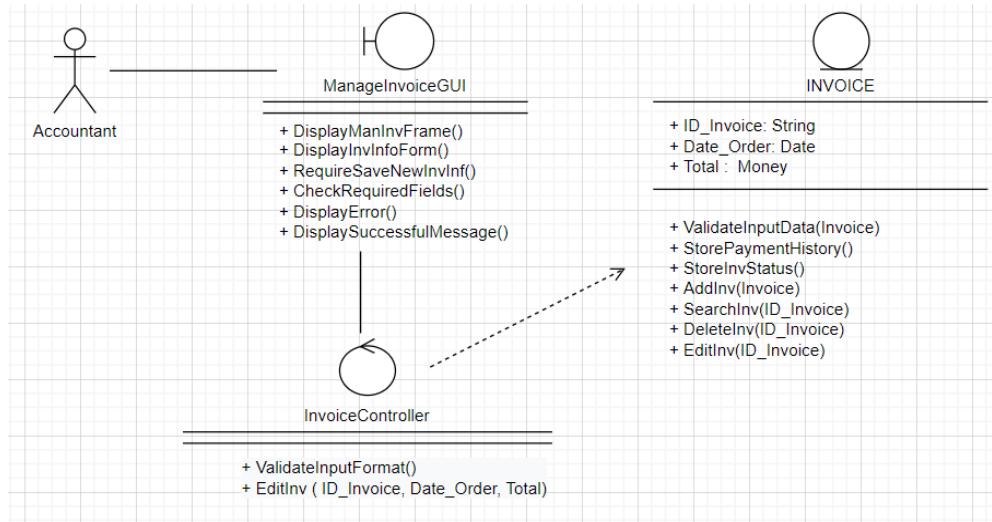
3.5.7.3 Edit Invoice

- Sequence Diagram



Picture 3.5.36 Edit invoice sequence diagram

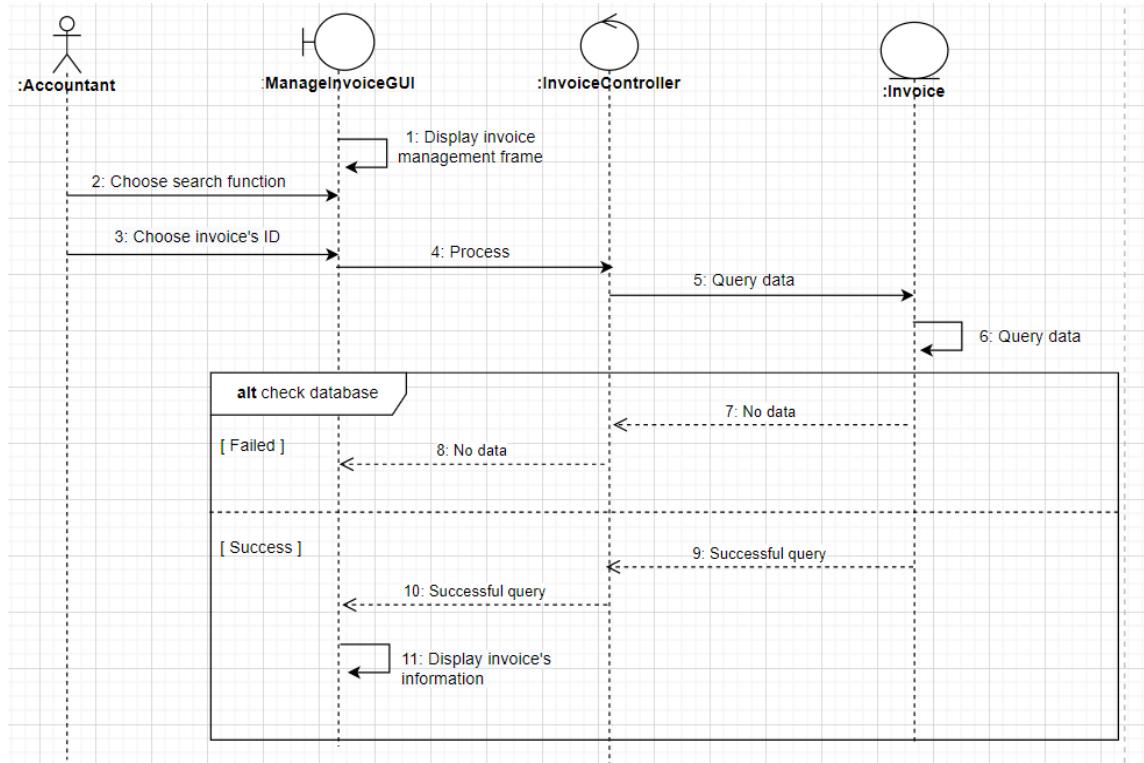
- Class Diagram



Picture 3.5.37 Edit invoice class diagram

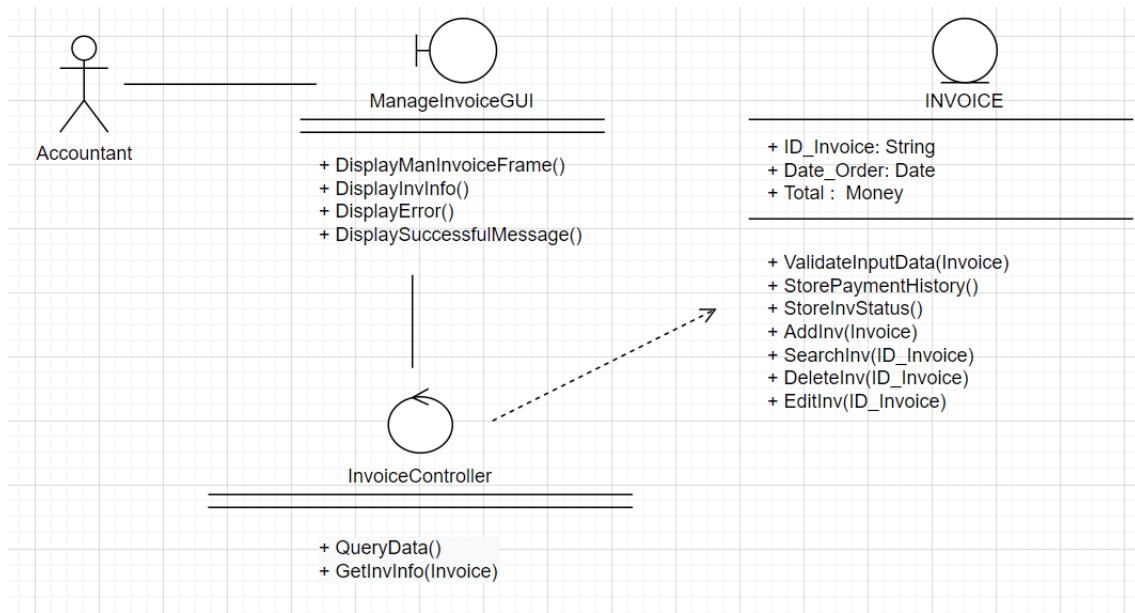
3.5.7.4 Search Invoice

- Sequence Diagram



Picture 3.5.38 Search invoice sequence diagram

- Class Diagram

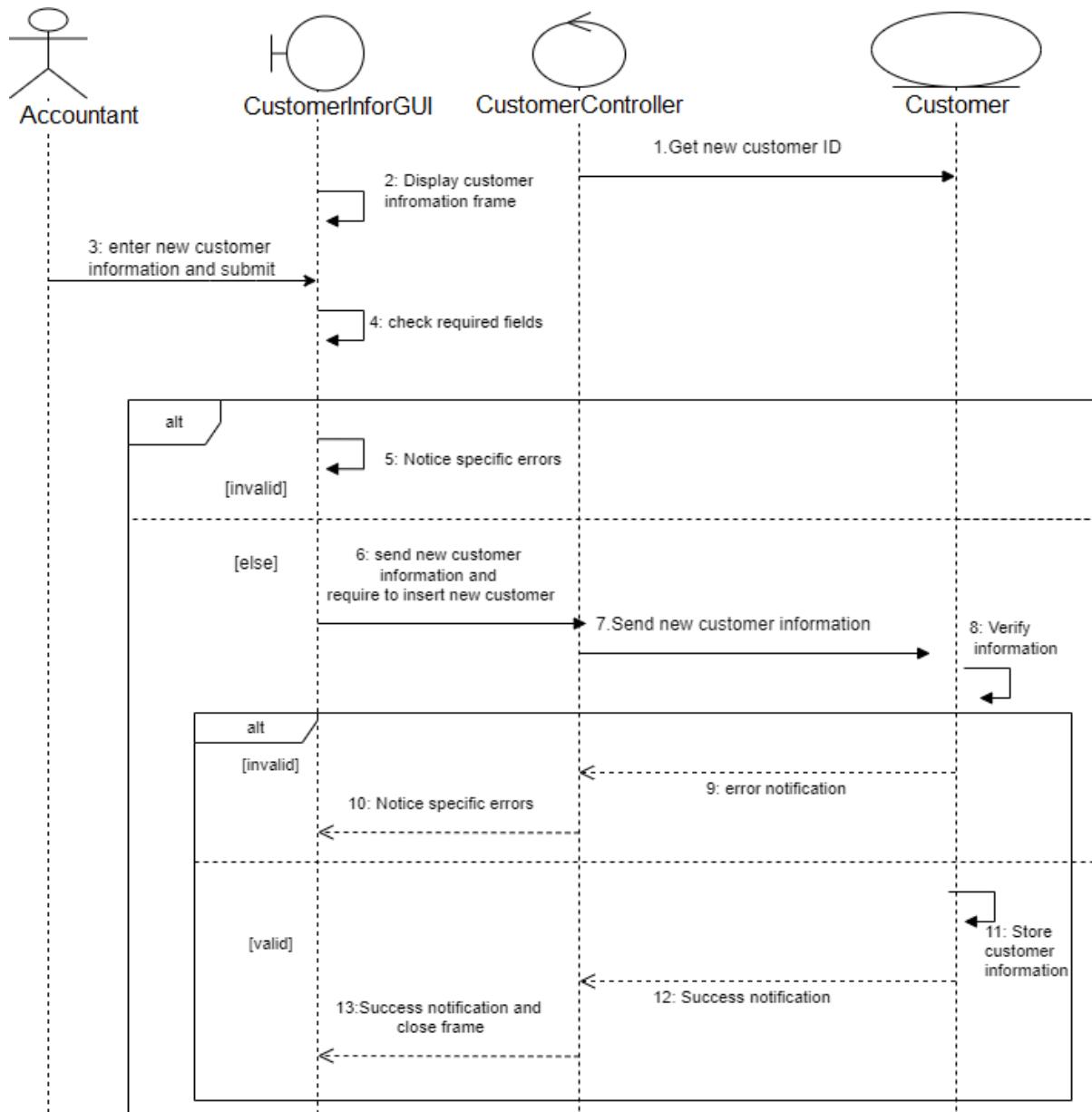


Picture 3.5.39 Search invoice class diagram

3.5.8 Customers Management

3.5.8.1 Insert customer

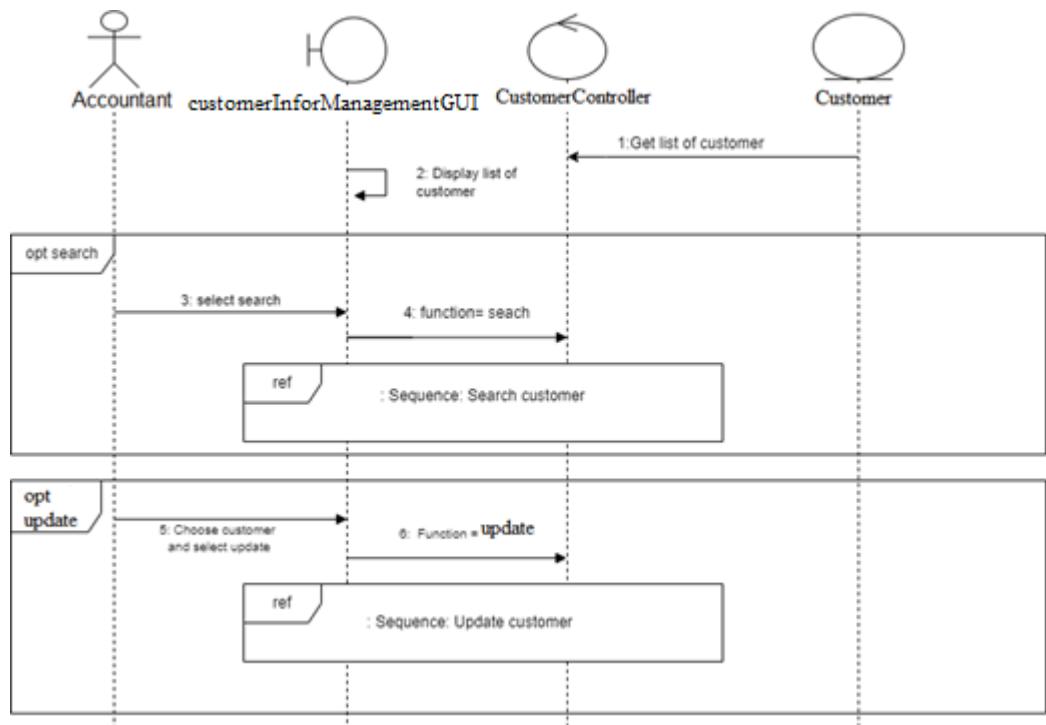
- o Sequence Diagram



Picture 3.5.40 Insert customer sequence diagram

3.5.8.2 Search and update customer

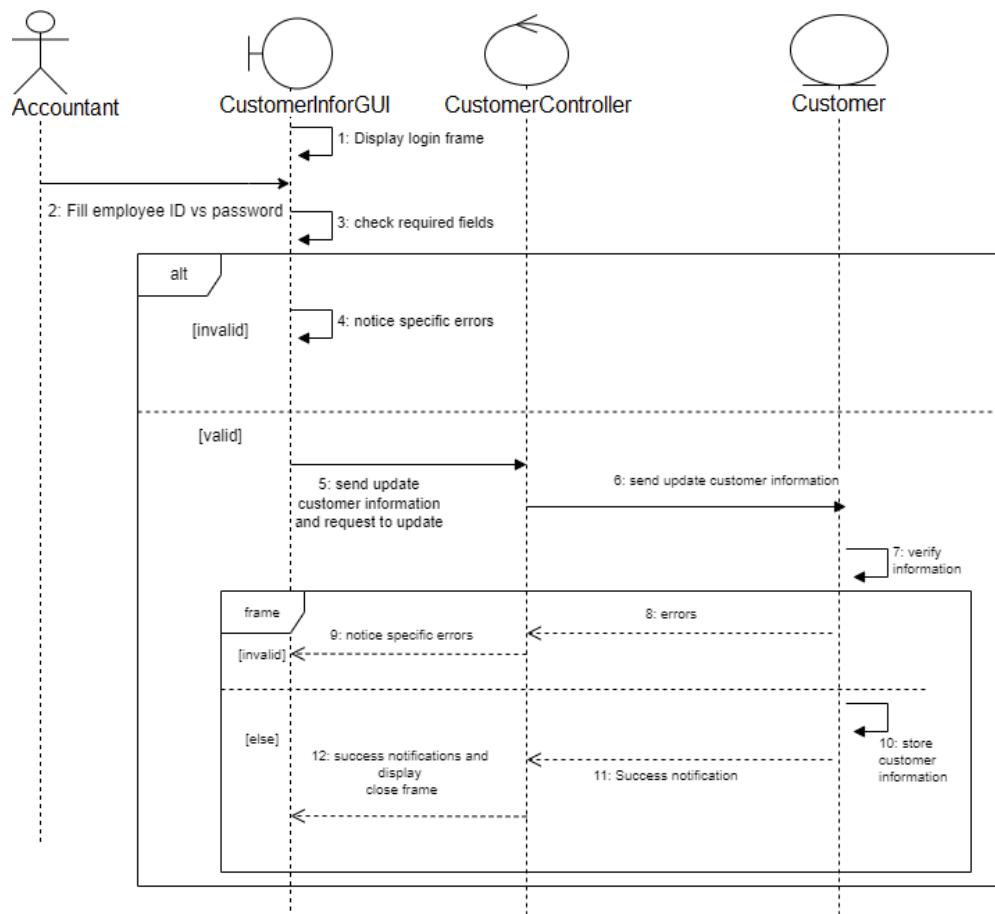
- o Sequence Diagram



Picture 3.5.41 Search / Update customer sequence diagram

3.5.8.2.1 Update customer

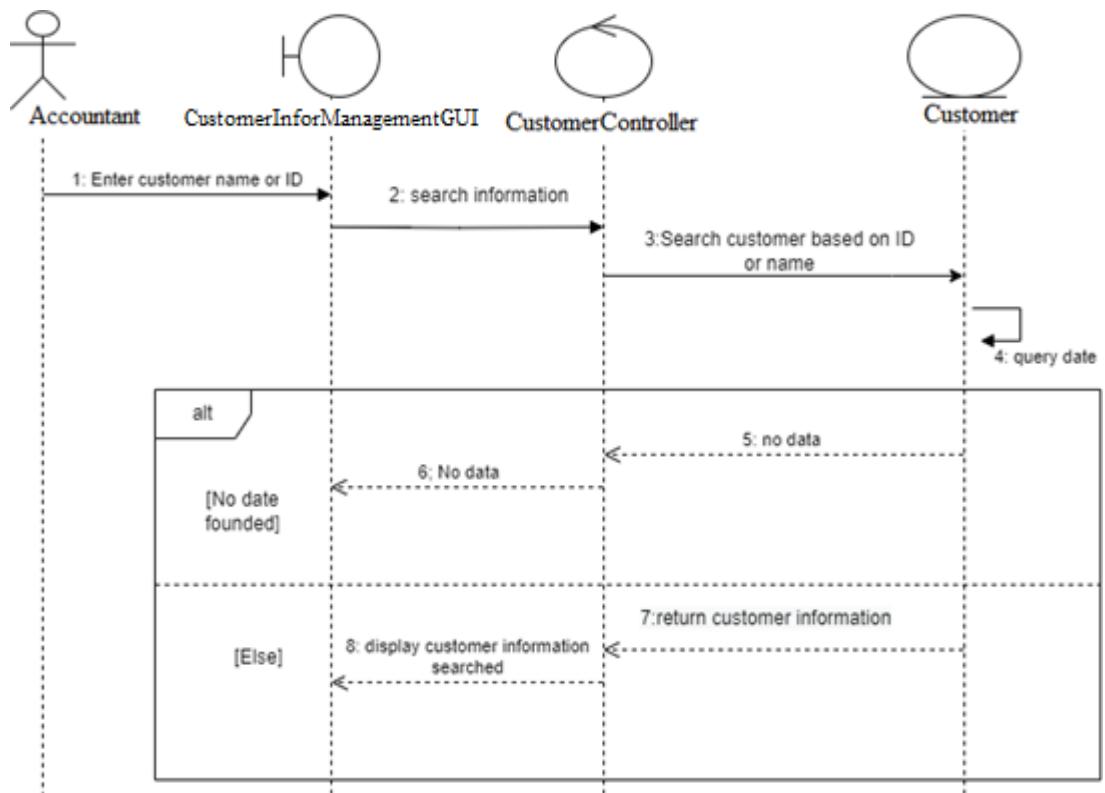
- o Sequence Diagram



Picture 3.5.42 Update customer sequence diagram

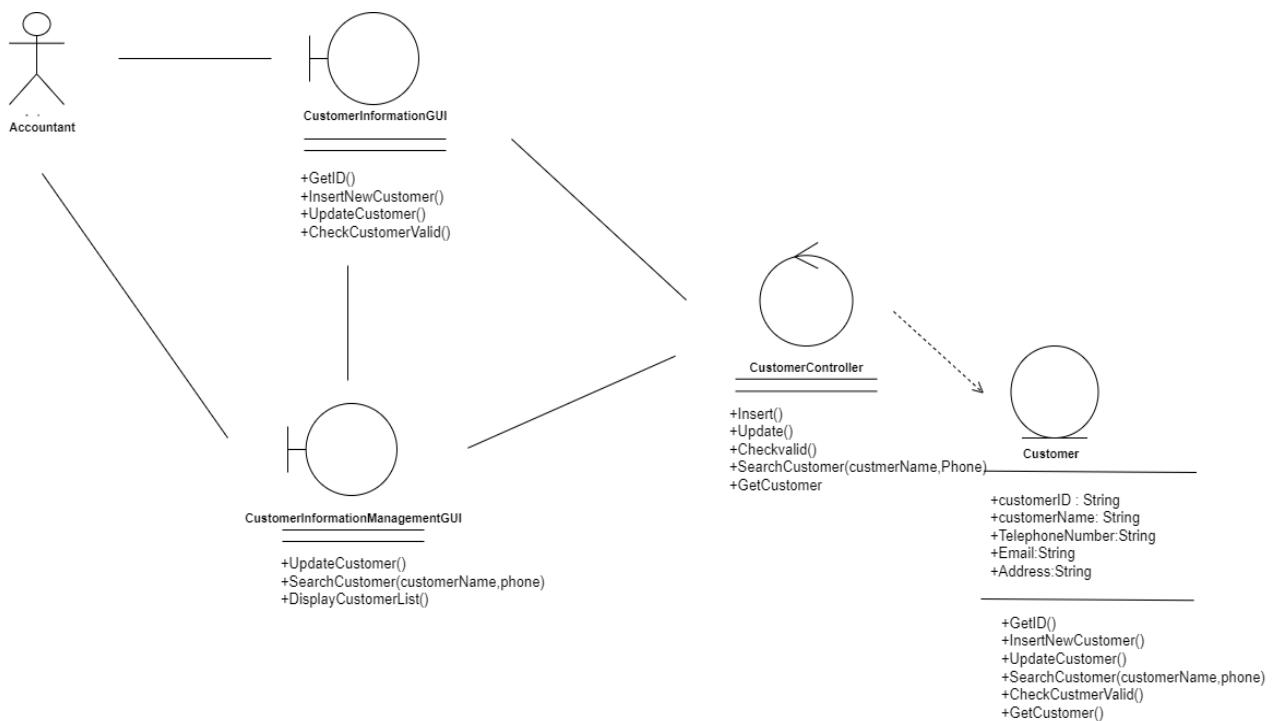
3.5.8.2.2 Search customer

- o Sequence Diagram



Picture 3.5.43 Search customer sequence diagram

o Class Diagram

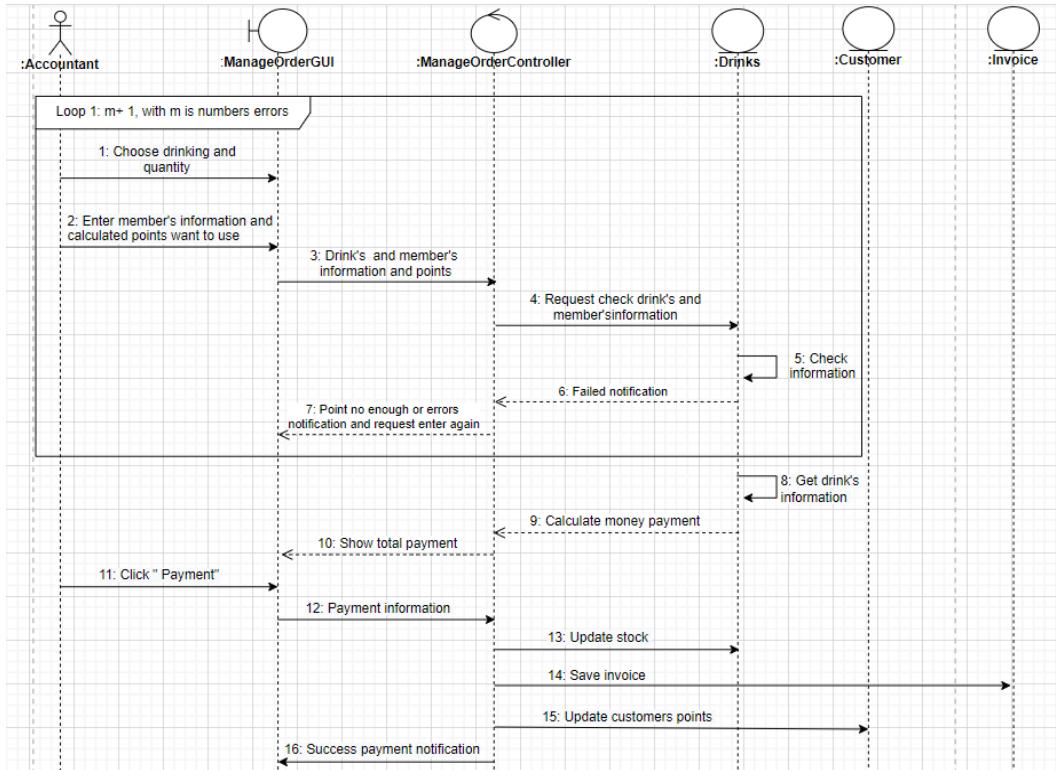


Picture 3.5.44 Manage customer sequence diagram

3.5.9 Order Process

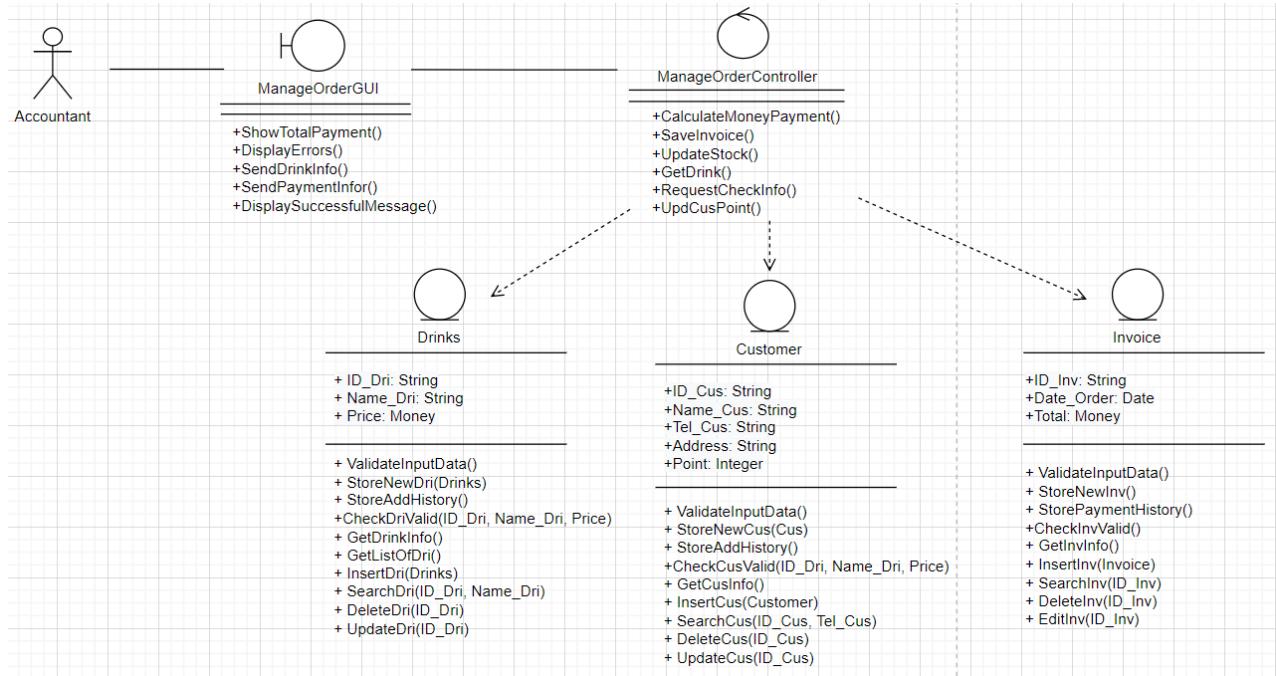
3.5.9.1 When customer is a member

- o Sequence Diagram



Picture 3.5.45 Member - Order process sequence diagram

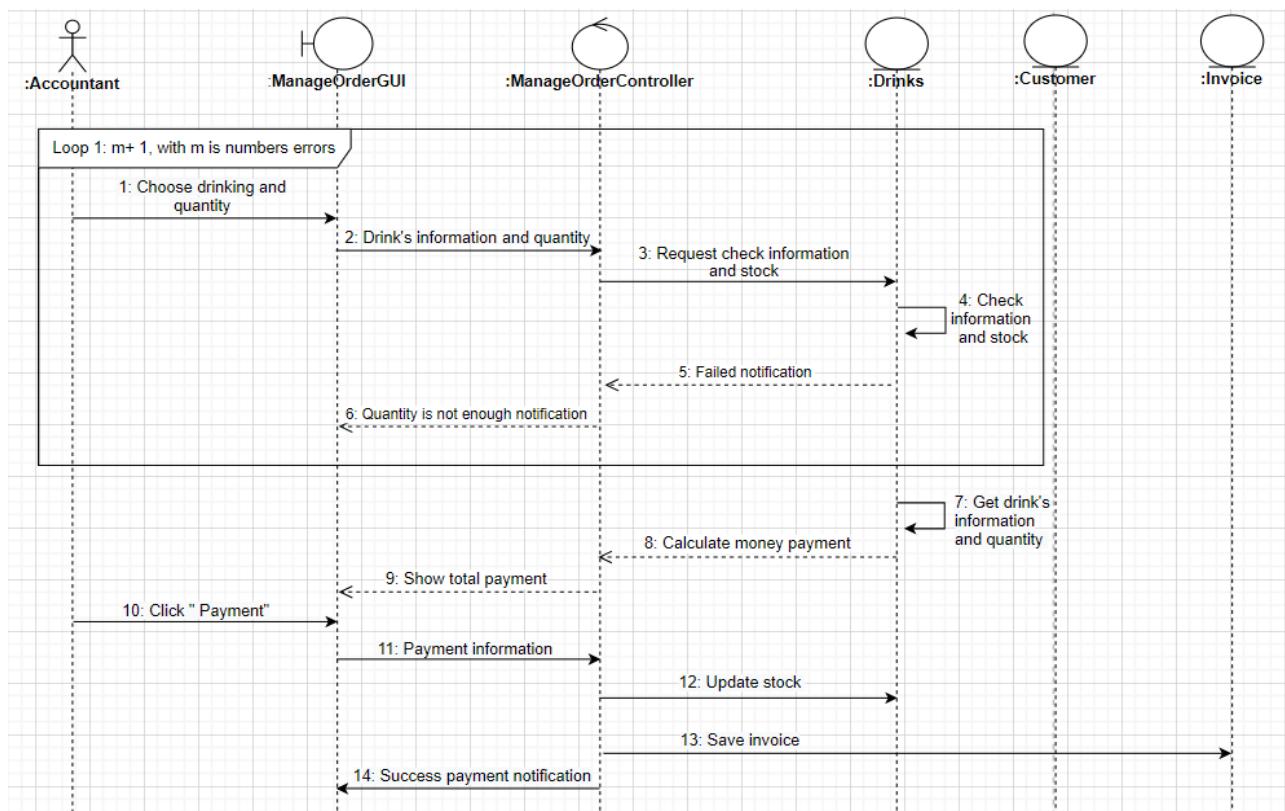
- o Class Diagram



Picture 3.5.46 Customer is member class diagram

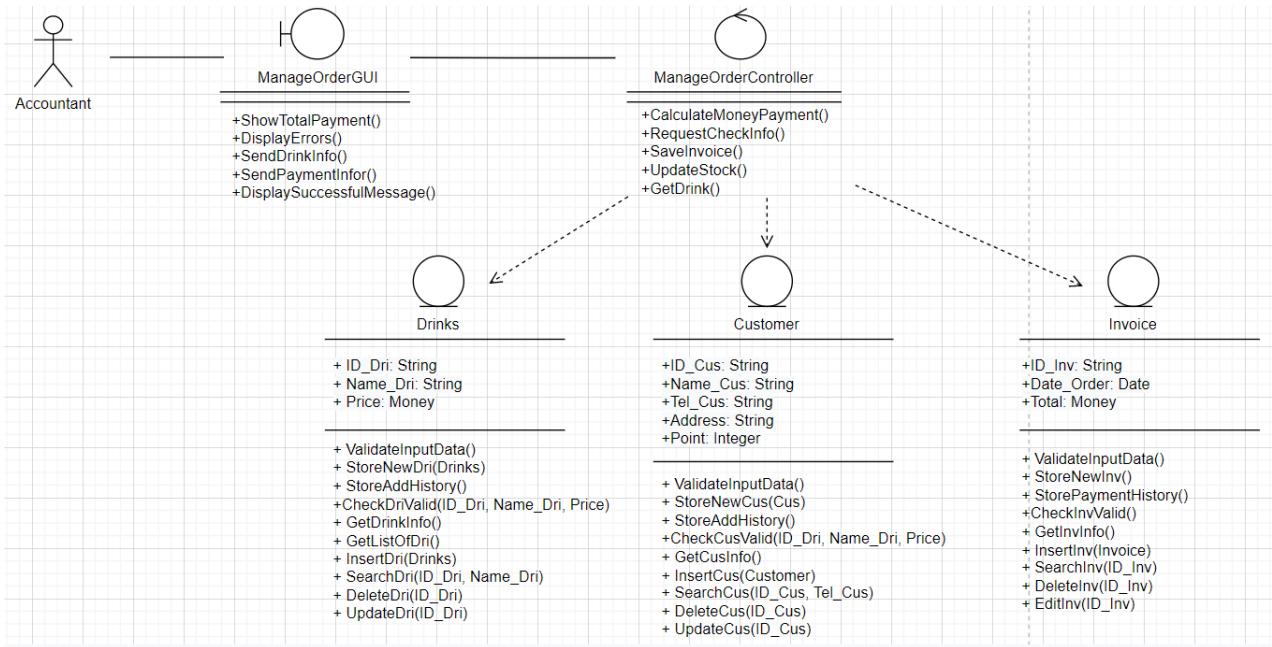
3.5.9.2 When customer isn't a member

- o Sequence Diagram



Picture 3.5.47 Customer isn't member sequence diagram

o Class Diagram

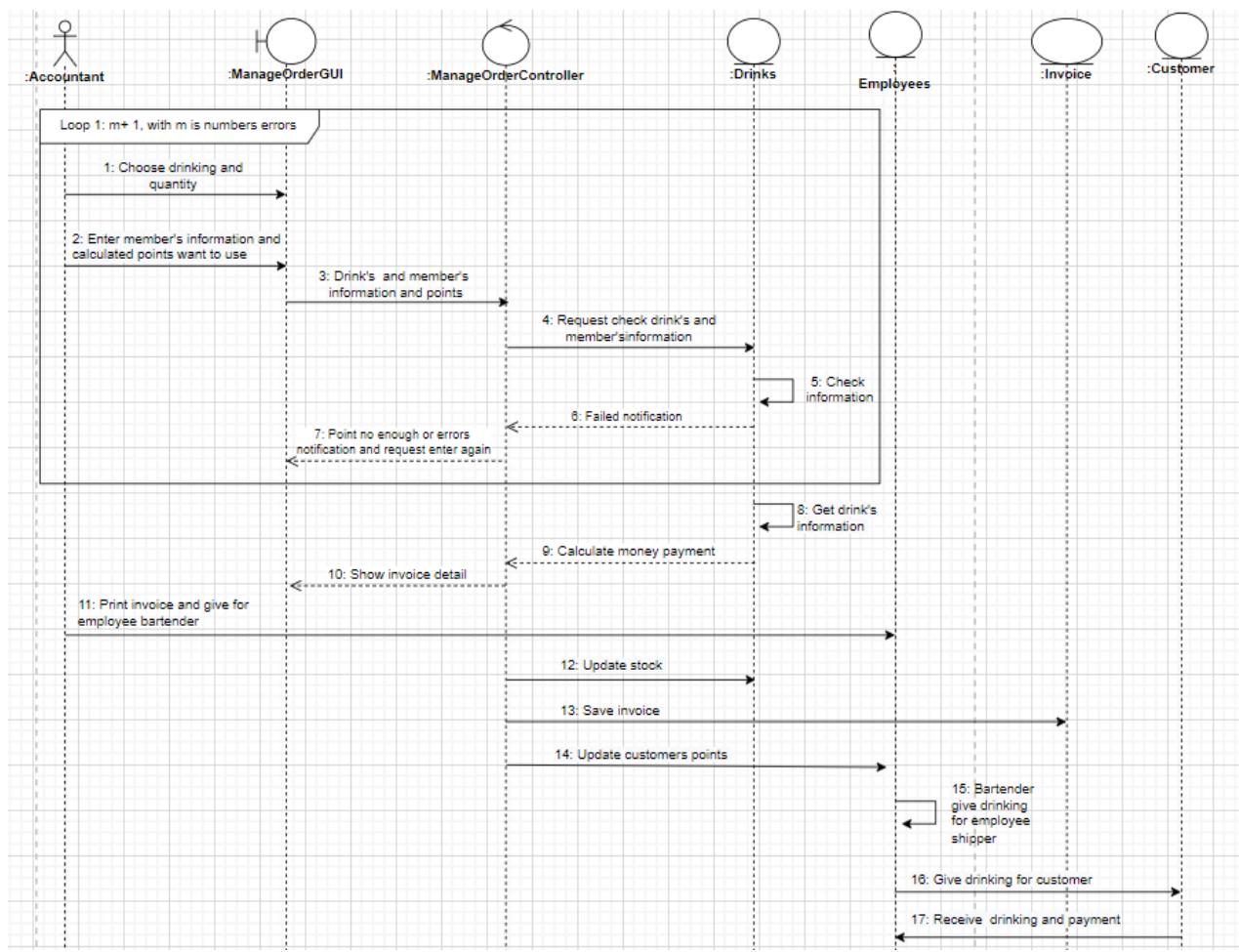


Picture 3.5.48 Customer isn't member class diagram

3.5.10. Order Online Process

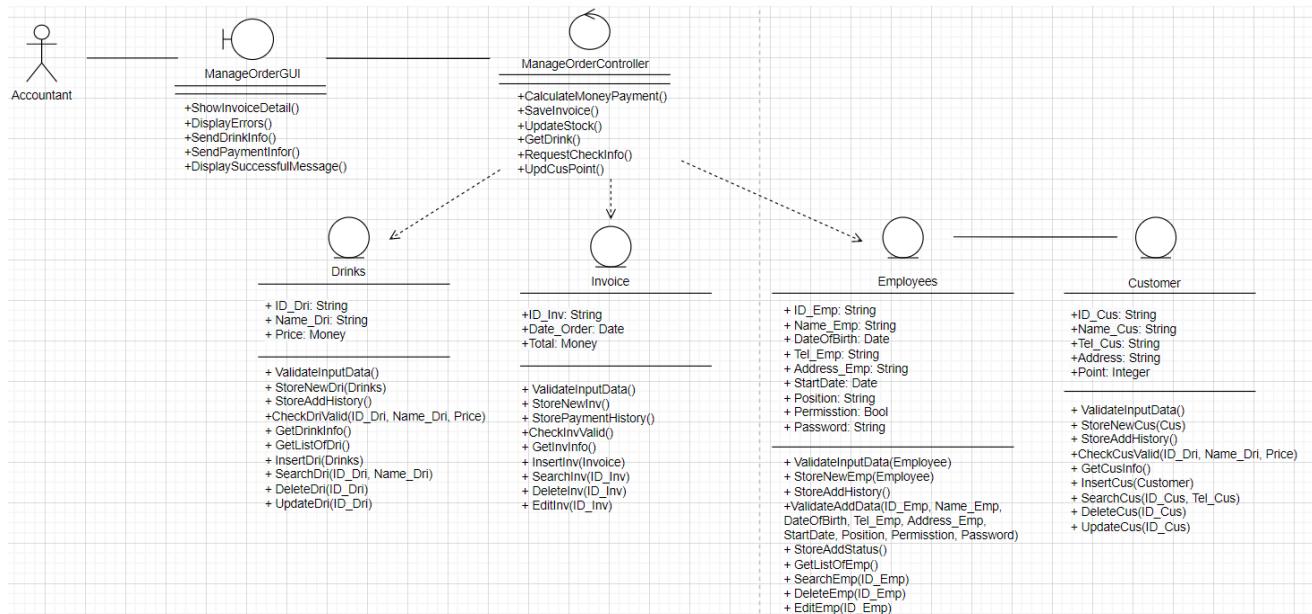
3.5.10.1 When customer is a member

o Sequence Diagram



Picture 3.5.49 Customer is member sequence diagram

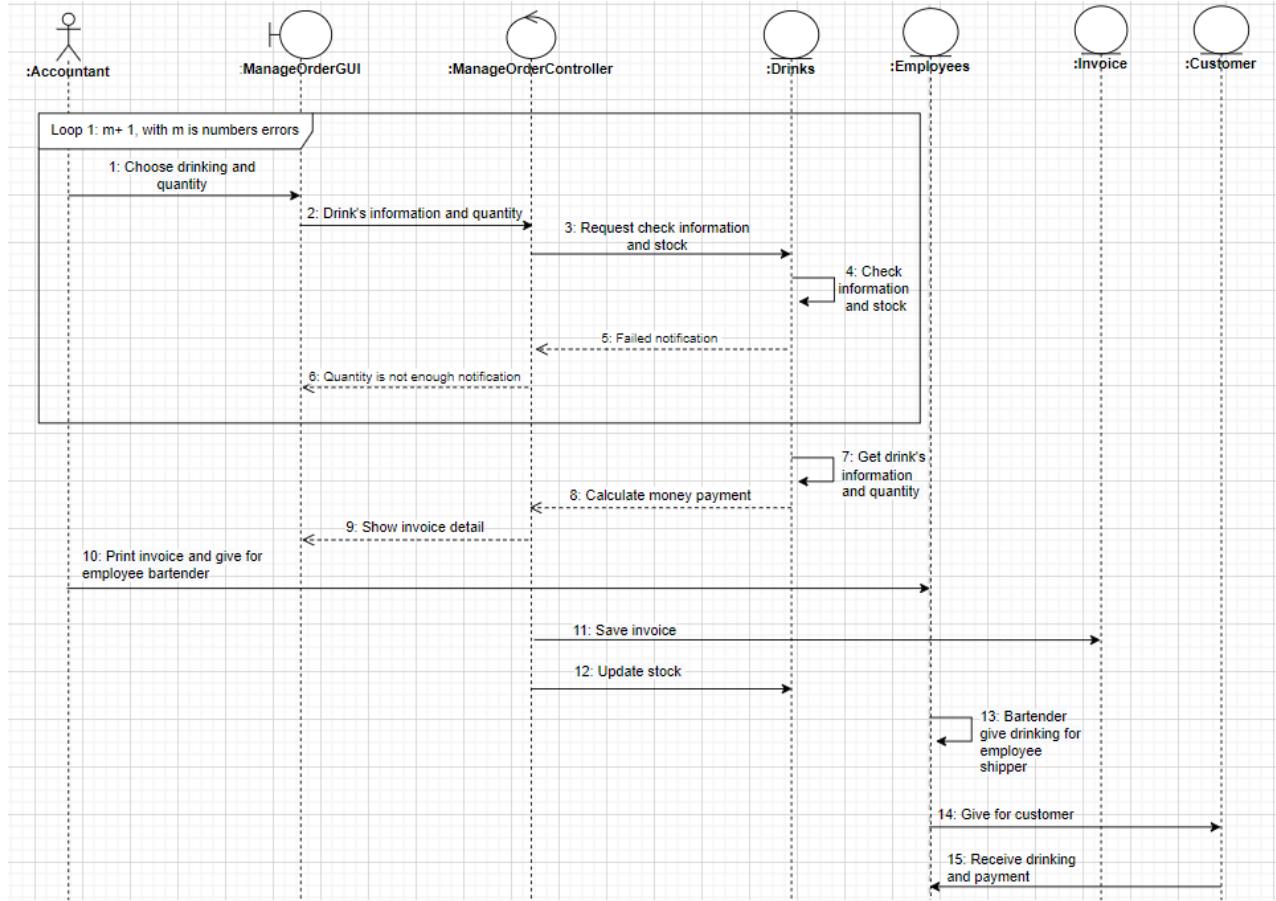
o Class Diagram



Picture 3.5.50 Customer is member class diagram

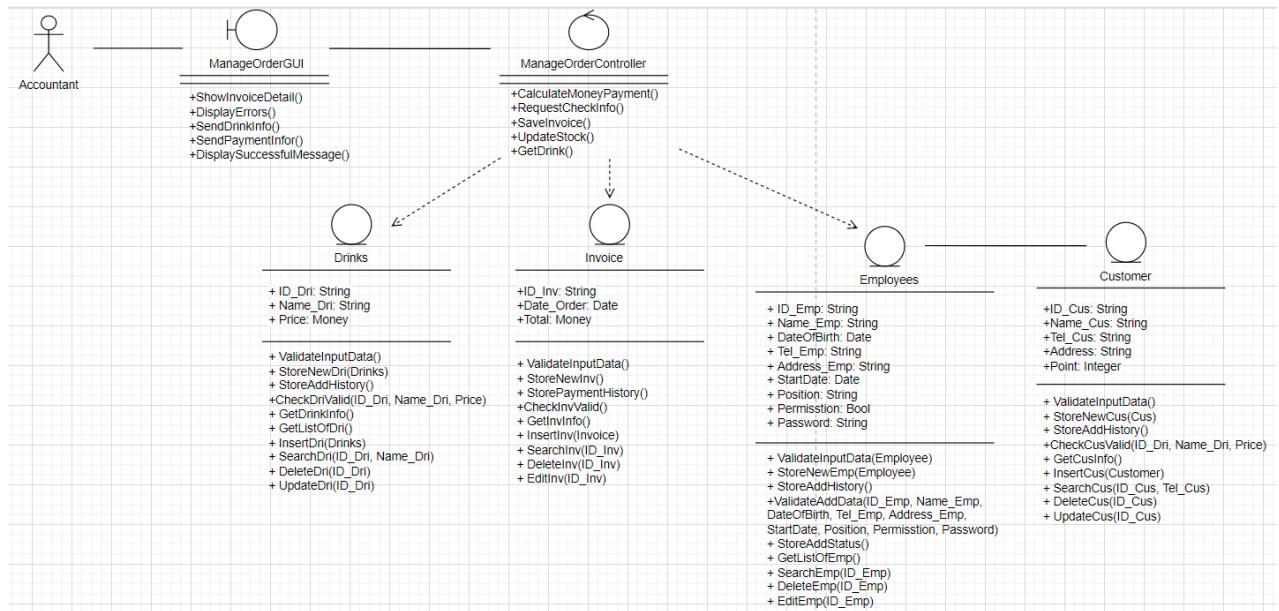
3.5.10.2 When customer isn't a member

- o Sequence Diagram



Picture 3.5.51 Customer isn't member sequence diagram

- o Class Diagram



Picture 3.5.52 Customer isn't member sequence diagram

3.6 Describe Class Diagram

- ### **o Employee**

Employee		
Attribute	Variable	Meaning
+Employee'sID		Employee's ID
+Name		Employee's Name
+Phone		Phone number
+Email		Email
+Password		Password to login to the system
+Gender		Gender of employee

	+Position	Position at work
	+StartDate	Start Date Of Working
	+DateOfBirth	Date of birth
	+Status	Status Of Working
Operation	Function	Meaning
	+GetID()	Get new employees' ID
	+InsertEmployee()	Insert new employees
	+UpdateEmployee()	Update existing employees
	+DeleteEmployee()	Search employees' information based on employees' name or citizenID
	+GetEmployee()	Get employees' information
	+SearchEmployee(name,phone)	Search an employees' information based on employees' name or citizenID
	+CheckEmpValid()	Check validity of an employees' information

Table 3.6.1 Table Employee

- o [Employee Controller](#)

Employee Controller		
Operation	Function	Meaning
	+SignIn(EmployeeID,password)	Sign in by account
	+Insert()	Insert new employees
	+Update()	Update existing employees

	+CheckValid()	Check validity of employees' information
	+CheckLogin()	Check EmpID and password when employees login their accounts
	+CreateExcelSalary()	Create excel to report employees' salary
	+CalculateSalary()	Calculate employees' salary by a month or a year
	+GetListOfEmployeeSalary	Get list of employees
	+Delete()	Delete employees in system
	+GetInfoSalary()	Get information salary from database

Table 3.6.2 Table Employee Controller

- o [Employee Manage GUI](#)

Employee Manage GUI		
Operation	Function	Meaning
	+ DisplayManEmpFrame()	Display manage employees' frames to users choose the function they need.
	+ DisplayVerifyMessage()	Display verify message when proceed to delete the employees
	+ DisplayError()	Display notice specific errors
	+ DisplaySuccessfulMessage()	Display successful message when success processing
	+ DisplayEmpInfoForm()	Display employees' information form to users enter employees' information

	+ SendNewEmpInf()	Send new employees' information to employee controller
	+ DisplayEmpInfo()	Display employees' information
	+ RequireSaveNewEmpInf()	Request employee controller save new employees' information
	+ DisplayTotalSalaryAndInfo()	Display employees' salary and information

Table 3.6.3 Table Employee Management GUI

- o Login GUI

Login GUI		
Operation	Function	Meaning
	+GetLoginInformation()	Get ID_Emp, password and employees' position

Table 3.6.4 Login GUI

- o Customer

Customer		
Attribute	Variable	Meaning
	+CustomerID	Customers' ID
	+CustomerName	Customers' name
	+TelephoneNumber	Customers' phone number
	+Email	Customers' email

	+Address	Customers' address
	+Point	Customers' accumulated points
Operation	Function	Meaning
	+GetID()	Get ID_Emp, password and employees' position
	+InsertNewCustomer()	Insert new customers
	+ UpdateCustomer()	Update existing customers
	+SearchCustomer(customerName,phone)	Search customers' information based on their name and their phone number
	+ CheckCustomerValid()	Check validity of customers' information
	+ GetCustomer()	Get customers' information

Table 3.6.5 Customer

- o [Customer Information GUI](#)

Customer Information GUI		
Operation	Function	Meaning
	+GetID()	Get new customers' ID
	+InsertNewCustomer()	Insert new customers into system database
	+UpdateCustomer()	Update existing customers in system database
	+CheckCustomerValid()	Check validity of customers' information

Table 3.6.6 Customer information GUI

- o [Customer Information Management GUI](#)

Customer Information Management GUI		
Operation	Function	Meaning
	+UpdateCustomer()	Update customers
	+SearchCustomer (Name_Cus,phone)	Search customers' information based on Name_Customer and their phone number

Table 3.6.7 Customer Information Management GUI

- o [Customer Controller](#)

Customer Controller		
Operation	Function	Meaning
	+Insert()	Insert new customers into database
	+Update()	Update existing customers
	+CheckValid()	Check validity of customers' information
	+SearchCustomer(customer Name,phone)	Search customers' information based on Name_Cus and their phone number
	+GetCustomer	Get customer information

Table 3.6.8 Customer Controller

- o [Invoice](#)

Invoice		
Attribute	Variable	Meaning
	+ID_Invoice:String	Invoices' ID
	+exportTime:Date	Time export invoices
	+Discount:float	Discount for invoices
	+TotalPrice:float	Total price of invoices
	+ID_Cus: String	CustomerID of the invoice
	+ID_Emp: String	EmployeeID of the invoice
Operation	Function	Meaning
	+ValidateInputData()	Validate input data from fields
	+AddInv()	Insert new invoices
	+ EditInv()	Edit existing information invoices
	+DeleteInv()	Delete invoices based on ID_Inv
	+SearchInv()	Search invoices by ID_Inv
	+ CheckInvoiceValid()	Check validity of invoices' information
	+ StorePaymentHistory	Create a new invoice for customers after making a purchase and store it into database
	+StoreInvStatus()	Store invoices' status paid or not

Table 3.6.9 Invoice

- o Invoice Management GUI

Invoice Management GUI		
Operation	Function	Meaning
	+ DisplayManInvoiceFrame()	Display invoice management frame for users choose the functions they need
	+ DisplayVerifyMessage()	Display verify message when proceed to delete the invoices
	+ DisplayError()	Display notice specific errors
	+DisplaySuccessfulMessage()	Display successful message when success processing
	+ DisplayInvInfoForm()	Display invoices' information form for user to enter invoices' information
	+ SendNewInvInf()	Sens new invoices' information to invoices' controller
	+ DisplayInvInfo()	Display invoices' information
	+ RequireSaveNewInvInf()	Request invoices' controller save new invoices' information
	+ CheckRequiredFields()	Check the input fields are in the correct format

Table 3.6.10 Invoice Management GUI

- o Invoice controller

Invoice Controller		
Operation	Function	Meaning
	+ValidateInputFormat()	Validate input format

	+Add()	Add drinks to the database
	+Edit()	Edit invoices
	+GetListOfInv()	Get list of invoices from database
	+GetInvInfo()	Get invoices' information from database
	+GetPaymentHistory()	Get the payment history related to a customers
	+Search()	Search invoices' information based on ID_Invoice
	+Delete()	Delete invoices

Table 3.6.11 Invoice Controller

o [Drinks](#)

Drinks		
Attribute	Variable	Meaning
+ID_Dri: String		Drinks' ID
+Name_Dri: String		Drinks' name
+Price: Money		Drinks' price
Operation	Function	Meaning
	+ValidateInputData()	Validate input data from fields
	+StoreNewDri(Drinks)	Store drinks' information into the database
	+StoreAddHistory()	Store add history
	+DeleteDri(ID_Dri)	Delete drinks based on ID_Dri

	+SearchDri(ID_Dri)	Search drinks based on ID_Dri
	+ UpdateDri(ID_Dri)	Update drinks' information by ID_Dri
	+CheckDriValid()	Check validity of drinks' information are valid or not
	+Add(Drinks)	Insert new drinks into database

Table 3.6.12 Drinks

- o [DrinksController](#)

Drinks Controller		
Operation	Function	Meaning
	+ValidateInputFormat()	Validate input format
	+Add(ID_Dri, Name_Dri, Price)	Add drinks to the database
	+ GetListOfDri()	Get list of drinks into database
	+GetDrinkInfo()	Get drinks' information from database
	+UpdDri()	Update drinks' information
	+Delete()	Delete drinks base on ID_Dri
	QueryData()	Query data into database

Table 3.6.13 Drinks Controller

- o [ManageDrinksGUI](#)

Manage Drinks GUI		
Operation	Function	Meaning
	+ DisplayManDriFrame()	Display drinks management frame for user choose the functions they need
	+ DisplayVerifyMessage()	Display verify message when proceed to delete the drink
	+ DisplayError()	Display notice specific errors
	+DisplaySuccessfulMessage()	Display successful message when success processing
	+ DisplayDriInfoForm()	Display drinks' information form for users enter their drinks' information
	+ SendNewDriInf()	Send new drinks' information to drinks controller
	+ DisplayDriInfo()	Display drinks' information
	+ RequireSaveNewDriInf()	Request drinks controller save new drinks' information
	+ CheckRequiredFields()	Check the input fields are in the correct format

Table 3.6.14 Manage Drinks GUI

- o [Goods](#)

Goods		
Attribute	Variable	Meaning
	+ID_Goods: String	Goods' ID
	+Name_Goods: String	Goods' Name

	+Price: Money	Goods' price
Operation	Function	Meaning
	+ValidateInputData()	Validate input data from fields
	+StoreNewGoods()	Store goods' information into the database
	+StoreAddHistory()	Store add history
	+DeleteGoods(ID_Goods)	Delete goods based on ID_Goods
	+SearchGoods(ID_Goods)	Search goods based on ID_Goods
	+ UpdateGoods(ID_Goods)	Update goods' information by ID_Goods
	+CheckGoodsValid()	Check validity of goods' information are valid or not

Table 3.6.15 Goods

- o [GoodsController](#)

Goods Controller		
Operation	Function	Meaning
	+ValidateInputFormat()	Validate input format
	+ GetListOfGoods()	Get list of goods into database
	+GetGoodsInfo()	Get goods' information from database
	+UpdateGoods()	Update goods' information
	+DeleteGoods()	Delete goods based on ID_Dri
	QueryData()	Query data into database

	+SearchGoods()	Search goods' information
--	----------------	---------------------------

Table 3.6.16 Goods Controller

o [ManageGoodsGUI](#)

Manage Goods GUI		
Operation	Function	Meaning
	+ DisplayManGoodsFrame()	Display goods management frame for users choose the function they need
	+ DisplayVerifyMessage()	Display verify message when proceed to delete the goods
	+ DisplayError()	Display notice specific errors
	+DisplaySuccessfulMessage()	Display successful message when success processing
	+ DisplayGoodsInfoForm()	Display goods' information form for users enter goods' information
	+ SendNewGoodsInf()	Send new goods' information to goods controller
	+ DisplayGoodsInfo()	Display goods' information
	+ RequireSaveNewGoodsInf()	Request goods controller save new goods' information
	+ CheckRequiredFields()	Check the input fields are in the correct format

Table 3.6.17 Manage Goods GUI

o [Import](#)

Import	
--------	--

Attribute	Variable	Meaning
	+ID_Imp: String	Import's ID
	+ID_Emp: String	Employee's ID
	+Date_Import: Date	Date import
	+ID_Goods	Good's ID
Operation	Function	Meaning
	+ ValidateInputData()	Validate input data from fields
	+ StoreNewImport()	Store new import information into the database
	+ StoreImportHistory()	Store import goods history
	+ValidateImportData(ID_Imp, ID_Goods, ID_Emp, Date_Import)	Check validity of imports' information are valid or not
	+ ImportGoods(Import)	Import goods
	+ ShipmentLookup(ID_Imp)	Shipment lookup imported

Table 3.6.18 Import

- o [ManageImportGUI](#)

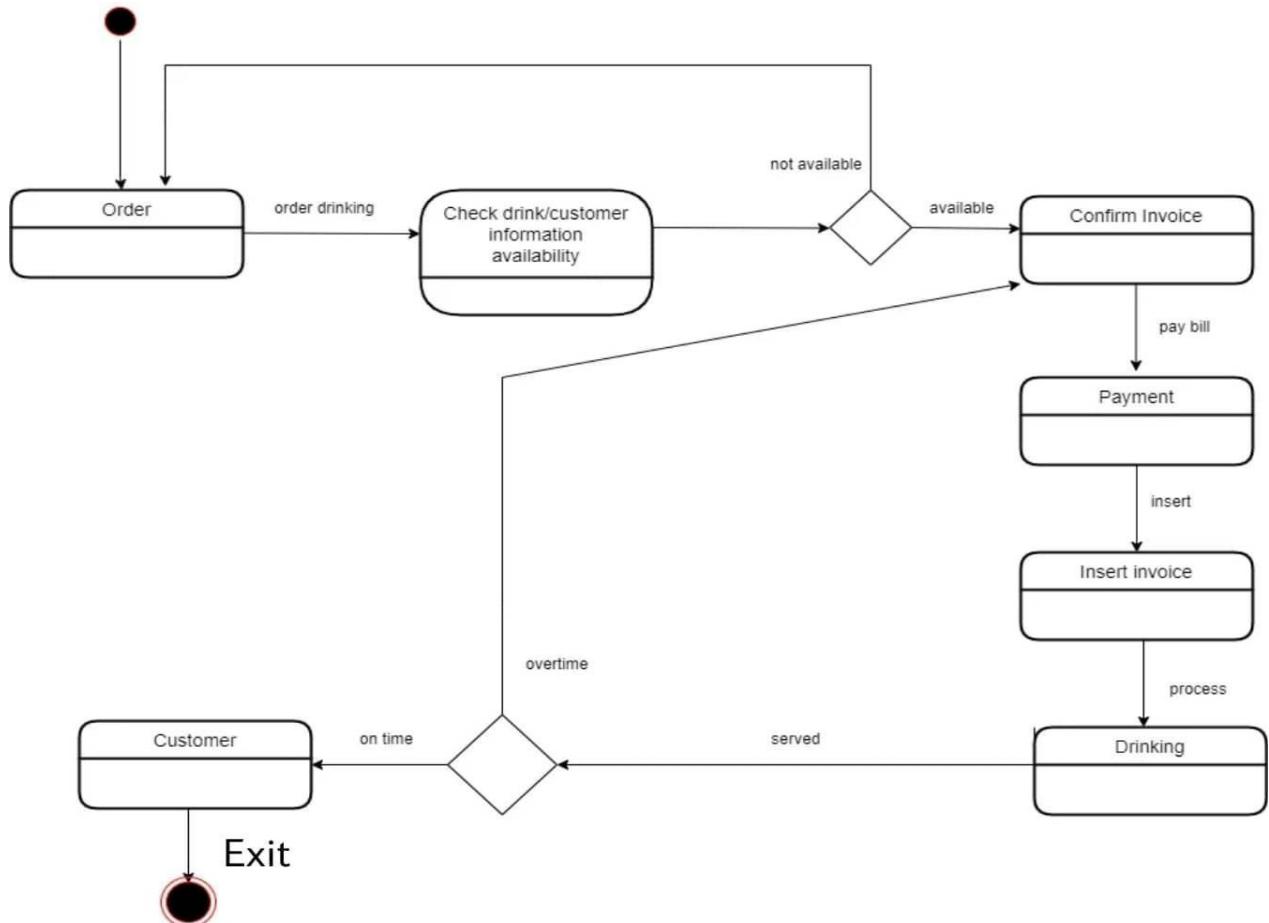
Manage Import GUI		
Operation	Function	Meaning
	+ DisplayManImportFrame()	Display import management frame for user choose the function they need
	+ DisplayError()	Display notice specific errors

	+DisplaySuccessfulMessage()	Display successful message when success processing
	+ DisplayImportInfoForm()	Display imports' information form for user enter imports' information
	+ SendNewGoodsInf()	Send new imports' information to imports controller
	+ DisplayShipmentInfo()	Display shipment information
	+ RequireToAddNewImp()	Request imports controller add new imports' information
	+ CheckRequiredFields()	Check the input fields are in the correct format

Table 3.6.19 Manage Import

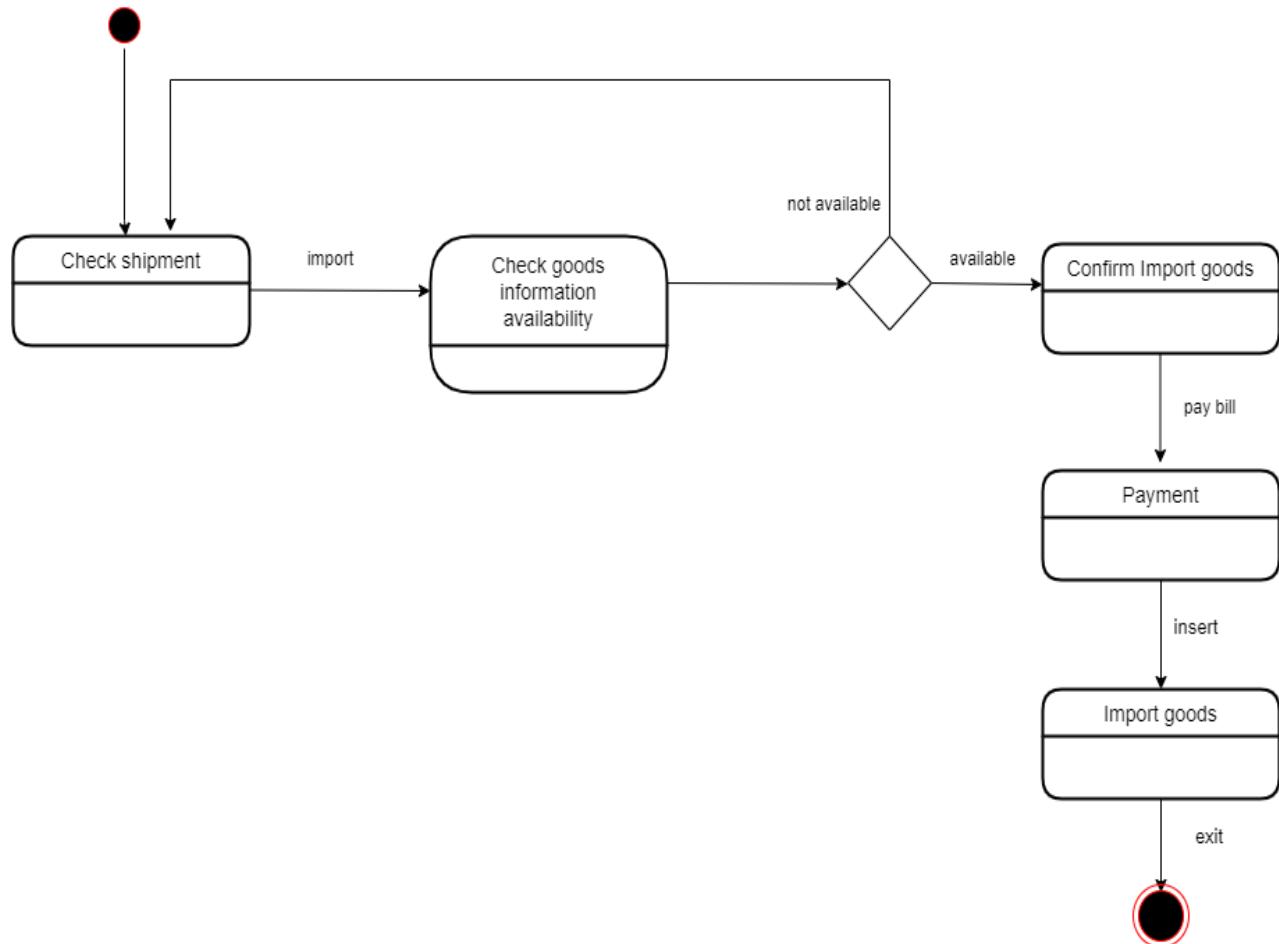
3.7. State Diagram

3.7.1 Order and serving



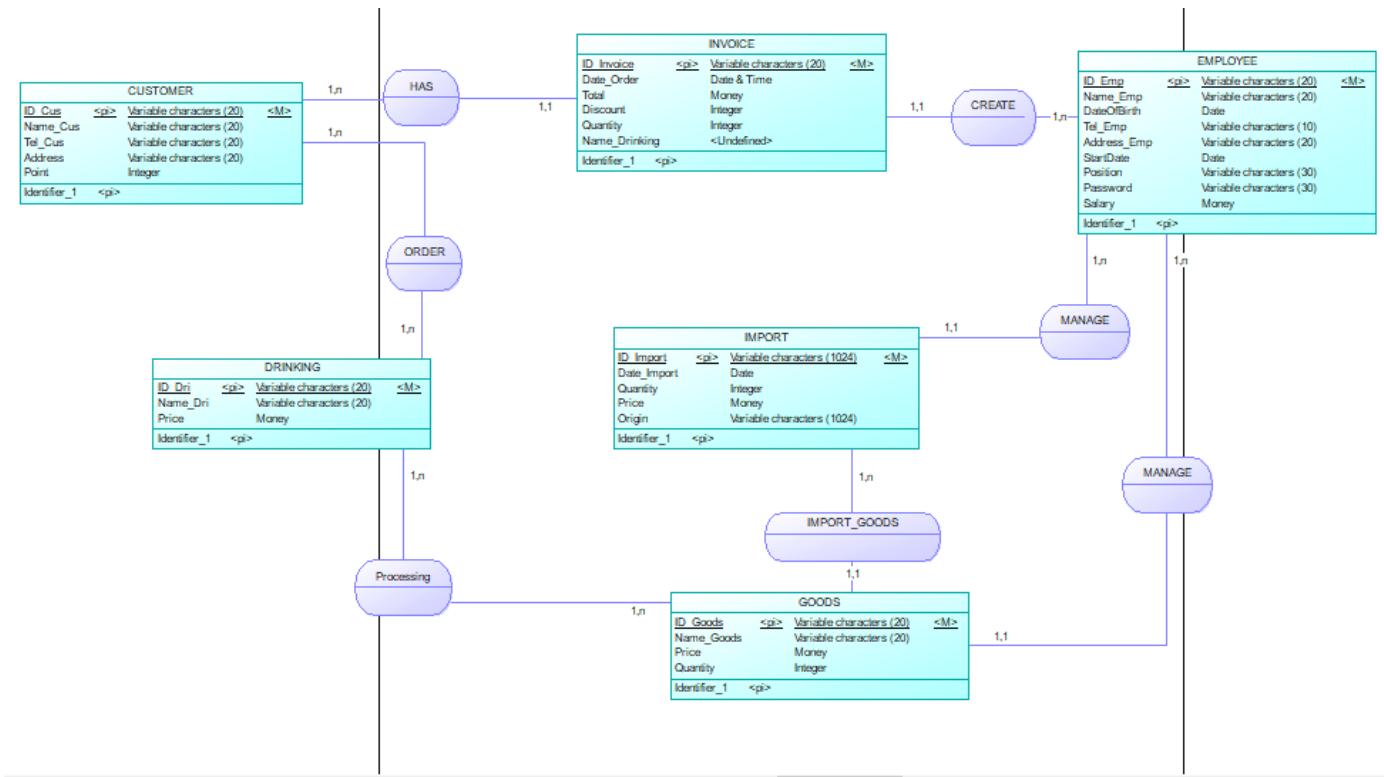
Picture 3.7.1 Order and serving state diagram

3.7.2 Import Goods



Picture 3.7.2 Import goods state diagram

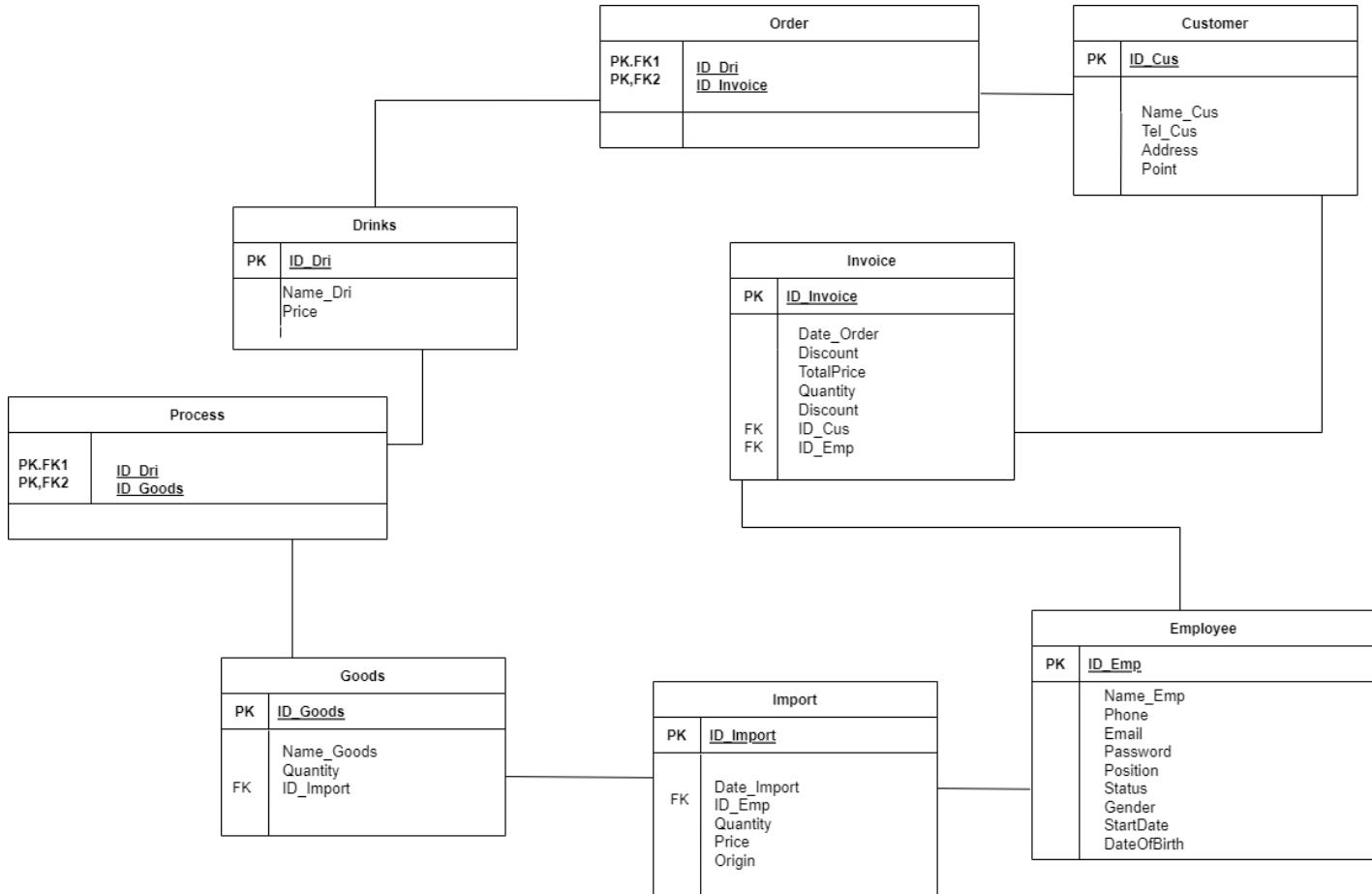
3.8 ERDs model



Picture 3.8 ERDs model

3.9 Mapping to Relational Model from ERDs

3.9.1 Relational Model



Picture 3.9.1 Relational model

3.9.2 Data organization

EMPLOYEE(ID_Emp,Name_Emp,DateOfBirth,Tel_Emp,StartDate.Position,Password,Status)

INVOICE(ID_Invoice,Date_Order,exportTime,TotalPrice,Quantity,Discount,ID_Cus,ID_Emp)

ORDER(ID_Dri,ID_Invoice)

DRINKING(ID_Dri,Name_Dri,Price)

CUSTOMER(ID_Cus,Name_Cus,Tel_Cus,Address,Point)

GOODS(ID_Goods,Name_Goods,Price)

IMPORT(ID_Import,Date_Import,ID_Emp,ID_Goods)

PROCESS(ID_Dri,ID_Goods)

3.9.3 Describe table

Column Name	Datatype	Description	Constraint
ID_Emp	Varchar(20)	Employee ID	Not null
Name_Emp	Varchar(20)	Employee name	
Email	Varchar(20)	Employee email	
Password	Varchar(20)	Employee password	
Position	Varchar(20)	Employee position	
Status	Varchar(20)	Employee status of working	
Gender	Varchar(20)	Employee gender	
Start_Date	Date	Employee start-working date	
DateOfBirth	Date	Employee Date of birth	
Phone	Varchar(20)	Employee telephone number	

Table 3.9.1 EMPLOYEE

Column Name	Datatype	Description	Constraint
ID_Invoice	Varchar(20)	Invoice ID	Not null
Date_Order	Date	Date invoice ordered	
TotalPrice	Int(11)	Invoice total price	
Quantity	Int(11)	Quantity of drinking	
Discount	Int(4)	Discount of invoice	

ID_Cus	Varchar(20)	Customer ID	
ID_Emp	Varchar(20)	Employee ID	

Table 3.9.2 INVOICE

Column Name	Datatype	Description	Constraint
ID_Cus	Varchar(20)	Customer ID	Not null
Name_Cus	Varchar(20)	Customer name	
Address	Varchar(20)	Customer address	
Point	Int(11)	Customer point	

Table 3.9.3 CUSTOMER

Column Name	Datatype	Description	Constraint
ID_Import	Varchar(20)	Import ID	Not null
ID_Emp	Varchar(20)	Employee ID	
ID_Goods	Varchar(20)	Goods ID	
Price	Int(11)	Goods price	
Origin	Varchar(20)	Goods Origin	

Table 3.9.4 IMPORT

Column Name	Datatype	Description	Constraint
ID_Dri	Varchar(20)	Drinking ID	Not null
Name_Dri	Varchar(20)	Drinking name	
Price	Int(11)	Drinking price	

Table 3.9.5 DRINKS

Column Name	Datatype	Description	Constraint
ID_Dri	Varchar(20)	Drinking ID	Not null
ID_Invoice	Varchar(20)	Invoice ID	Not null

Table 3.9.6 ORDER

Column Name	Datatype	Description	Constraint
ID_Goods	Varchar(20)	Drinking ID	Not null
Name_Goods	Varchar(20)	Invoice ID	
Quantity	Int(11)	Quantity of goods	

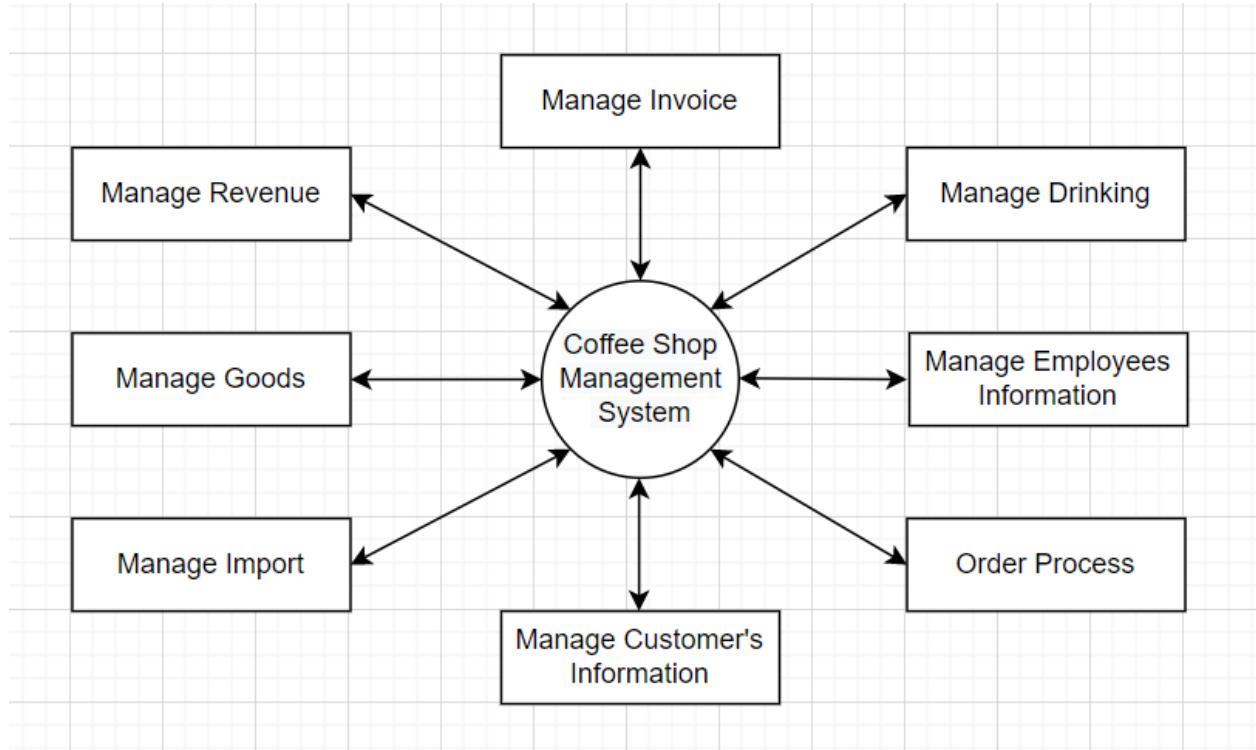
Table 3.9.7 GOODS

Column Name	Datatype	Description	Constraint
ID_Goods	Varchar(20)	Goods ID	Not null
ID_Dri	Varchar(20)	Drinking ID	Not null

Table 3.9.8 PROCESS

3.10 DFDs Model

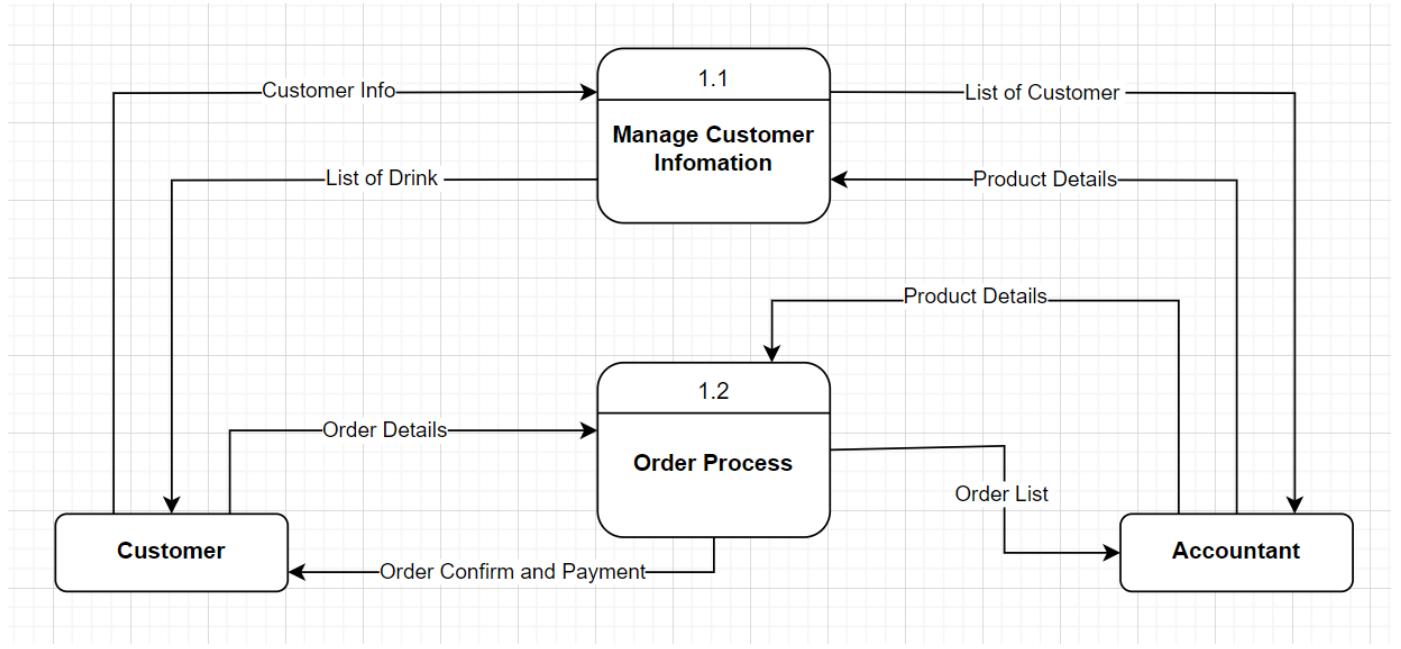
3.10.1 Level 0



Picture 3.10.1 Level 0 DFDs Model

3.10.2 Level 1

Order Process



Picture 3.10.2 Level 1 DFDs Model

CHAPTER 4: IMPLEMENTATION AND TESTING

4.1 List of main pages of the program

No	Frame Name
1	Login frame
Manager's frame	
2	Revenues statistic frame
3	Products management frame
4	Insert frame in Products management
5	Update frame in Products management
6	Invoices management frame
7	Users management
8	Insert employees frame in Users management
9	Update employees frame in Users management

10	Warehouse management frame
11	Import goods frame in Warehouse management
12	Delete goods frame in Warehouse management
Accountant's frame	
13	Sales management frame
14	Invoices management frame
15	Customers management frame
16	Insert customers' information frame in Customer management
17	Update customers' information frame in Customer management
18	Revenue statistic frame
Warehouseman's frame	
19	Inventory management frame
20	Import goods
21	Delete goods

Table 4.1 Main pages in program

4.2 User Interface

1. Login frame



The login form features a stylized coffee cup icon with steam at the top right. Below it is the word "LOGIN" in a large, bold, sans-serif font. The form consists of three input fields: "username" with a user icon, "password" with a lock icon, and a dropdown menu set to "manager". At the bottom are "Log in" and "Sign up" buttons.

Picture 4.2.1 Login frame

2. Revenue statistic frame

The revenue statistic frame has a sidebar on the left with a coffee cup icon and links for "Revenue statistic", "Products management", "Invoice management", "User management", and "Warehouse management". It also shows a user profile for "Nguyen Duy Manager". The main area displays a "Revenue Statistic" title, a date input field ("DD/MM/YYYY"), and checkboxes for "Day" (checked), "Month" (unchecked), and "Year" (unchecked). Below this is a large grid table with 6 columns and 6 rows. At the bottom, it shows "Total number of invoices: 0" and "Total amount: 0 ₫".

Picture 4.2.2 Revenue statistic frame

3. Product management frame

The screenshot shows a dark-themed application window titled "Products Management". On the left sidebar, there is a coffee cup icon and a list of management links: "Revenue statistic", "Products management" (which is highlighted in red), "Invoice management", "User management", and "Warehouse management". Below this is a user profile section with a person icon and the name "Nguyen Duy Manager". The main content area has a search bar with a magnifying glass icon and the word "Search". A table displays product information with columns: Name, Category, Price, Unit, and Product ID. The first row shows "Trà đá" in the "Drinks" category at 3000 VND per unit (lý) with ID D001. Below the table are three buttons: "Insert", "Delete", and "Update".

Name	Category	Price	Unit	Product ID
Trà đá	Drinks	3000	lý	D001

Picture 4.2.3 Product management frame

4. Insert frame in Product management

The screenshot shows the "Products Management INSERT" frame. It features a sidebar with a coffee cup icon and management links: "Revenue statistic", "Products management" (highlighted in red), "Invoice management", "User management", and "Warehouse management". Below this is a user profile section with a person icon and the name "Nguyen Duy Manager". The main area has a back arrow icon. It contains four input fields with labels: "Name:" (with a gray placeholder bar), "Category:" (set to "Drinks" with a dropdown arrow icon), "Price:" (with a gray placeholder bar), and "Unit:" (with a gray placeholder bar). At the bottom right is a "Submit" button.

Picture 4.2.4 Insert frame in Produce Management

5. Update frame in Product management

Revenue statistic

Products management

Invoice management

User management

Warehouse management

Nguyen Duy
Manager

Name: Trà đá

Category: Drinks

Price: 3000

Unit: Ly

Submit

Picture 4.2.5 Update frame in Produce Management

6. Invoice management frame

Revenue statistic

Products management

Invoice management

User management

Warehouse management

Nguyen Duy
Manager

Invoice Management

Search

Invoice ID	Employee's name	Product's name	Quantity	Total money	Time
HD001	ABC	Trà Sữa	2	50000	27/4/2022 3:14:11

Delete

Picture 4.2.6 Invoice management frame

7. User management

The screenshot shows a user interface titled "User Management". On the left, there is a sidebar with a coffee cup icon and a list of menu items: "Revenue statistic", "Products management", "Invoice management", "User management" (which is highlighted in red), and "Warehouse management". Below this is a user profile section with a person icon and the name "Nguyen Duy Manager". The main area is titled "User Management" and contains a table with columns: Name, ID number, Gender, Phone Number, Email, and Address. At the top, there are buttons for "employee" (with a dropdown arrow), "select", and a search bar labeled "Search ID". At the bottom are three buttons: "Insert", "Delete", and "Update".

Picture 4.2.7 User Management

8. Insert employee frame in User management

The screenshot shows a user interface titled "User Management" with a subtitle "INSERT EMPLOYEE". On the left, there is a sidebar with a coffee cup icon and a list of menu items: "Revenue statistic", "Products management", "Invoice management", "User management" (which is highlighted in red), and "Warehouse management". Below this is a user profile section with a person icon and the name "Nguyen Duy Manager". The main area has input fields for "Name" (text input), "Age" (text input with value "25" and a dropdown arrow), "Gender" (radio buttons for "male" and "female" are unselected, while "others" is selected with a checked checkbox), "Phone number" (text input), "Email" (text input), and "Address" (text input). A "Submit" button is located at the bottom right.

Picture 4.2.8 Insert employee frame in User management

9. Update employee frame in User management

User Management
UPDATE EMPLOYEE

Name: [REDACTED]

Age: 25 ▼

Gender: male [] female [] others [✓]

Phone number: [REDACTED]

Email: [REDACTED]

Address: [REDACTED]

Submit

Picture 4.2.9 Update employee frame in User management

10. Warehouse management frame

Warehouse Management

Search

Product's name	Quantity
Sting vị sầu riêng	100
Pepsi	15
c2	20
Bánh Plan	30
Lê Thị Ngọc Hảo	1

Import Delete

Picture 4.2.10 Warehouse management frame

11. Import goods frame in Warehouse management



The image shows a screenshot of a software interface titled "Warehouse Management IMPORT GOODS". On the left, there is a vertical sidebar with a coffee cup icon at the top, followed by links: "Revenue statistic", "Products management", "Invoice management", "User management", and "Warehouse management" (which is highlighted in red). Below this is a user profile section with a person icon and the name "Nguyen Duy Manager". The main area has a title "Warehouse Management IMPORT GOODS" with back and forward arrows. It includes dropdown menus for "category" and "name", a page number "15" with navigation arrows, and a red "+" button. To the right is a table with columns "Product's name" and "Quantity", containing five empty rows.

Picture 4.2.11 Import goods frame in Warehouse management

12. Delete goods frame in Warehouse management



The image shows a screenshot of a software interface titled "Warehouse Management DELETE GOODS". The layout is identical to the import frame, with the same sidebar, title, and table. The main difference is the red minus sign (-) button instead of the plus sign (+) button in the center.

Picture 4.2.12 Delete goods frame in Warehouse management

13. Sales management frame



Sales Management ➔

Product's name	Quantity	Price
sting	2	10000
c2	1	5000

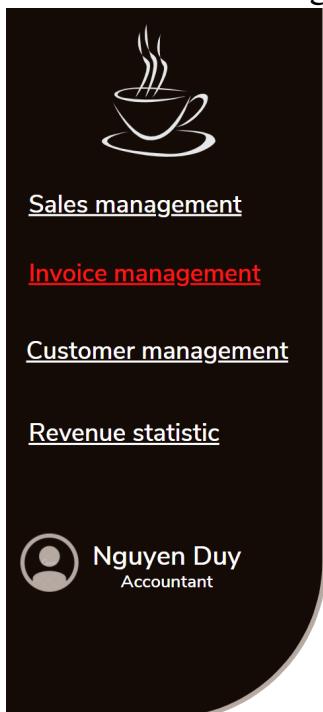
Total money: 25000đ

Money received: **30000đ**

Change: 5000đ

Status: unpaid.

14. Invoice management frame



Invoice Management ➔

Invoice ID	Employee's name	Product's name	Quantity	Total money	Time
HD001	ABC	Trà Sữa	2	50000	27/4/2022 3:14:11

Delete

Picture 4.2.14 Invoice management frame

15. Customer management frame

The image shows a software interface titled "Customer Management". On the left, a sidebar lists "Sales management", "Invoice management", "Customer management" (which is highlighted in red), and "Revenue statistic". Below this is a user profile for "Nguyen Duy Accountant". The main area displays a table with columns: Name, Age, Gender, Phone number, and Address. The first row contains data: Hằng, 70, Female, 1234567890, TP.HCM. Below the table are three buttons: "Insert", "Delete", and "Update". At the top right is a search bar with a magnifying glass icon.

Name	Age	Gender	Phone number	Address
Hằng	70	Female	1234567890	TP.HCM

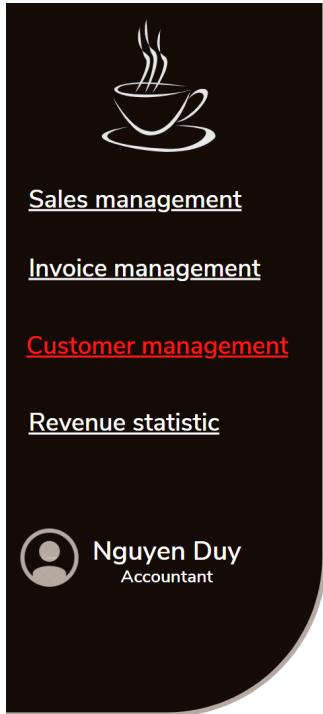
Picture 4.2.15 Customer management frame

16. Insert customer information frame in Customer management

The image shows a software interface titled "Customer Management" with the subtitle "INSERT CUSTOMERS' INFORMATION". On the left, a sidebar lists "Sales management", "Invoice management", "Customer management" (highlighted in red), and "Revenue statistic". Below this is a user profile for "Nguyen Duy Accountant". The main area contains input fields for Name (text box), Age (text box with dropdown arrow), Gender (radio buttons for male, female, others, with others selected), Phone number (text box), and Address (text box). A "Submit" button is located at the bottom right.

Picture 4.2.16 Insert customer's information frame

17. Update customer information frame in Customer management



Customer Management

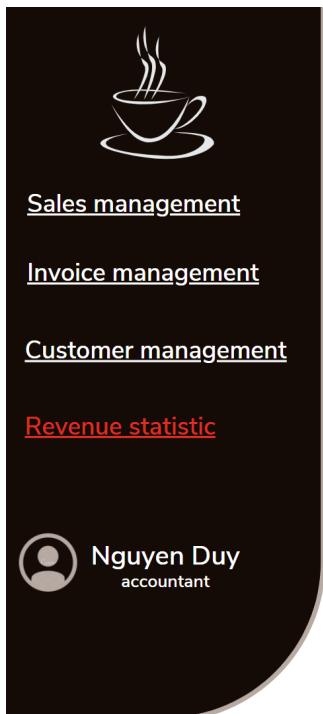
UPDATE CUSTOMERS' INFORMATION.



Name:	Hằng		
Age:	25	<input type="button" value="▼"/>	
Gender:	male <input checked="" type="checkbox"/>	female <input type="checkbox"/>	others <input checked="" type="checkbox"/>
Phone number:	1234567890		
Address:	TP.HCM		
<input type="button" value="Submit"/>			

Picture 4.2.17 Update customer's information frame

18. Revenue statistic frame



Revenue Statistic



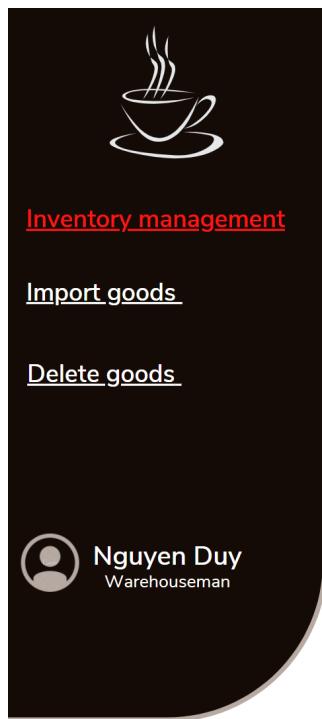
DD/MM/YYYY Day Month Year

Total number of invoices: 0

Total amount: 0 đ

Picture 4.2.18 Revenue Statistic

19. Inventory management frame



Inventory Management

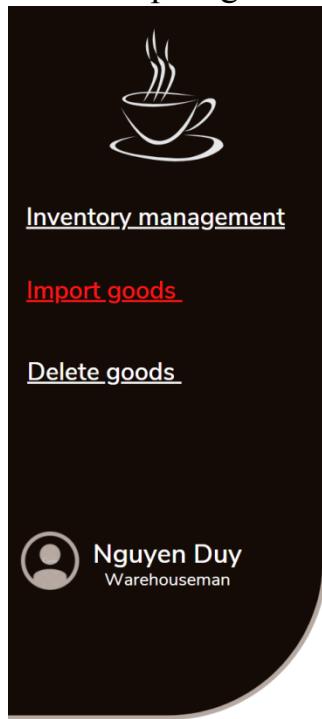


Search

Product's name	Quantity
Sting vị sầu riêng	100
Pepsi	15
c2	20
Bánh Plan	30
Lê Thị Ngọc Hảo	1

Picture 4.2.19 Inventory management frame

20. Import goods



IMPORT GOODS



category

name

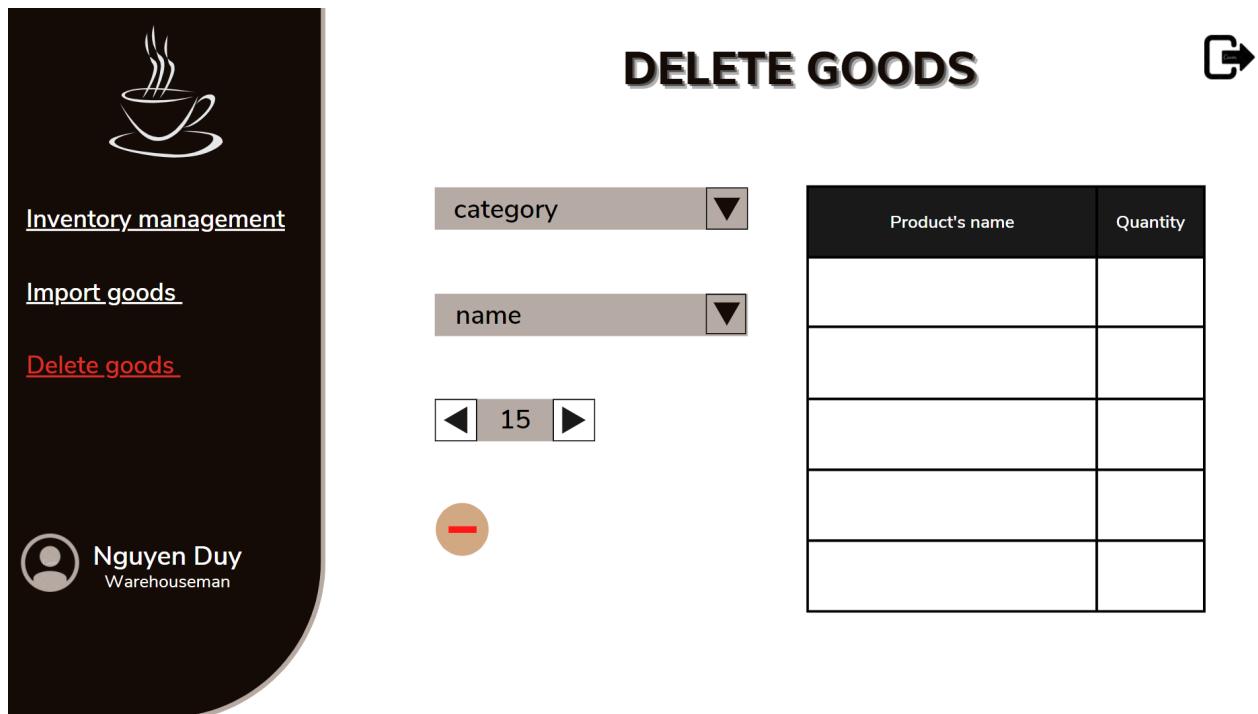
15



Product's name	Quantity

Picture 4.2.20 Import goods

21. Delete goods



Picture 4.2.21 Delete goods

CHAPTER 5: CONCLUSION

5.1 Achievement

Conclusions:

- The application was made for the small business models.
- The application had achieved:
 - + Fully manage personal information of staff members
 - + Fully manage information of customers
 - + Fully manage importing goods
 - + Fully manage the revenue of the coffee shop
 - + Fully manage the number of drinks that customers order.

Limitations:

- Because of the limit of time and member, the application still have some restrict:
 - + Can not manage store by cloud management
 - + Do not have extra promotion
 - + All functions is still manual
 - + Limitation in security

Development:

- + Complete all functions by automatic
- + Create a function to manage promotions and additional services
- + Manage coffee shop with cloud management
- + Extend the application to manage a large number of customers, employees and goods.
- + Update security system for customers and employees.

5.2 Self-assessment

Name	ID Student	Contribution	Process
Lê Thị Ngọc Hảo	20521292	<p>Write report chapter 1, 2 Do the outline and interview Phuc Long's manager Analyze and survey existing system. Draw use-case diagram of:</p> <ul style="list-style-type: none"> + Revenue management + Invoice management + Order process <p>Describe use cases and activity diagrams:</p> <ul style="list-style-type: none"> + Login + Invoice Management + Revenue Management + Employee Management + Order process <p>Draw sequence and class diagram:</p> <ul style="list-style-type: none"> + Login + Revenue Management + Drinks management + Order process <p>Describe class diagram</p> <ul style="list-style-type: none"> + Login + Revenue Management + Drinks management + Order process <p>Describe relational model</p> <p>Draw state diagram: order and serving</p> <p>Draw relation models and describe table</p> <p>Presentation</p> <p>Create UI Design of:</p>	100%

		<ul style="list-style-type: none"> + Revenue statistic <p>Attend team's meeting 4 times</p> <p>Edit the last report</p>	
Nguyễn Duy	20521234	<p>Create demo use-case diagram</p> <p>Create UI Design of:</p> <ul style="list-style-type: none"> + User management + Customer management + Login <p>Code: Sales manager</p> <p>Describe relational model</p> <p>Draw state diagram: Import goods</p> <p>List of actors and use-cases</p> <p>Draw use-case:</p> <ul style="list-style-type: none"> + Overall + Customer + Employee <p>Describe use cases and activity diagrams:</p> <ul style="list-style-type: none"> + Customer Management + Import Management <p>Draw sequence and class diagram:</p> <ul style="list-style-type: none"> + Employees Management + Import Management <p>Describe class diagram:</p> <ul style="list-style-type: none"> + Import Management + Employees Management <p>Presentation</p> <p>Attend team's meeting 4 times</p> <p>Do the describe environment and set up report.</p> <p>Describe the way of login and manage customer (in describe environment report)</p>	100%
Trương Mỹ Song Dân	20520424	<p>Write report chapter 4, 5</p> <p>Create UI Design of:</p> <ul style="list-style-type: none"> + Warehouse management + Product management + Import and Delete goods + Customer management + Inventory management <p>Do the outline interview and warehouseman, customer,</p>	100%

		accountant of Phuc Long company Draw DFDs model: level 0 Draw use-case: Import management Draw ERDs Presentation Edit report Attend team's meeting 4 times	
Hồ Thị Hằng	20521285	<p>Write report chapter 3</p> <p>Draw existing system</p> <p>Code : Login</p> <p>Draw use-case diagram of:</p> <ul style="list-style-type: none"> + Drinks management + Goods management + Manage Import + Manage Order Online Process <p>Describe use cases and activity diagrams:</p> <ul style="list-style-type: none"> + Drink management + Goods management + Manage Import + Manage Order Online <p>Process</p> <p>Draw sequence and class diagram of:</p> <ul style="list-style-type: none"> + Employees Management + Goods Management + Customer Management + Order Online Process <p>Describe class diagram:</p> <ul style="list-style-type: none"> + Goods Management + Invoice Management + Customer Management + Order Online Process <p>Draw DFDs model: level 1</p> <p>Create UI Design of:</p> <ul style="list-style-type: none"> + Invoice management <p>Attend team's meeting 4 times</p>	100%

Table 5.1 Division and evaluate member's working process