GENERAL CONFEDERATION OF LABOR OF VIETNAM

**TON DUC THANG UNIVERSITY**

**FACULTY OF INFORMATION TECHNOLOGY**



**SOFTWARE ENGINEERING**

**BUILDING COMPANY SELLING FUNCTIONAL FACTS MANAGEMENT**

*Instructing Lecturer*: **Mr Phạm Thái Kỳ Trung**

*Student’s name*: **Phạm Minh An – 518H0591**

**Trần Hoàng Long – 518H0105**

Class **: 18H50301**

Course  **: 22**

**HO CHI MINH CITY, YEAR 2022**

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**HO CHI MINH CITY, YEAR 2022**

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We sincerely thank you

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I commit that this product belong to us with the guardian of Mr. Pham Thai Ky

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from other authors, organizations. This project has original quotes and annotations.

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*Ho Chi Minh City, May 24th 2022*

*Author*

*(Sign and write full name)*

*Phạm Minh An*

*Tran Hoang Long*

**EVALUATION AND INSTRUCTION LECTURER**

**Confirmation of the teacher instructor**

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Ho Chi Minh City, May 24th 2022

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**The assessment of the teacher marked**

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Ho Chi Minh City, May 24th 2022

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**I – INTRODUCTION**

* 1. **Purpose and Scope**

The system is built on a user-friendly environment, helping users get used to the first time they interact with the system. At the same time, the system provides absolute trust with exact information consumers need.

The management system needs to strictly comply with the requirements set out to ensure business purposes and moreover is the interests of customers.

For the purpose of ensuring optimization requirements in sales and meet the following requirements functional :

- Comprehensive management for agents and companies.

- Business exchange management.

- Payment management.

- System management.

* 1. **Product overview**

A company selling functional facts to agents needs software with the following main functions:

* Accountants shall be able to create Goods Received when the company imports goods (a warehouse receipt will include many items)
* Agents shall be able to place an order of items and choose a payment method (Cash, bank transfer, Momo...) (Webform)
* Accountants shall be able to create Goods Delivery Note to deliver goods to agents (print delivery slips), update the status of orders as being transferred and update the payment status of agents.
* Accountants shall be able to view incoming/outgoing stock reports and revenue reports monthly.

Scenarios for using the product : The main objects of use are companies that export goods in large quantities to distribute to retailers. This software helps companies manage incoming and outgoing goods and monthly revenue, and agents can easily place orders through the software in a convenient way.

* 1. **Structures of the Document**

This report has 7 main part :

* Introduction
* Project management plan
* Requirement specifications
* Architecture
* Design
* Test plan
* Demo

**1.4 Terms, Acronyms and Abbreviations**

**II – PROJECT MANAGEMENT PLAN**

**2.1 Project Organization**

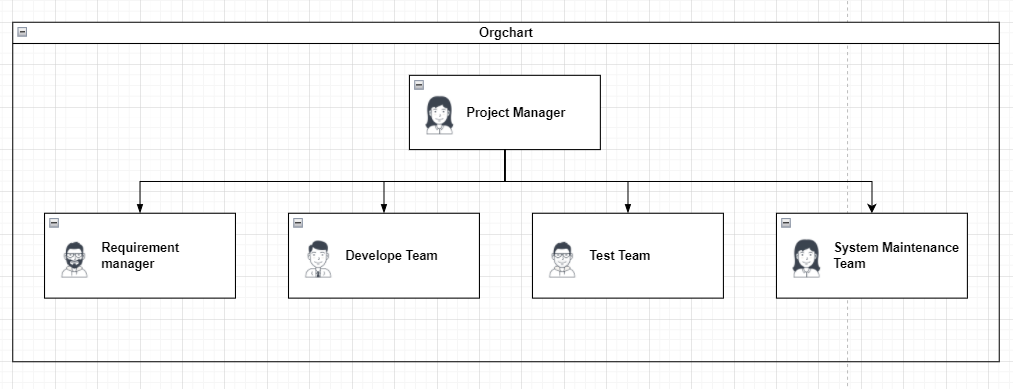


Figure 2.1: Organization chart

The team involved in project :

* Requirement manager: collect requirements from customers, analyze and plan to implement the project.
* Development team: build the system (coding) according to the implemented plan.
* Test team: check the defects of the product created by the development team.
* System maintenance team: periodical product warranty, in order to help the product use long-term.

**2.2 Lifecycle Model Used**

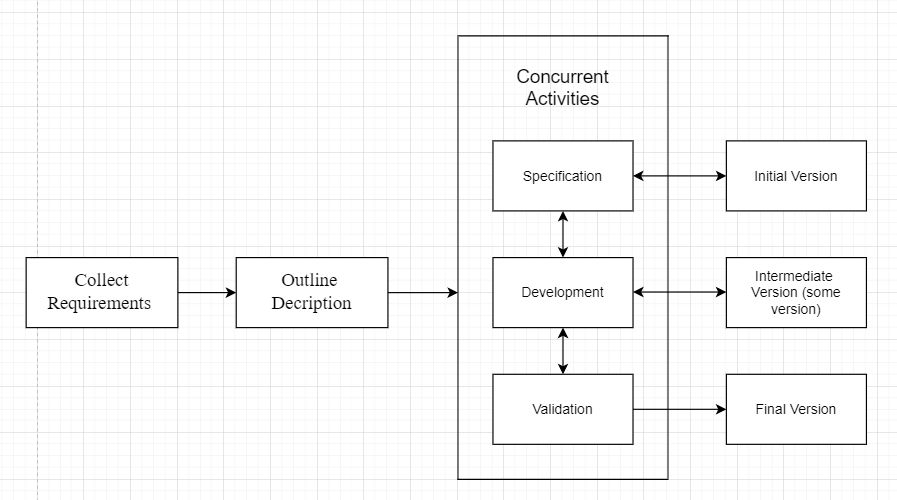


Figure 2.2: Lifecycle Model

This project is implemented following the incremental model.

First, we need to collect the customer's requirements, then create an outline for the project. Next we will do the loop: specification 🡪 development 🡪 validation . This work will result in many different incomplete versions. Continue until the validation is successful and the final version is released (the most complete version).

**2.4 Hardware and Software Resource Requirements**

In order for the development team can build this software, the equipments which they needs to have includes :

Hardware : Computer ( PC or laptop).

Software :

* Windows OS, Microsoft SQL Server Management Studio 18 (to edit database), Visual Studio 2019 to code.
* Diagramming tools : Online : draw.io : <https://app.diagrams.net/>

Visual Paradigm online: https://online.visual-paradigm.com/app/diagrams/

Software : Visio

**2.5 Impact of the project on individuals and organizations**

Management software helps a lot for accountants, agents and product distribution companies.

Accountant :

* Easier to control invoices (Goods received, Goods delivery Note)
* Updating goods figures (shipping status, payment status)

Agency:

* Easy to order
* Choose a form of payment

Company :

* Control the source of goods in/out
* Control monthly revenue, thereby making reasonable business policies.

**2.6 PROFESSIONAL STANDARDS**

During the working process, the team members exchanged cheerfully, followed the plan on schedule (not late for the deadline). The sense of responsibility of the members is pretty good.

**III – REQUIREMENT SPECIFICATIONS**

**3.1 Stakeholders for the system**

**Agency:** they are one of the system's primary interactors, who are involved in product purchases, review, and interactions with the company through the system.

**Accountant:** they are one of the system's primary interactors, they are responsible for the import/export of the company. Also the person who monitors the delivery and payment status for the order to the agent. In addition, they also have to make a report on revenue and quantity of goods incoming/outgoing every month to the company’s manager.

**System :** is the interaction environment between the agent and company. Here, the system acts as a bridge for payments, order management, sales data management,… In order to ensure benefits for consumers as well as company owners.

**3.2 Use case model**

***3.3.1 Graphical use case model***

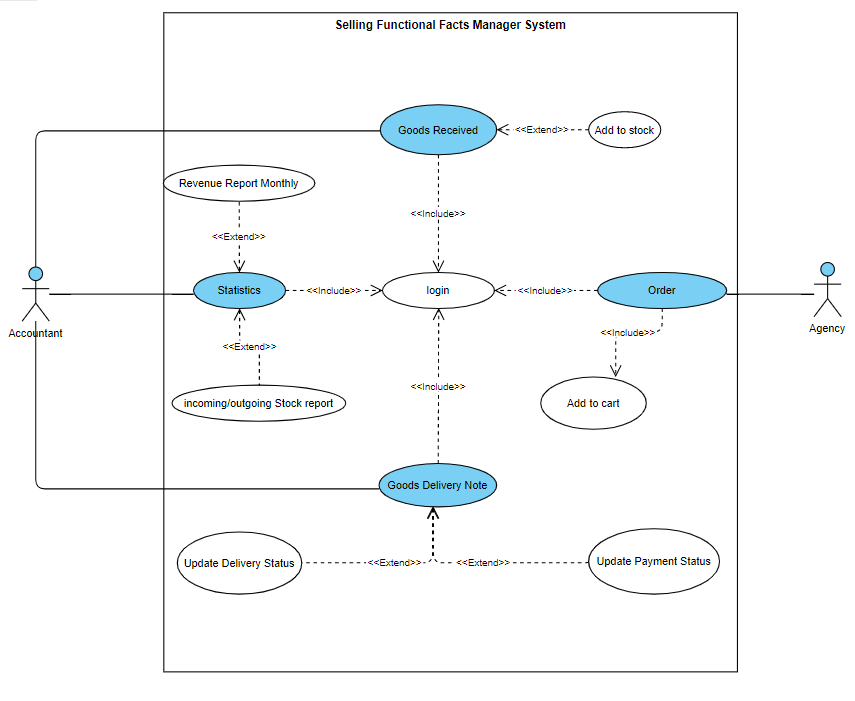


Figure 3.1: Use Case Model

***3.3.2 Textual Description for each use case***

| Use Case Name | Login | |
| --- | --- | --- |
| Participating Actors | Agency, Accountant. | |
| Entry Condition(s) | Users must have an account and password. | |
| Normal Flow of Events | Actor | System |
| 1, User enters account and password. | 1, System checks account information and password information. |
| Exit Condition(s) | Click “Exit” button. | |
| Exceptions (Alternate Flow of Events) | If you enter the wrong account or password, request to retype. | |

Table 3.1: Use Case Login Specification

| Use Case Name | Statistics | |
| --- | --- | --- |
| Participating Actors | Accountant. | |
| Entry Condition(s) | Accountant must login successful. | |
| Normal Flow of Events | Actor | System |
| 1, Accountant clicks “Statistics” | 1, The system displays “Stock Statistics” and “Revenue Statistics” |
| Exit Condition(s) | Click “Logout” button | |
| Exceptions (Alternate Flow of Events) |  | |

Table 3.2: Use Case Statistics Specification

| Use Case Name | Order | |
| --- | --- | --- |
| Participating Actors | Agency. | |
| Entry Condition(s) | Agency must login successful. | |
| Normal Flow of Events | Actor | System |
|  | The system will display the agent's order information. |
| Exit Condition(s) | Click “Logout” button | |
| Exceptions (Alternate Flow of Events) |  | |

Table 3.3: Use Case Order Specification

| Use Case Name | Good Received | |
| --- | --- | --- |
| Participating Actors | Accountant | |
| Entry Condition(s) | Accountant must login successful and click “Import”. | |
| Normal Flow of Events | Actor | System |
|  | The system displays item information. |
| Exit Condition(s) | Click “Logout” button | |
| Exceptions (Alternate Flow of Events) | If the Accountant does not enter the quantity, the system will not show the information of the item added to the inventory. | |

Table 3.4: Use Case Good Received Specification

| Use Case Name | Good Delivery Note | |
| --- | --- | --- |
| Participating Actors | Accountant | |
| Entry Condition(s) | User must login successful. | |
| Normal Flow of Events | Actor | System |
| Accountant clicks “Export” | The system displays the information of the orders in the statuses (not shipped, shipped, paid) |
| Exit Condition(s) | Click “Logout” button | |
| Exceptions (Alternate Flow of Events) |  | |

Table 3.5: Use Case Good Delivery Note Specification

| Use Case Name | Revenue Report | |
| --- | --- | --- |
| Participating Actors | Accountant | |
| Entry Condition(s) | Accountant Click on “Revenue Statistics” | |
| Normal Flow of Events | Actor | System |
| 1,Accountant clicks to select month and year.  2, Accountant click “totals statistics” | 1, The system shows the revenue of each order.  2, The system displays the total revenue of the selected month. |
| Exit Condition(s) | Click “Back” button | |
| Exceptions (Alternate Flow of Events) | If the user does not select the month or year, the system will show the revenue of all months/years. | |

Table 3.6: Use Case Revenue Report Specification

| Use Case Name | Stock Report | |
| --- | --- | --- |
| Participating Actors | Accountant | |
| Entry Condition(s) | Người dùng bấm vào thống kê hàng hóa | |
| Normal Flow of Events | Actor | System |
| 1,Accountant clicks to select month and year. | 1, The system shows the incoming/outgoing of products in stock in this month and year . |
| Exit Condition(s) | Click “Back” button | |
| Exceptions (Alternate Flow of Events) | If the user does not select the month or year, the system will show the stock of all months/years. | |

Table 3.7: Use Case Stock Report Specification

| Use Case Name | Add to stock | |
| --- | --- | --- |
| Participating Actors | Accountant | |
| Entry Condition(s) | Accountant chooses the product. | |
| Normal Flow of Events | Actor | System |
| 1, Accountant selects the item to add and edit the quantity.  2, Press the “Update” button. | 1, The system will add to the database.  2, The system displays item information. |
| Exit Condition(s) | Click “Back” button | |
| Exceptions (Alternate Flow of Events) | If the user does not enter the quantity (the quantity is 0), the system will not show the “update” button | |

Table 3.8: Use Case Add Specification

| Use Case Name | Update Delivery Status | |
| --- | --- | --- |
| Participating Actors | Accountant | |
| Entry Condition(s) | The accountant selects the order that is waiting for approval. | |
| Normal Flow of Events | Actor | System |
| 1, The user selects an unapproved order.  2,Press “Export”. | 1, The system displays the information of the order.  2,Transfer the order to the shipped zone. |
| Exit Condition(s) | Click “Back” button | |
| Exceptions (Alternate Flow of Events) | If the user does not select the order, the system will not show the “Export” button. | |

Table 3.9: Use Case Update Delivery Status Specification

| Use Case Name | Update Payment Status | |
| --- | --- | --- |
| Participating Actors | Accountant | |
| Entry Condition(s) | The accountant selects the order that shipped. | |
| Normal Flow of Events | Actor | System |
| 1, Accountant selects an shipped order.  2,Press “Export”. | 1, The system displays the information of the order.  2,Transfer the order to the paid zone. |
| Exit Condition(s) | Click “Back” button | |
| Exceptions (Alternate Flow of Events) | If the user does not select the order, the system will not show the “Export” button. | |

Table 3.10: Use Case Update Payment Status Specification

| Use Case Name | Add to cart | |
| --- | --- | --- |
| Participating Actors | Agency | |
| Entry Condition(s) | Angeny clicks “New Order”. | |
| Normal Flow of Events | Actor | System |
| 1, Agents choose products, enter quantity, choose payment method (momo, banking).  2, Press “Order” | 1, System added to database.  2, The system displays order information. |
| Exit Condition(s) | Click “Back” button | |
| Exceptions (Alternate Flow of Events) | If the agent does not enter the salary amount, or choose a payment method, the system will not display the "order" button. | |

Table 3.11: Use Case Add to Cart Specification

**3.3 Functional requirements & Non-functional requirements**

| Requirement | Functional | Non-functional |
| --- | --- | --- |
| Friendly system, easy to use. |  | x |
| Location of button, input text are placed logically. |  | x |
| The system must allow agents to choose products. | x |  |
| The system must allow agents to choose payment methods. | x |  |
| The system can assign rights to users when using. | x |  |
| The system must allow managers to manage products (add, edit, delete). | x |  |
| The system must allow accountants to make statistics and printit. | x |  |
| The system must allow accountant to update delivery status and payment status | x |  |

Table 3.12: Requirements table

**IV-ARCHITECTURE**

**4.1 Architectural styles used**

The architectural model of the system used is the 3 Layers model.

This approach helps define a structured solution that meets all technical and operational requirements, while optimizing common quality attributes such as performance, security, and manageability.

**4.2 Architectural model**

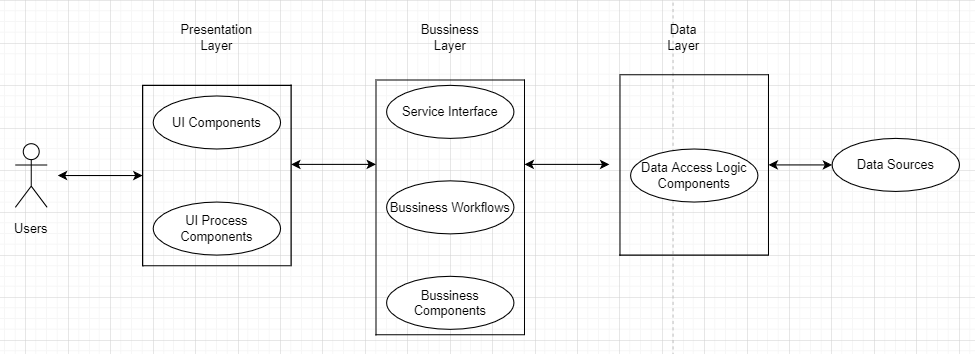


Figure 4.1: 3 Layers Architecture

**Presentation Layer (GUI):**

* UI Components: includes the components that make up the application's interface (GUI). They are responsible for acquiring and displaying data to the user… For example: textbox, button, combobox, etc.
* UI Process Components: is the component responsible for managing the transitions between UIs… Example: Arrange the process of checking customer information:

**Business Layer (BLL):**

* Service Interface : is a component of the programming interface that this class provides for the Presentation class to use.
* Business Workflows: responsible for defining and coordinating multi-step and lengthy business processes. These processes must be arranged and carried out in the correct order.
* Business Components: responsible for checking business rules, logical constraints, and performing jobs. These components also implement the services that the Service Interface provides, and the Business Workflows will use it.

**Data Layer (DAL):**

* Data Access Logic Components: is mainly responsible for storing and retrieving data from data sources (Data Sources).

**V - DESIGN**

* 1. **GUI**

***5.1.1 Winform***

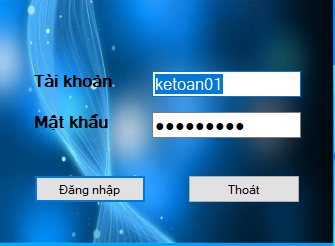


Figure 5.1: Login form

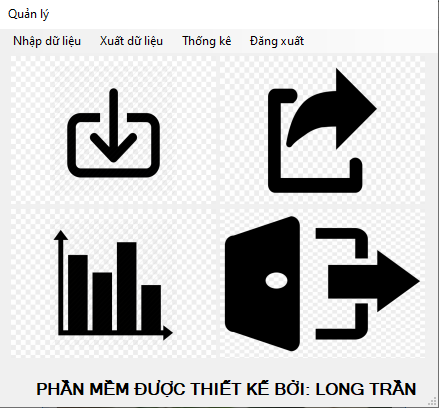


Figure 5.2: MainPage Account

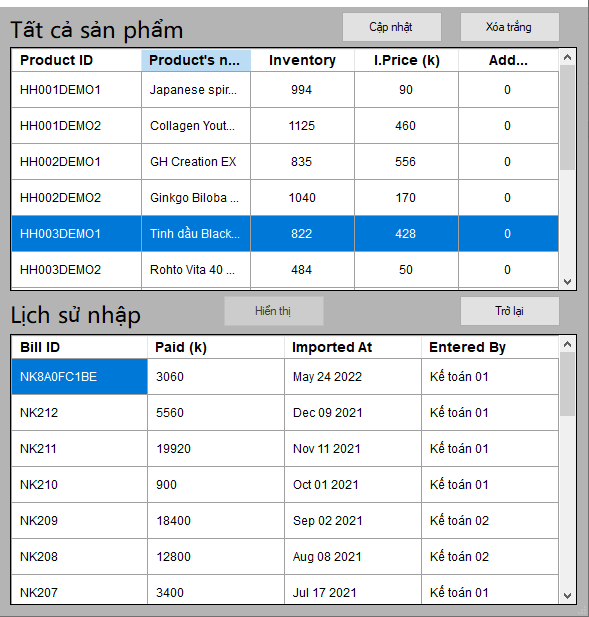


Figure 5.3: Import form

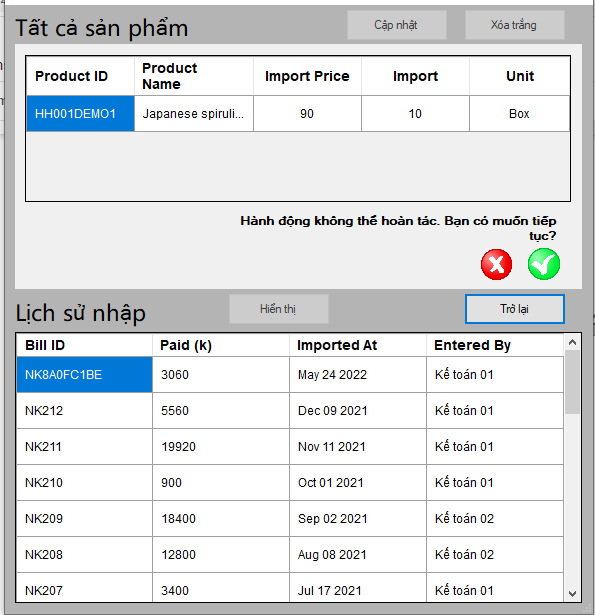


Figure 5.4: View before print import note

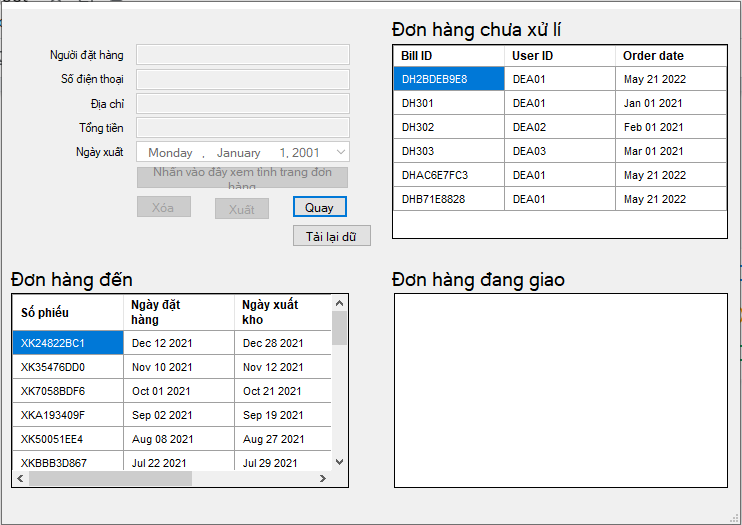


Figure 5.5: Export form

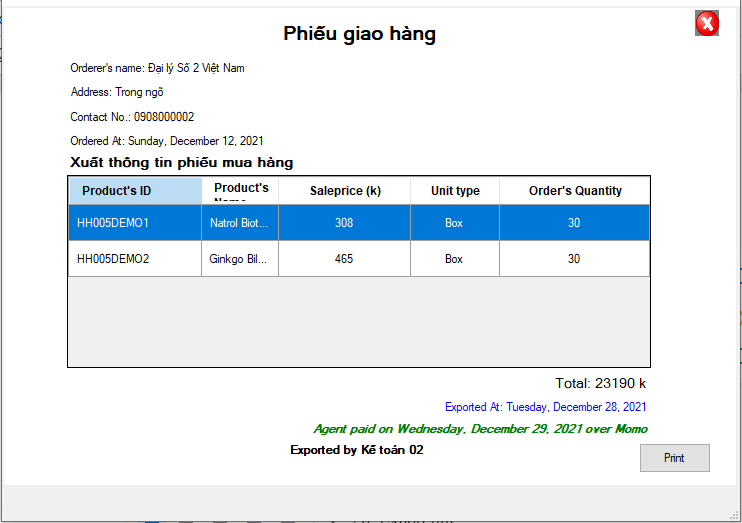


Figure 5.6: Export bill

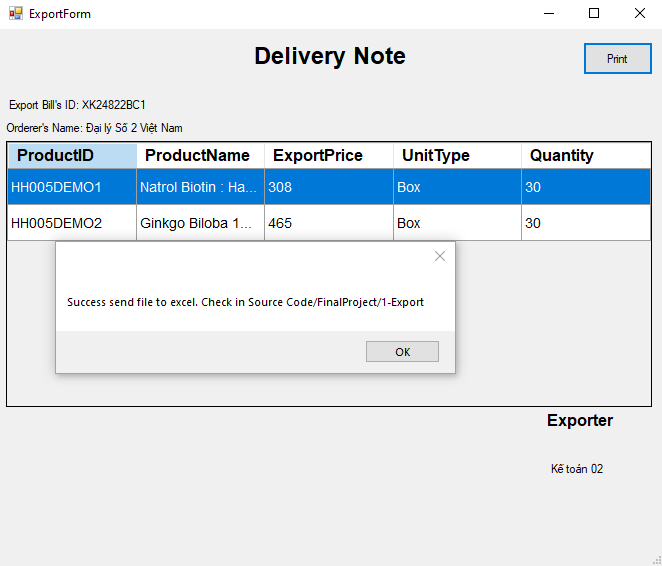


Figure 5.7: View before Delivery note

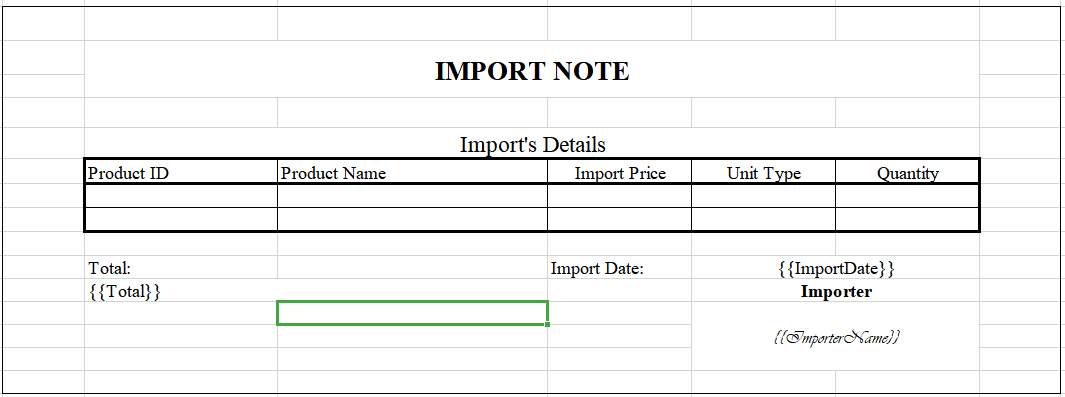


Figure 5.8: Import Bill

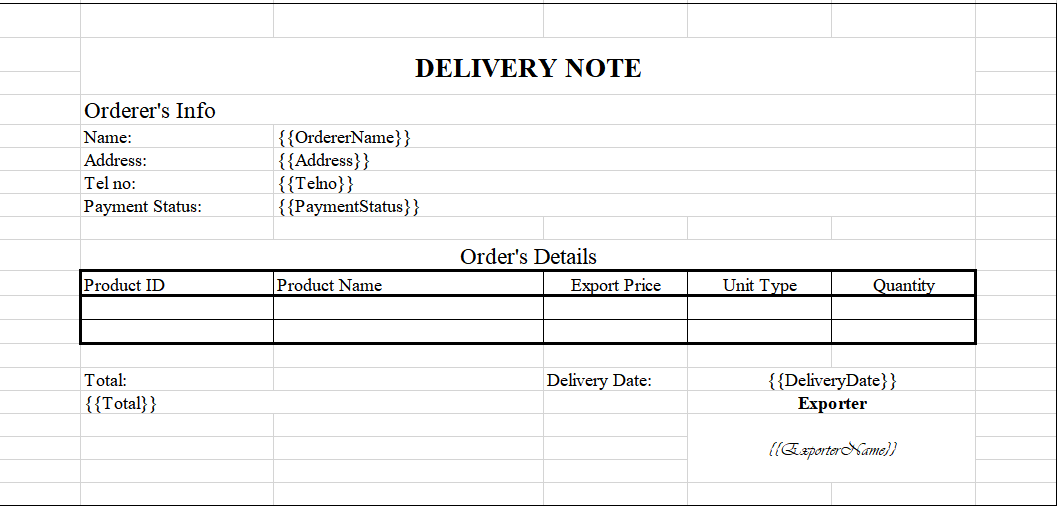


Figure 5.9: Delivery Bill

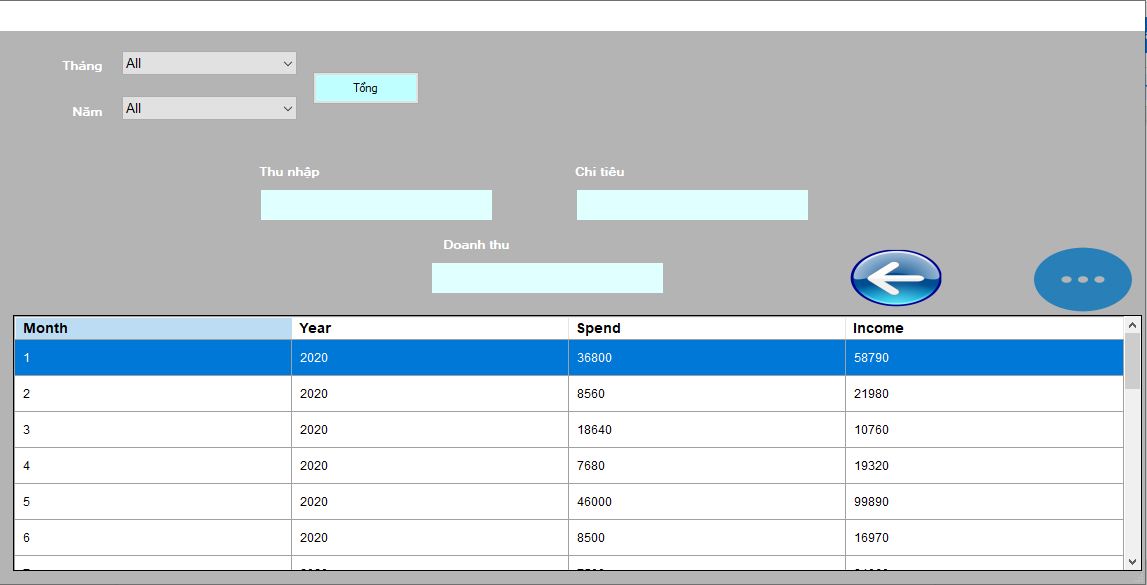


Figure 5.10: Incoming and Spending Statistics form

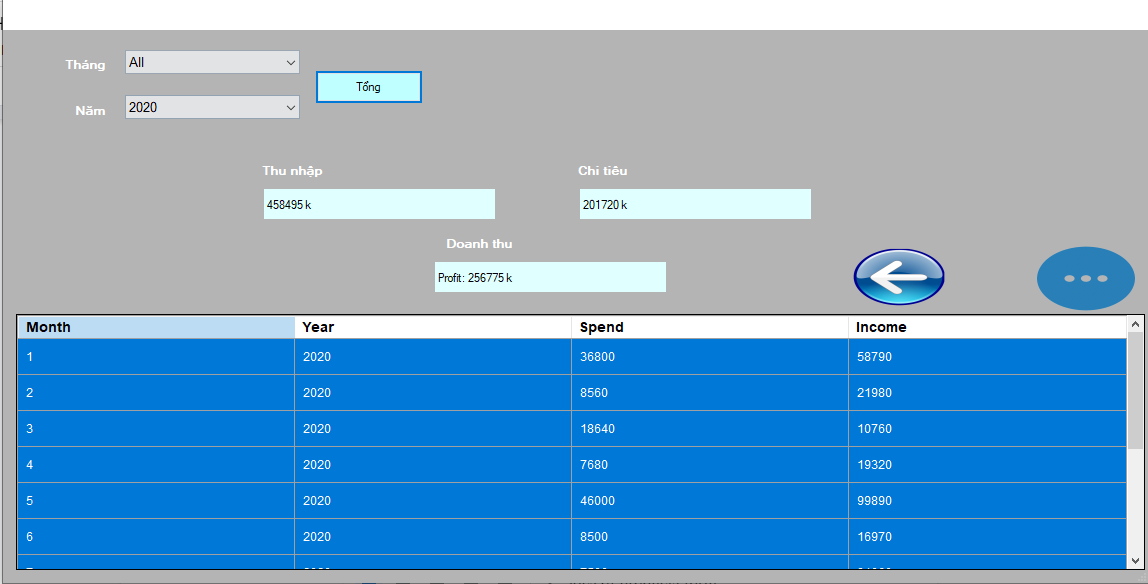


Figure 5.11: Statistics of products form

***5.1.2 Webform***

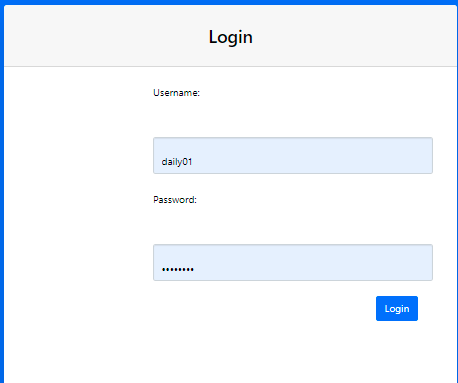


Figure 5.12: Login Page

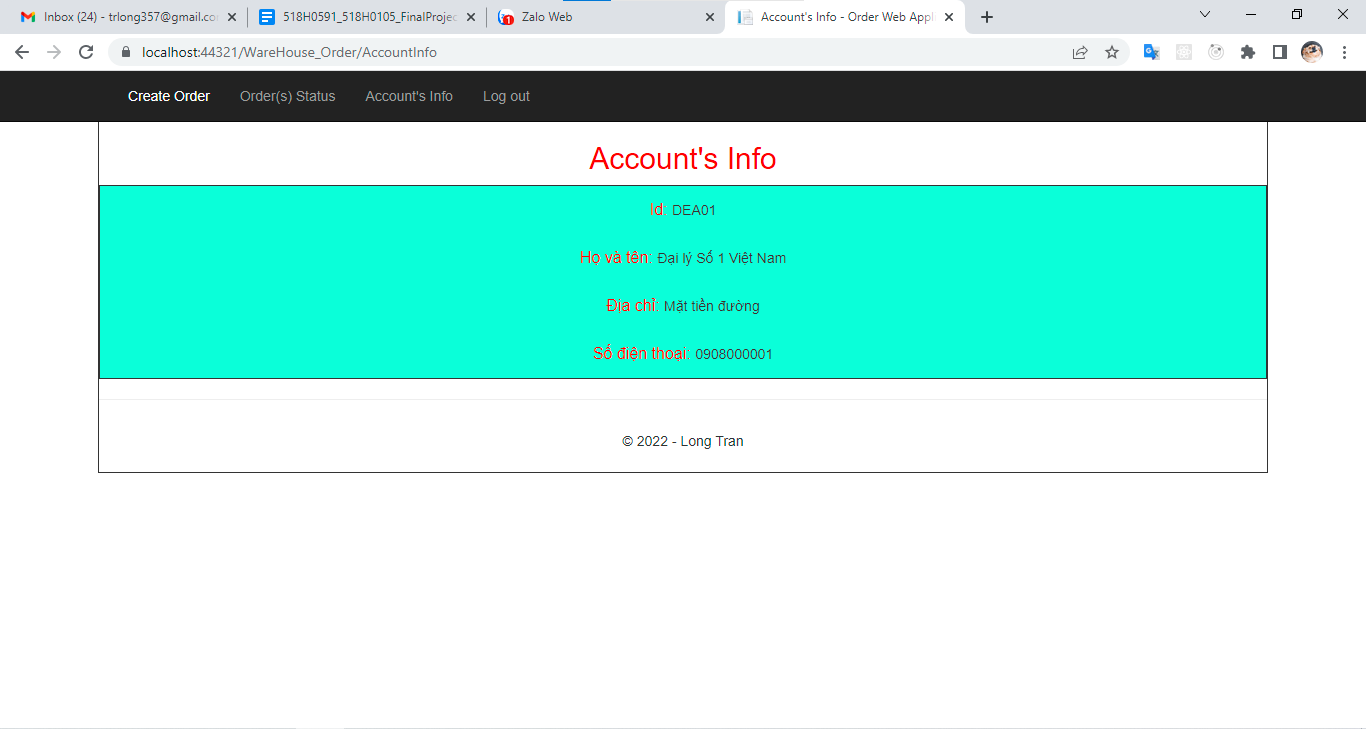


Figure 5.13: Account’s Info Page

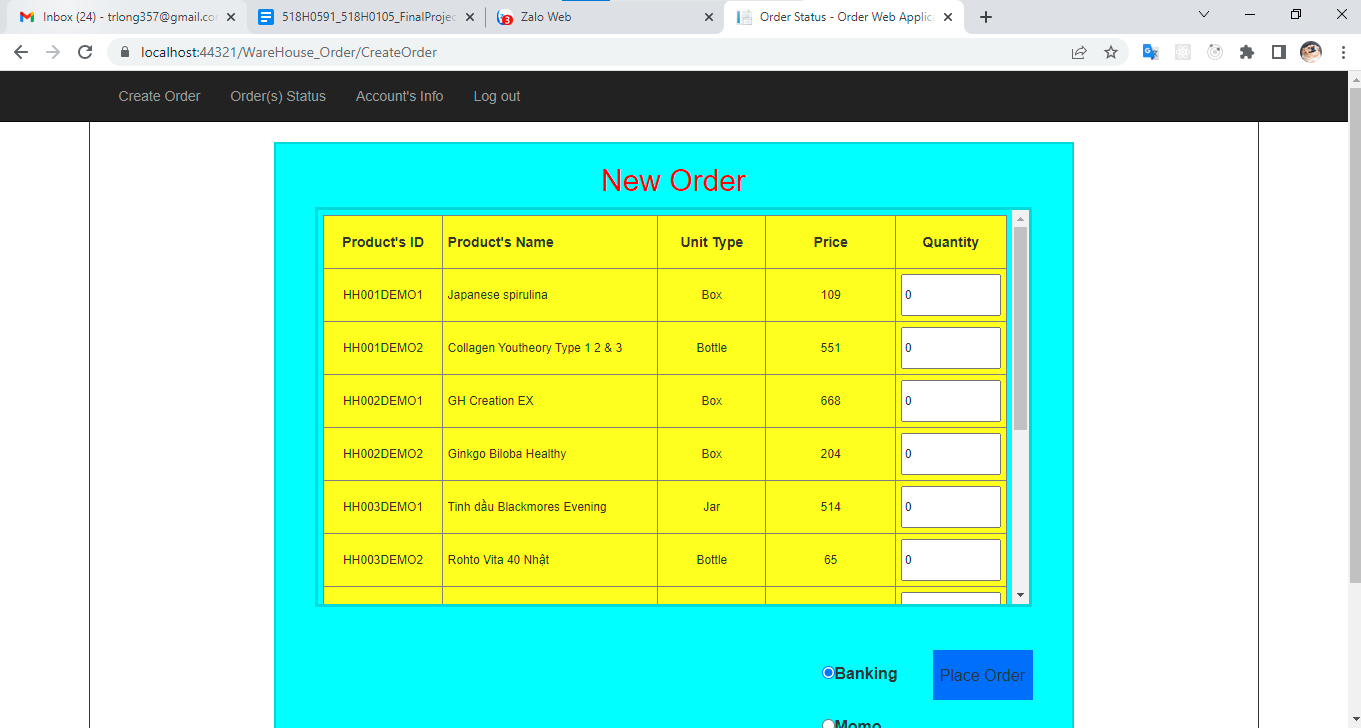


Figure 5.14:Create Order Page

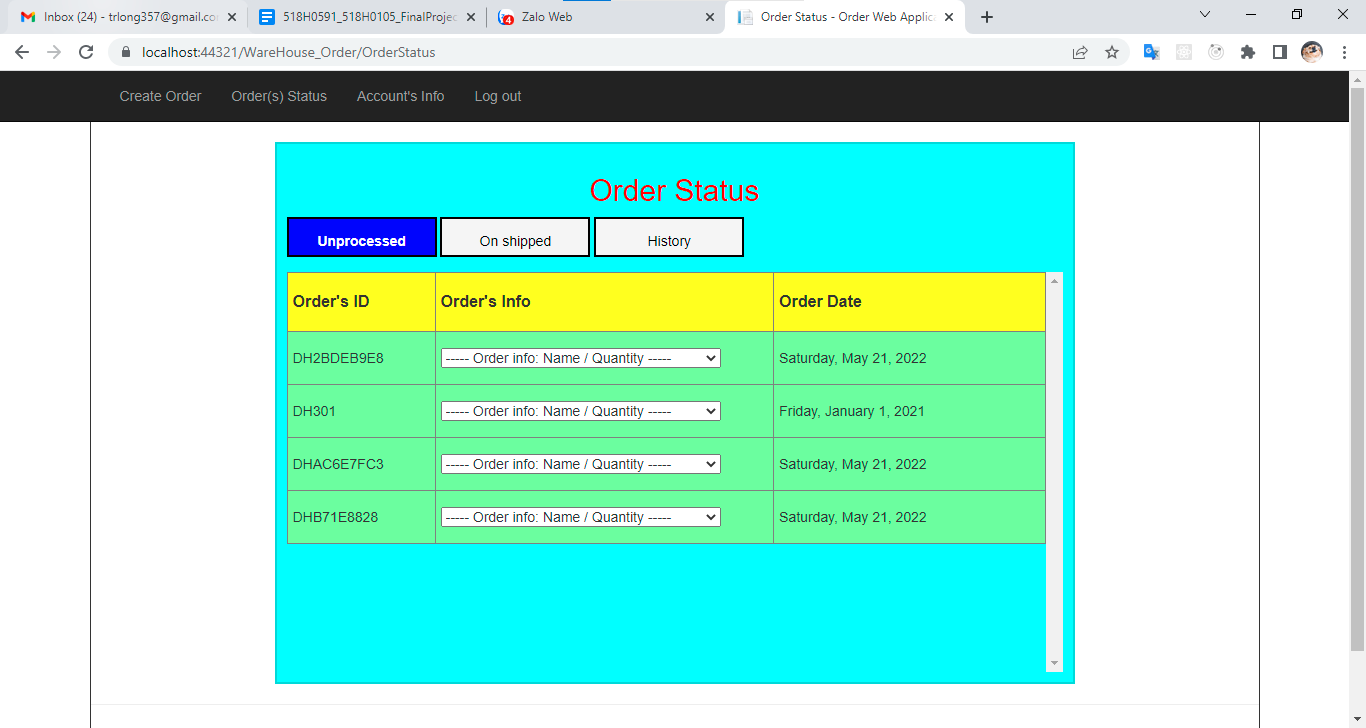


Figure 5.15: Order Status Page (Unprocess Order)

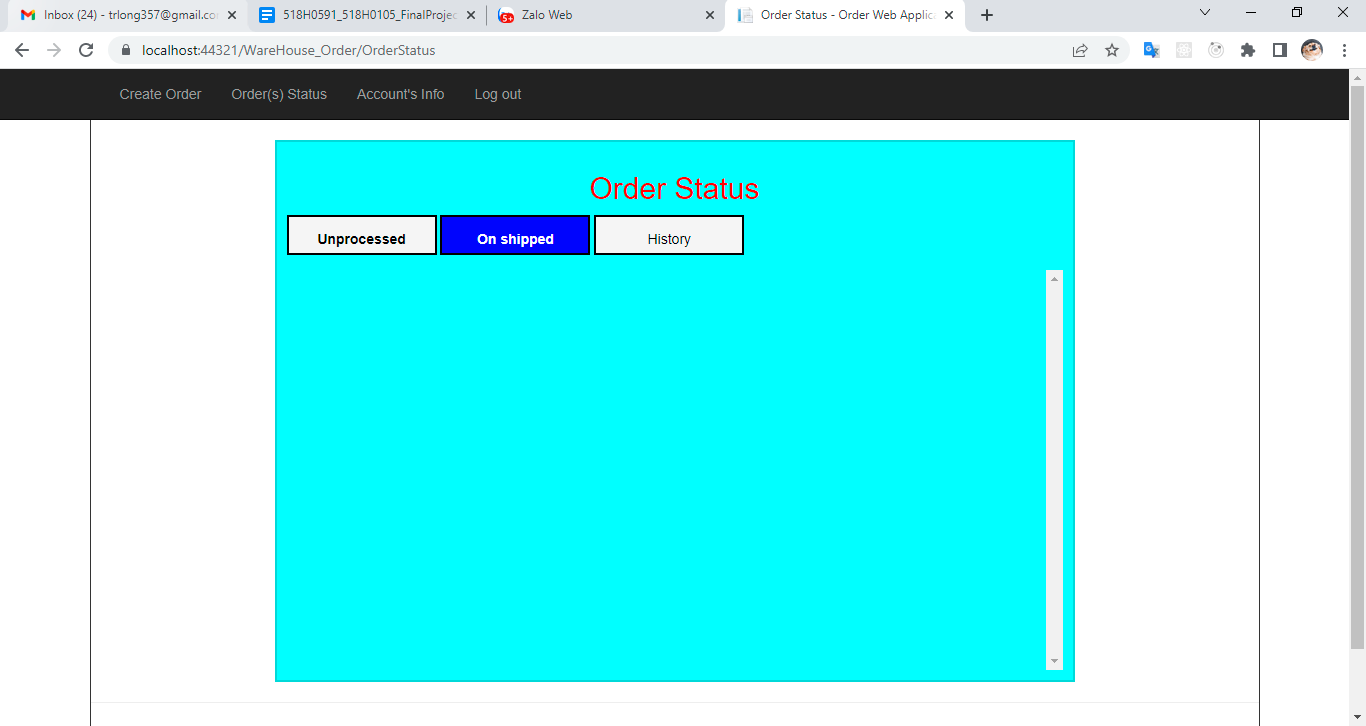


Figure 5.16: Order Status Page (On Shipped Order)

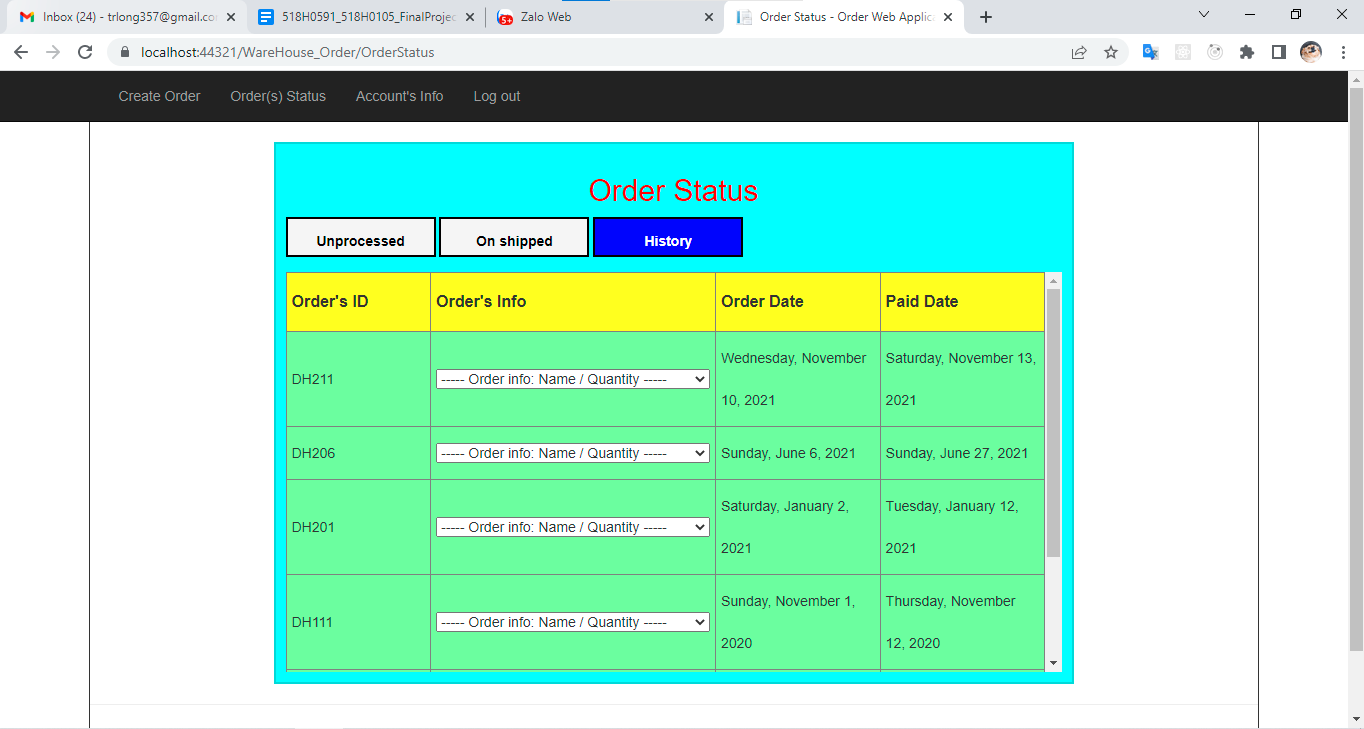


Figure 5.17: Order Status Page (History Order)

* 1. **Static model – class diagrams**

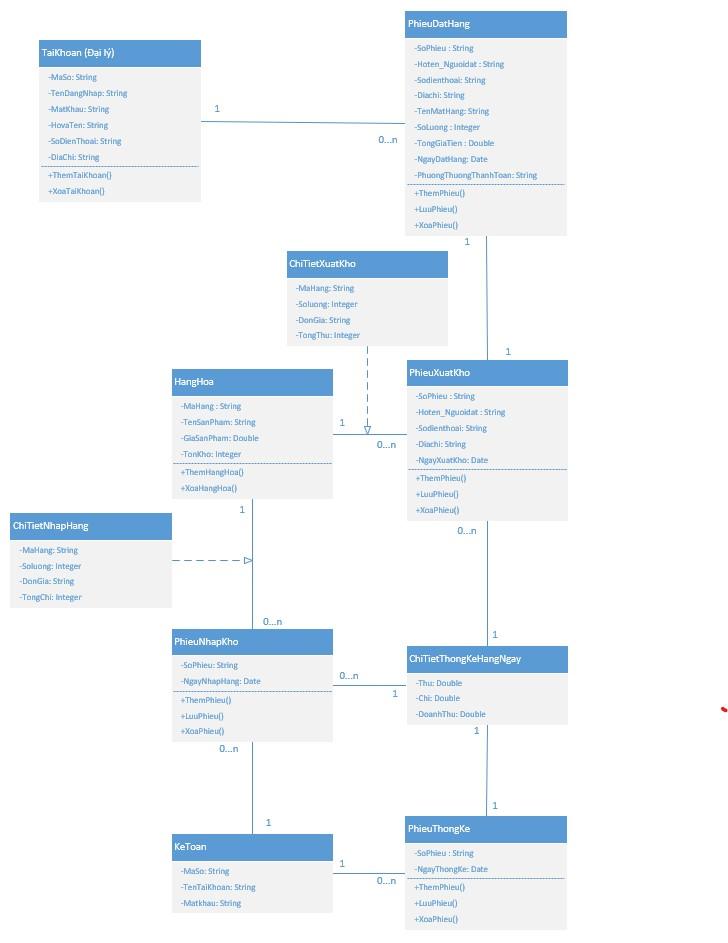


Figure 5.18: Class Diagram

* 1. **Dynamic model – Sequence diagrams**
     1. ***Goods Received Sequence diagram***

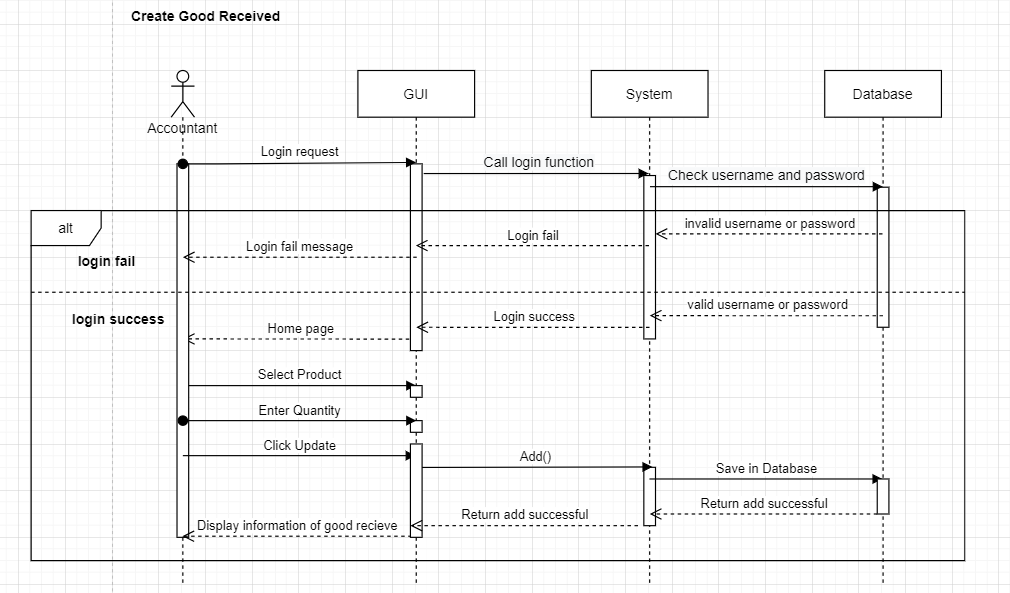


Figure 5.19: Goods Received Sequence Diagram

* + 1. ***Goods Delivery Note Sequence diagram***

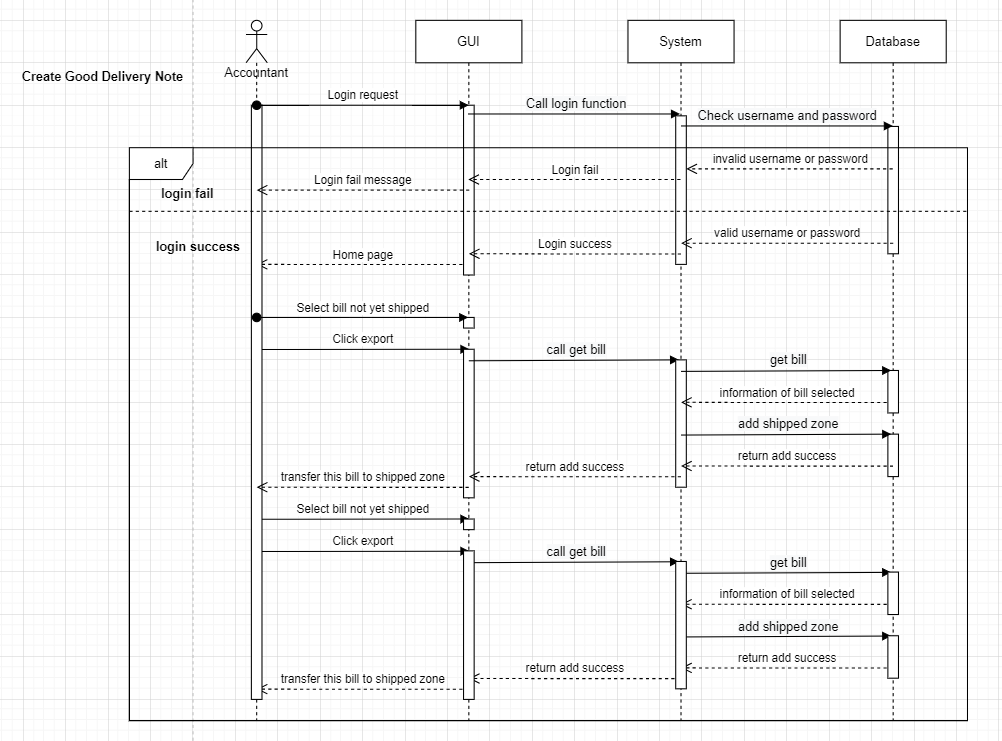


Figure 5.20: Goods Delivery Sequence Diagram

* + 1. ***Order Sequence diagram***

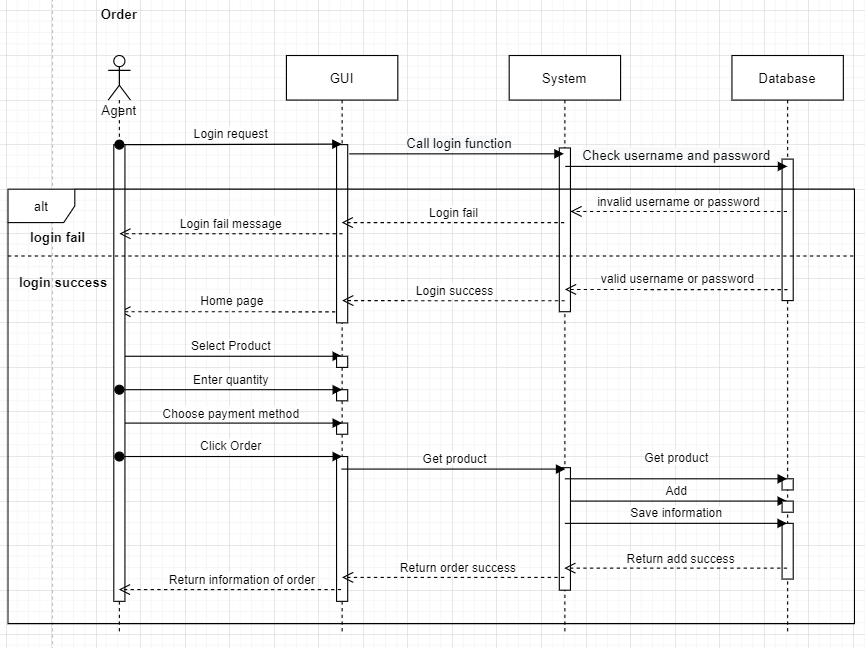


Figure 5.21: Order Sequence Diagram

* + 1. ***Statistics Sequence diagram***

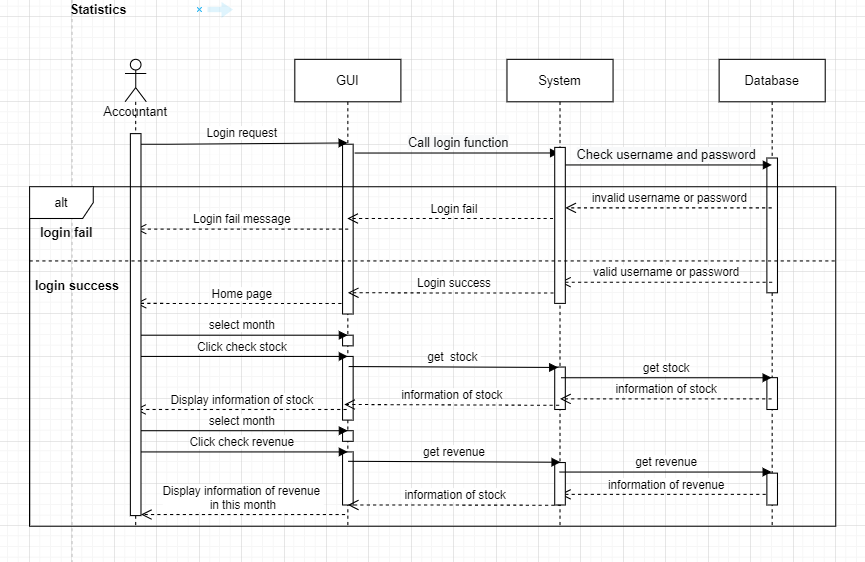


Figure 5.22: Statistics Sequence Diagram

**VI – TEST PLAN**

**6.1 Requirements/specifications-based system level test cases**

**6.2 Traceability of test cases to use cases**

**6.3 Techniques used for test generation**

**6.4 Assessment of the goodness of your testsuite**

**VII – DEMO**

Github : <https://github.com/trlong357/SE_FINAL_PROJECT>

Youtube : <https://youtu.be/GOZVsbErx0w>

**7.1 Database**



Figure 7.1: Taikhoan Data

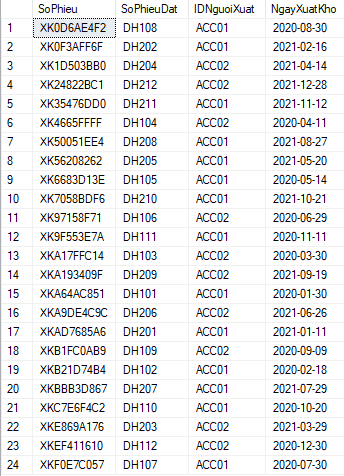


Figure 7.2: PhieuXuatKho Data

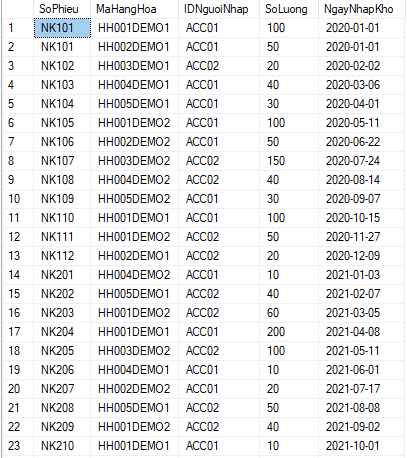


Figure 7.3: PhieuNhapKho Data

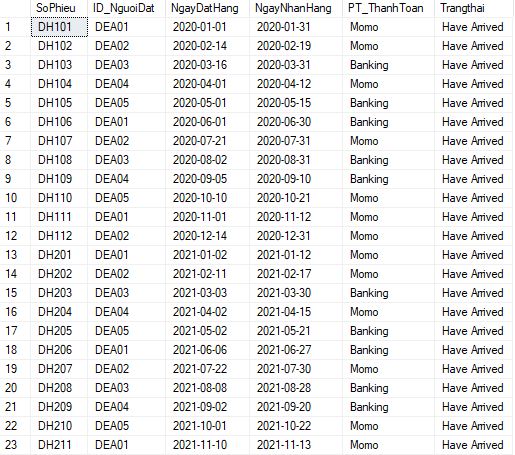


Figure 7.4: PhieuDatHang Data

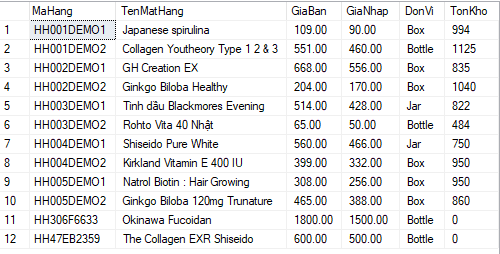


Figure 7.5: HangHoa Data

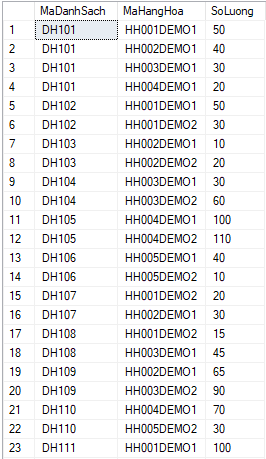


Figure 7.6: DanhSachDatHang Data

**7.2 Source code**

Github : <https://github.com/trlong357/SE_FINAL_PROJECT>

**7.3 Testing**

**VIII – REFERENCES**

**8.1 Slides:**

- TDTU Slides:

**https://classroom.google.com/u/2/c/NDY0NTU1NjQwODU1/m/NDY5MTg1NTIwMzgw/details**

**8.2 Internet link :**

<https://codelearn.io/sharing/sequence-diagram-trong-uml/>

<https://viblo.asia/p/tim-hieu-ve-cach-thiet-ke-class-diagram-L4x5xLyY5BM/>

<https://itviec.com/blog/software-architect-la-gi/>

<https://viblo.asia/p/tim-hieu-ve-mo-hinh-3-lop-3-layer-Qbq5Qmyz5D8/>

<https://www.techielass.com/connect-to-a-sql-database-with-visual-studio-code/>

<https://www.youtube.com/watch?v=dtYVRWfGhzI&list=PL33lvabfss1y2T7yK--YZJHCsU7LZVzBS>