HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF INFORMATION AND COMMUNICATION TECHNOLOGY
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BIG PROJECT

OBJECT-ORIENTED PROGRAMMING

PHARMACY MANAGEMENT

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Hanoi, January 2023

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INTRODUCTION

Pharmacy management is a significant task that any pharmacy would have to deal with. In addition to importing medicines and giving prescriptions, every pharmacy is required to store and take detailed notes of prescriptions so that information would be more comprehensible, comprehensive and convenient for future searching purposes or pharmaceutical orientations.

To tackle this issue, an advanced software can be utilized instead of traditional notebooks to take notes of customers' prescriptions, statistics, and total income.

This topic will give a generalized description of the requirements to bring this software into fruition, the projected design as well as build an illustration to make the baseline of the complete product down the line.

ASSIGNMENT FOR EACH MEMBER

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Nguyễn Khoa Đoàn	doan.nk207642@sis.hust.edu.vn	0965672833	Completed 100%
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Nguyễn Hải Phong	phong.nh207624@sis.hust.edu.vn	0982944425	Completed 100%

Name	Detail assignment
Nguyễn Khoa Đoàn	Design the GUI General function Prescription function
Đỗ Trung Hiếu	Design the model Statistic function About function
Nguyễn Hải Phong	Design the database Database connecting Login function Medicine management function

CHAPTER 1: SURVEY, DECLARATION OF PROBLEM REQUIREMENTS

1.1. Description of the problem's requirements

A pharmacy sells all types of medicine such as pills, solutions, power. When there are customers, the pharmacy will issue an invoice and store it in the prescription information bank.

Build the pharmacy management system that includes:

- Add, edit, and delete medicine information by input name.
- Store information about sold prescriptions (each consisted of different medicines).
- Search and display a prescription's information according to the prescription code.

Depending on the medicine type, each will have different statistics. Pills go by pill unit, solutions go by milliliter, and power goes by milligrams.
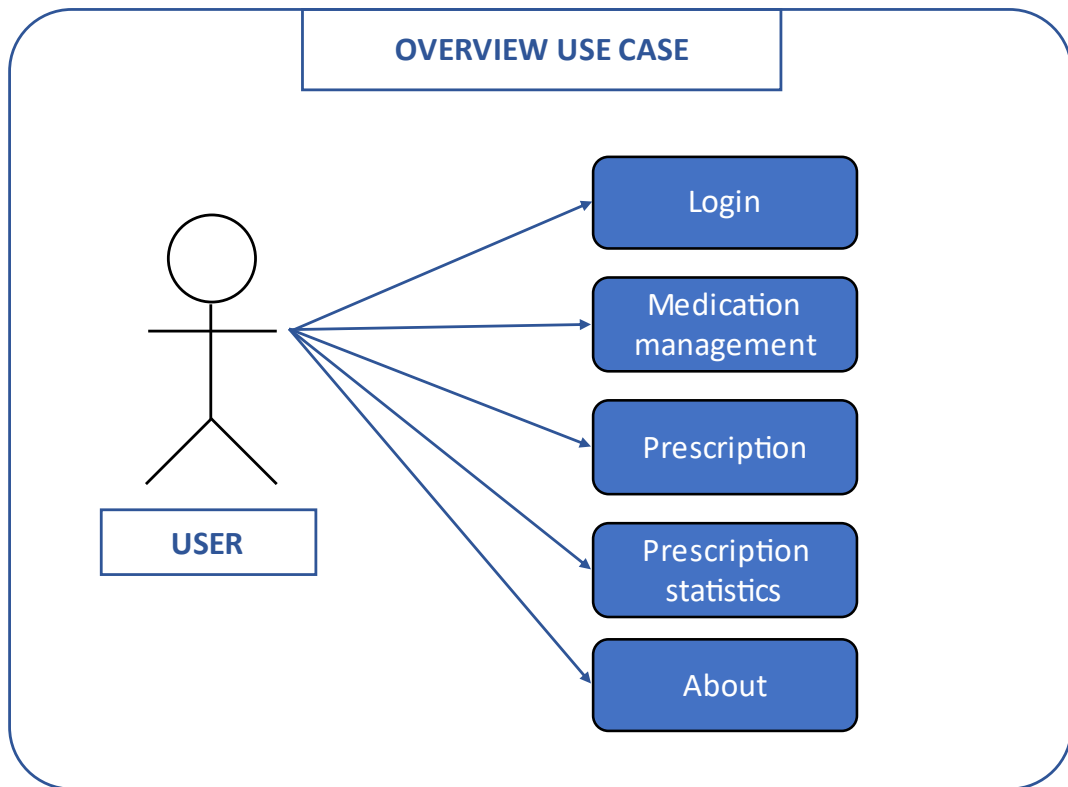
Build statistics on sold medicine and pharmacy's income in the input period (from dd/mm/year to dd/mm/year).

1.2. Use case diagram
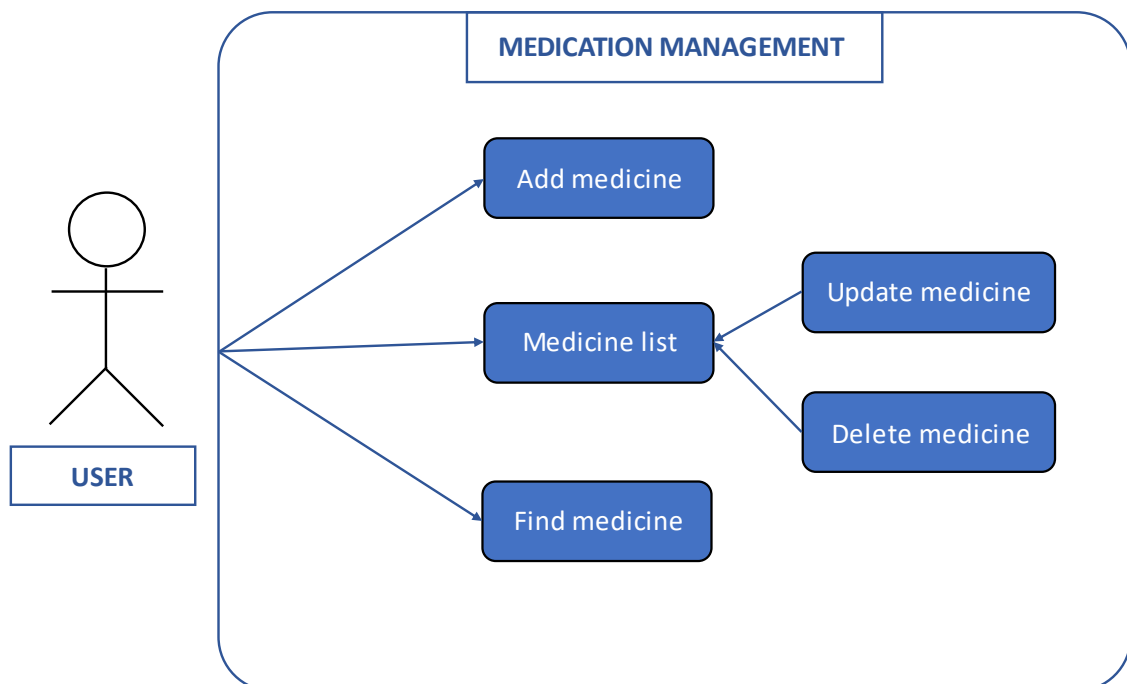
1.2.1. Overview use case diagram

To access this software, the accountants are required to log in using the username and password provided by the software management.

Thus, users can use this software's function to manage prescription problems as well as manage medicine in the pharmacy. Users can also view the pharmacy's income statistics and total bills through the overview function, detailed statistics on prescriptions in the statistic function as well as give prescriptions for customers using the prescribed function.
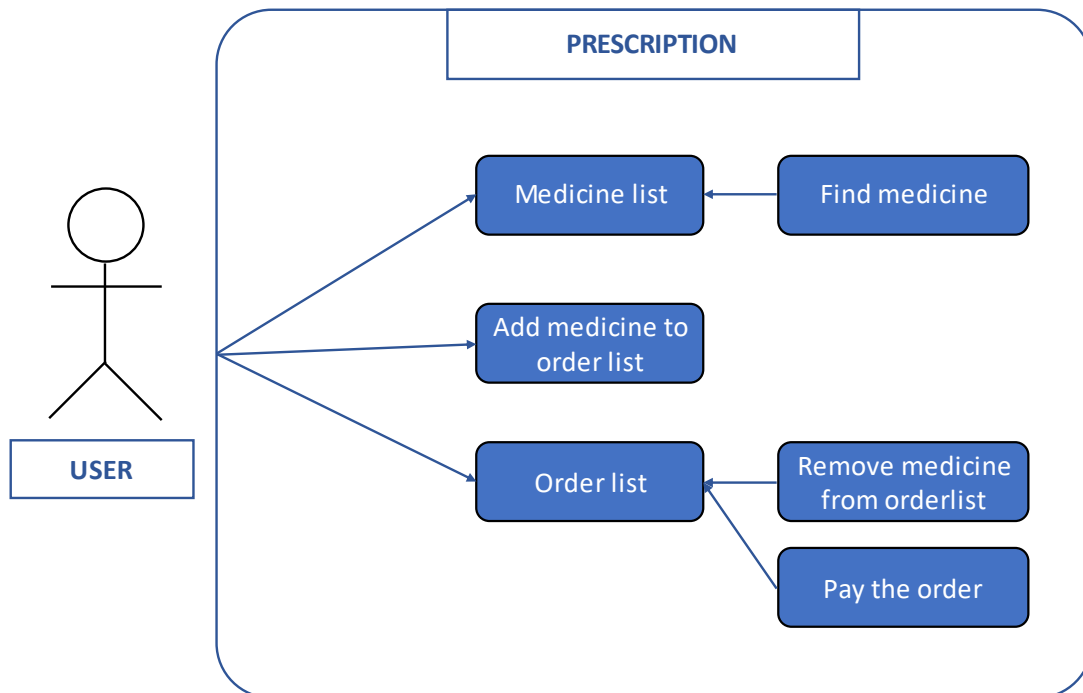
OVERVIEW USE CASE

USER

Login

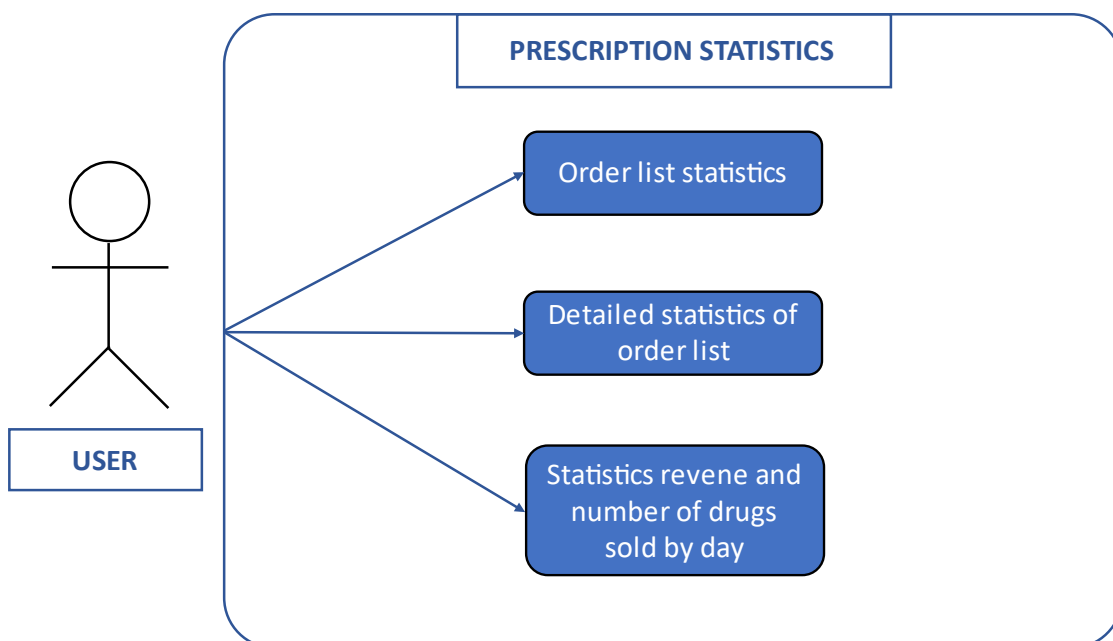Medication management

Prescription

Prescription statistics

About

1.2.2. Level 2 use case diagram

Detail use case "Medication management":

MEDICATION MANAGEMENT

USER

Add medicine

Medicine list

Update medicine

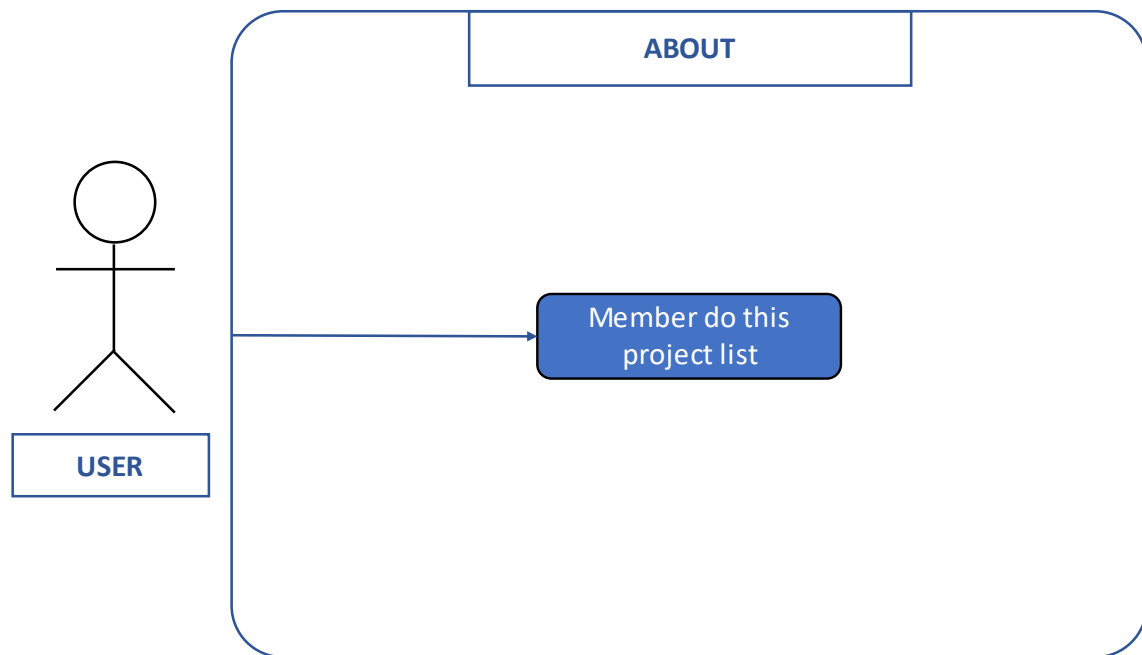Delete medicine

Find medicine

Detail use case "Prescription":

Detail use case "Prescription statistics":

Detail use case "About":

1.3. Use case specification

Use case "Login":

Use case ID	UC01	Use case name	Login		
Purpose	Log in to the system				
Agent	User				
Event	The user clicks on the login button				
Prerequisites	The user fills in all the blanks				
Post-condition	The user can log in to the system				
Main event (successfully)	Number	Perform by	Action		
	1	User	Fill in all the blanks		
	2	System	Checking and verifying the information		
	3	System	Display the interface after login		
Alternative event (unsuccessfully)	Number	Perform by	Action		
	1	System	Display the signal request to fill the correct information		

Number	Data fields	Description	Required	Valid condition	Example
1	Username		Yes		
2	Password		Yes		

Use case "Add medicine":

Use case ID	UC02	Use case name	Add medicine		
Purpose	Add medicines into the system				
Agent	User				
Event	The user clicks on the add button				
Prerequisites	The user has logged into the system				
Post-condition	The medicine is added to the system				
Main event (successfully)	Number	Perform by	Action		
	1	User	Choose the Store tab on the left side		
	2	System	Switch to the Store interface		
	3	User	Fill in all the information		
	4	System	Check input information		
	5	System	Check the format of the input information		
	6	System	Add medicine into the system		
	7	System	Notify the user when successfully added		
Alternative event (unsuccessfully)	Number	Perform by	Action		
	1	System	Display the signal request to fill in the correct information format or to fill in all the blanks		

Number	Data fields	Description	Required	Valid condition	Example
1	Medicine ID		Yes		
2	Medicine name		Yes		
3	Date of manufacture		Yes		
4	Expiry		Yes		

5	Price		Yes		
6	Brand		Yes		
7	Type	Select 1 in 3 type	Yes		
Quantity	Quantity		Yes		

Use case "Delete medicine":

Use case ID	UC03	Use case name	Delete medicine		
Purpose	Delete the medicine in the system				
Agent	User				
Event	The user clicks on the medicine and clicks the delete button				
Prerequisites	The user has logged into the system				
Post-condition	The medicine is removed from the system				
Main event (successfully)	Number	Perform by	Action		
	1	User	Choose the medicine that needs to be removed		
	2	System	Display a message asking the user to confirm the deletion		
	4	User	Delete confirmation		
	5	System	Delete the medicine and show the successful message		
	6	System	Add the medicine to the system		
	7	System	Notify the user when successfully added		
Alternative event (unsuccessfully)	Number	Perform by	Action		
	1	System	End event when the user doesn't confirm the deletion		
	2	System	Notify that the medicine has not been selected to delete		

Use case "Update medicine":

Use case ID	UC04	Use case name	Update medicine		
Purpose	Change the medicine information in the system				
Agent	User				
Event	The user clicks on the update button				
Prerequisites	The user has logged into the system				

Post-condition	None		
Main event (successfully)	Number	Perform by	Action
	1	User	Choose the medicine that needs to be updated
	2	System	Get the medicine information and show it on the screen
	3	User	Change the information that needs to be updated
	4	System	Check the input information
	5	System	Check the format of the input information
	6	System	Update the medicine information in the system
	7	System	Notify the user when successfully updated
Alternative event (unsuccessfully)	Number	Perform by	Action
	1	System	Display the signal request to fill in the correct information format or to fill in all the blanks

Use case "Find the medicine":

Use case ID	UC05	Use case name	Find medicine
Purpose	Find the medicine in the system		
Agent	User		
Event	The user enters information in the search field		
Prerequisites	The user has logged into the system		
Post-condition	A list of valid medicines is displayed		
Main event (successfully)	Number	Perform by	Action
	1	User	Enters information in the search field
	2	System	Find the valid medicines in the database
	3	User	Display all valid medicines
Alternative event (unsuccessfully)	Number	Perform by	Action
	1	System	Notify when a valid drug is not found

Use case "Show the medicine list":

Use case ID	UC06	Use case name	Show medicine list
Purpose	Display all the medicine in the system		
Agent	User		
Event	The user chooses the Store tab on the left side		
Prerequisites	The user has logged into the system		
Post-condition	None		
Main event (successfully)	Number	Perform by	Action
	1	User	Choose the Store tab on the left side
	2	System	Get all medicines in the database
	3	User	Display all the medicines information
Alternative event (unsuccessfully)	Number	Perform by	Action
			None

Use case "Show the purchase list":

Use case ID	UC07	Use case name	Show medicine list
Purpose	Display current medicine in the purchase list		
Agent	User		
Event	The user chooses the purchase tab on the left side		
Prerequisites	The user has logged into the system		
Post-condition	None		
Main event (successfully)	Number	Perform by	Action
	1	User	Choose the purchase tab on the left side
	2	System	Get current medicines in the database
	3	User	Display current medicines information
Alternative event (unsuccessfully)	Number	Perform by	Action
			None

Use case "Add medicine to purchase list":

Use case ID	UC08	Use case name	Add medicine to the purchase list

Purpose	Add medicine to the purchase list		
Agent	User		
Event	The user chooses the add button on the left side		
Prerequisites	The user has logged into the system and selected the correct medicine		
Post-condition	None		
Main event (successfully)	Number	Perform by	Action
	1	User	Choose the tab on the left side
	2	System	Add medicine to the purchase list
	3	System	Display all the medicines information
Alternative event (unsuccessfully)	Number	Perform by	Action
			None

Use case "Remove medicine from the purchase list":

Use case ID	UC09	Use case name	Remove medicine from the purchase list
Purpose	Remove medicine from the purchase list		
Agent	User		
Event	The user chooses the remove button on the left side		
Prerequisites	The user has logged into the system and selected the correct medicine in the purchase list		
Post-condition	None		
Main event (successfully)	Number	Perform by	Action
	1	User	Choose the purchase button on the left side
	2	User	Click the remove button
	3	System	Remove medicine from the purchase list
	4	System	Display all the medicines information
Alternative event (unsuccessfully)	Number	Perform by	Action
			None

Use case "Medicine bill payment":

Use case ID	UC10	Use case name	Payment

Purpose	Medicine bill payment		
Agent	User		
Event	The user chooses the pay button on the bottom side		
Prerequisites	The user has logged into the system and has added medicine to the purchase medicine list		
Post-condition	None		
Main event (successfully)	Number	Perform by	Action
	1	User	Choose the Store tab on the left side
	2	System	Add medicine to the purchase list
	3	System	Display all the medicines information
Alternative event (unsuccessfully)	Number	Perform by	Action
			None

Use case "Display the prescription and its detail":

Use case ID	**UC11**	**Use case name**	**Display the prescription and its detail**
Purpose	Display the prescription and its detail		
Agent	User		
Event	The user chooses the purchase tab on the left side		
Prerequisites	The user has logged into the system		
Post-condition	None		
Main event (successfully)	Number	Perform by	Action
	1	User	Choose the purchase tab on the left side
	2	System	Get all bill and bill information in the database
	3	User	Display all the bill information
Alternative event (unsuccessfully)	Number	Perform by	Action
			None

Use case " Provide the quantity and income statistics "

Use case ID	**UC12**	**Use case name**	**Provide the quantity and income statistics**
Purpose	Provide the quantity and income statistics in a time period		

Agent	User		
Event	The user chooses the statistic tab on the left side		
Prerequisites	The user has logged into the system		
Post-condition	None		
Main event (successfully)	Number	Perform by	Action
	1	User	Choose the statistic tab on the left side
	2	User	Choose the start and end date
	3	System	Calculating the total quantity and income
	4	System	Display all the quantity and income information
Alternative event (unsuccessfully)	Number	Perform by	Action
			None

Use case "About":

Use case ID	UC13	Use case name	About
Purpose	Display all the team member list		
Agent	User		
Event	The user chooses the About tab on the left side		
Prerequisites	The user has logged into the system		
Post-condition	None		
Main event (successfully)	Number	Perform by	Action
	1	User	Choose the About tab on the left side
	2	User	Display all the member information
Alternative event (unsuccessfully)	Number	Perform by	Action
			None

CHAPTER 2: PROBLEM ANALYSIS AND DESIGN

2.1. Database design

The relationship diagram between tables

database_pharmacy donhang_info
- idDonThuoc : int(11)
- idKhach : int(11)
- tongTien : double
- ngayThanhToan : date

database_pharmacy medicine
- maThuoc : varchar(10)
- tenThuoc : varchar(50)
- nsx : date
- hsd : date
- donGia : double
- thuongHieu : varchar(30)
- loai : varchar(10)
- soLuong : int(11)

database_pharmacy donhang
- idDonThuoc : int(11)
- idKhach : int(11)
- maThuoc : varchar(30)
- tenThuoc : varchar(30)
- donGia : double
- soLuong : int(11)
- cachDung : varchar(100)
- ngayThanhToan : date

database_pharmacy account
- username : varchar(30)
- password : varchar(30)

2.2. UML diagram

CHAPTER 3: TECHNOLOGY AND ALGORITHMS USED

- Use JavaFX and SceneBuilder to design the interface
- Use XAMPP to create the database
- Use genmymodel.com to create the class diagram

CHAPTER 4: BUILD THE ILLUSTRATION PROGRAM

4.1. Illustration result

After a process of thorough research and development, our group has managed to achieve the projected results. We have finished the product orientation with the ability to provide support for pharmacy management, prescriptions as well as income and invoice statistics, all conveniently packed into one software.

Software information:
- Operate on the Java platform
- Operate on every operating system
- Utilize MySQL

4.2. Program interface

Login screen
- Username
- Password
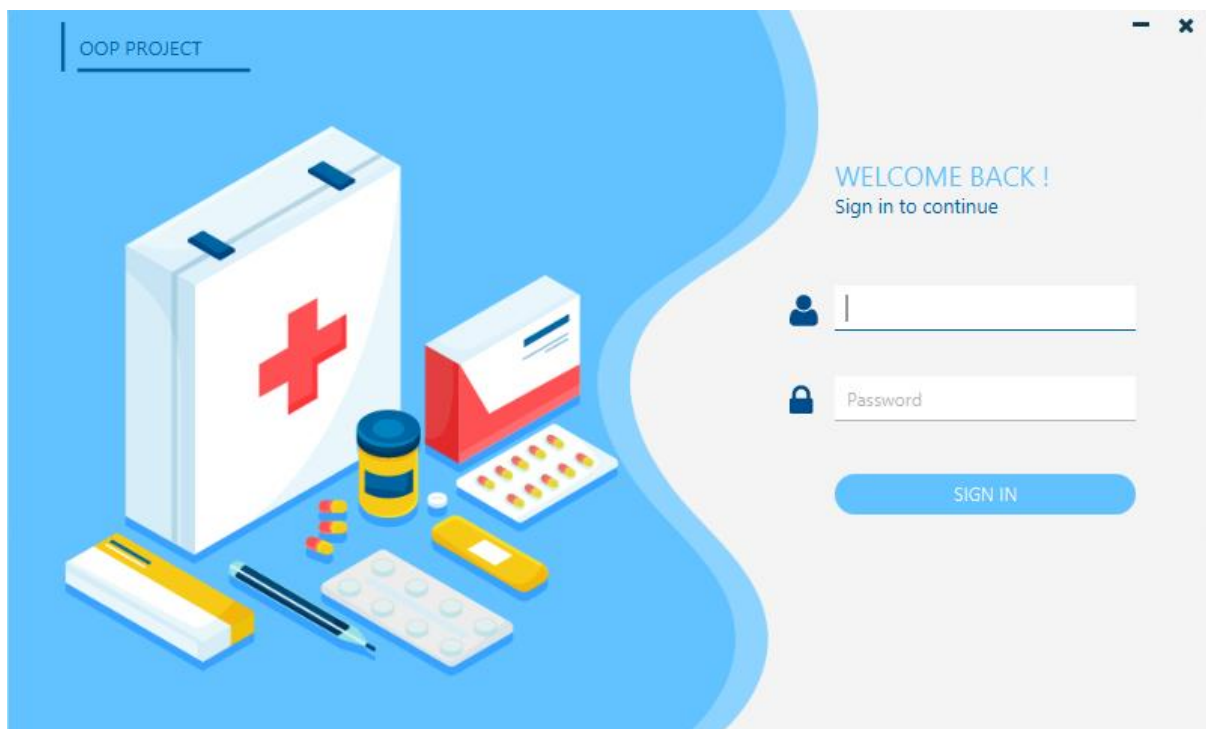
- An error message pops up when the entered username/password is wrong.
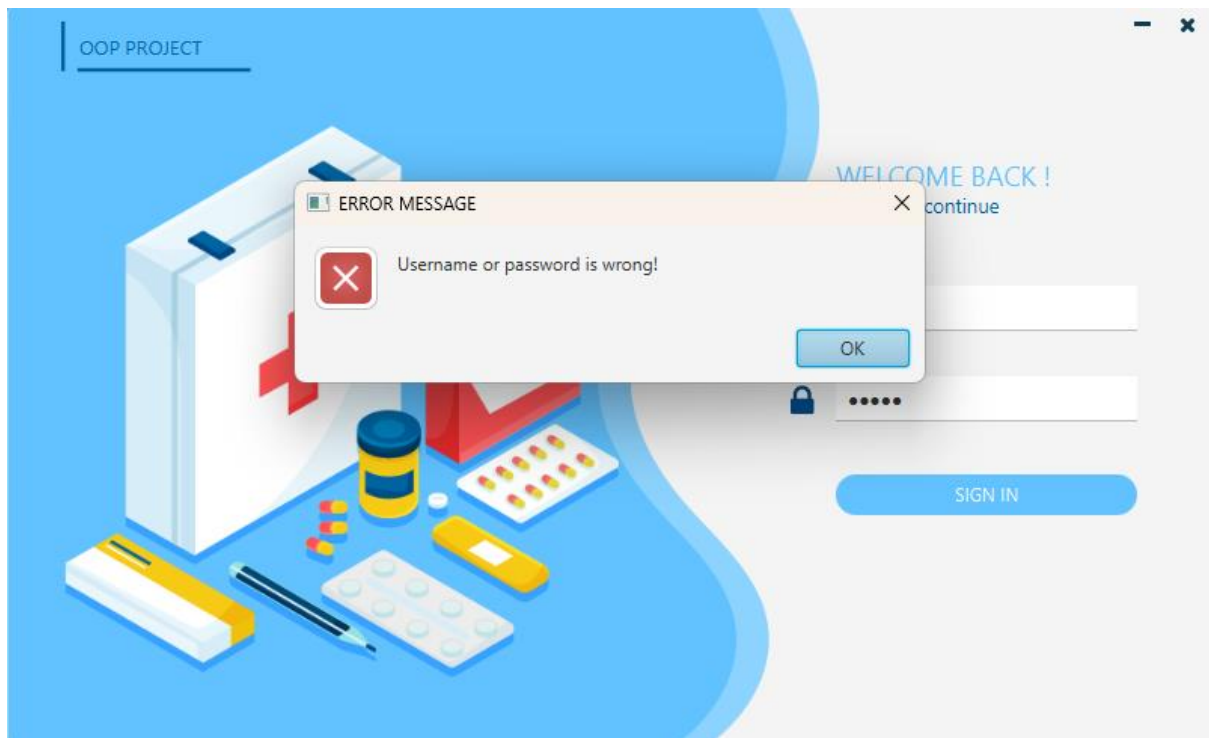
- A message pops up indicating that the sign-in is successful.
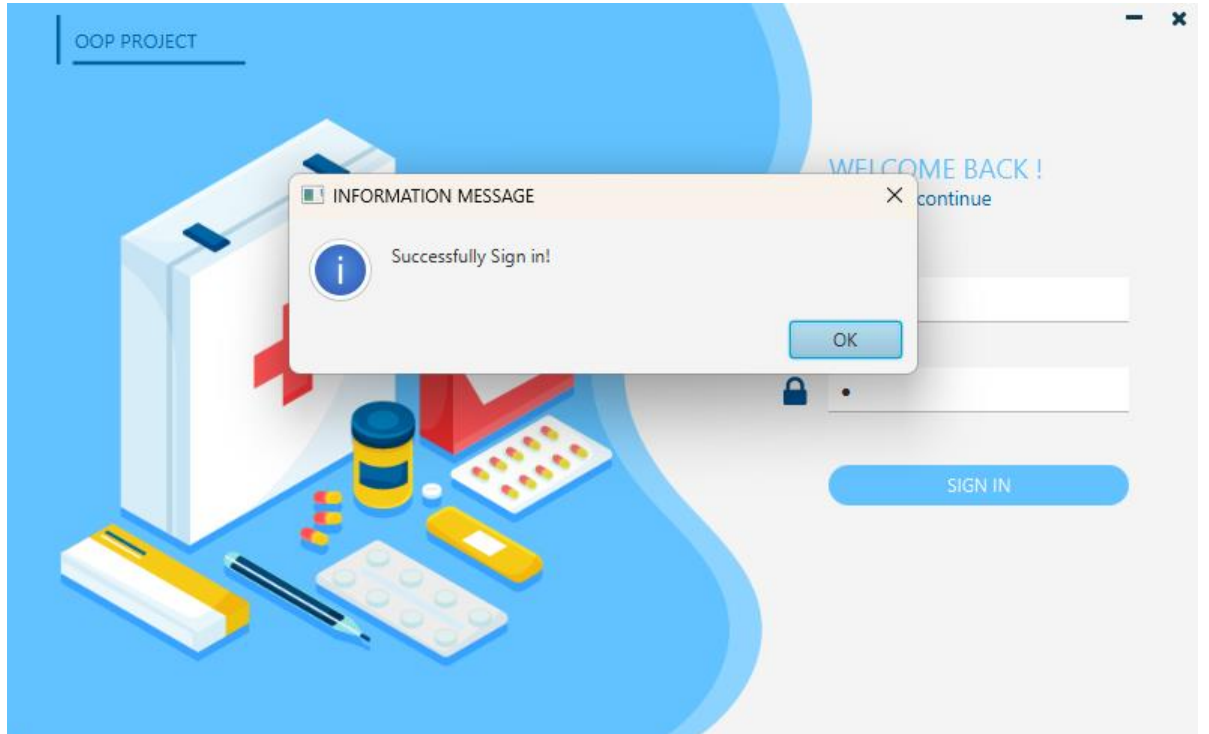
Home screen
- The interface includes the main function on the left-hand side and also the total number of medicines, clients and the total income of the pharmacy.
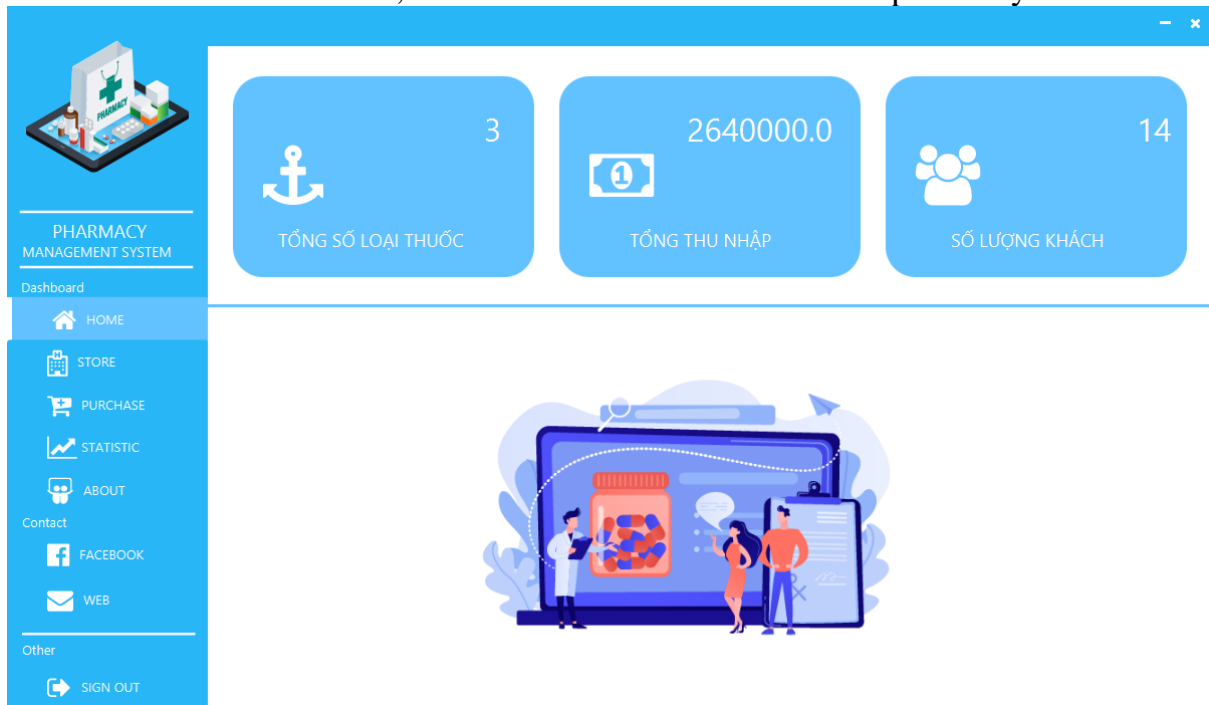
Store function

- Add, delete, edit and update the medicine

- Failed to add the medicine

- Successfully added the medicine

- A message pops up to confirm the medicine update

- A message pops up to confirm the medicine deletion

Purchase function

Statistics function

- The interface after selecting the filtered time period

About function

- Display the members' information

CONCLUSION

In the project we have created software that meets some of the following basic functions as follows:
- Inventory management of the pharmacy
- Order management and sales at the pharmacy
- Statistics of sales and number of drugs sold by the day

On the other hand, the project has a few downsides. In the future, we recommend below functions:
- Add sales function by customer id (id by phone number or encoded code)
- Statistics customer and customer class (like silver, gold, …)
- Add payment calculation function
- Online shopping, payment

REFERENCES

[1] Object-oriented programming slide provided by PhD. Do Thi Ngoc Diep

[2] JavaFX UI Design on Youtube – KeepToo

[3] JavaFX playlist on Youtube – Bro Code