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## Abstract

This report presents an analysis of the existing problems of the order processing and stock management system of Legend Motor Limited Company (LC). This report provides a list of functional requirements to solve the existing problems including invoice management, order processing, stock management and user account management. This report also covers non-functional requirement related to accessibility, operational aspects, performance, security, and cultural-political considerations. Finally, the report discusses about the feasibility analysis including economic, organizational, and technical aspects.

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# 1. INTRODUCTION

## 1.1 Background

Legend Motor (LC) Limited Company is a subsidiary of Legend Motor Company (LMC), that is responsible for constructing and distributing automobiles in the People's Republic of China (PRC). LM operates to offer spares to its mother firm, LMC and sell its products to 50000 major dealers in various regions and cities around the PRC. Both companies share the same senior management and area sales staff.

The Head of the IT Department has proposed developing a new Order Processing and Stock Recording System to enhance its current operation and increase its market share. Currently, LM relies on manual effort for receiving and fulfilling dealers' orders and there is no standard to receive the order. There are some examples: Dealers can place orders through different channels including post, phone, telex and fax and verbal instructions. There is no standard order form for placing an order. Each order is entered into the system by the Order Processing Clerk manually. Storeman checks the stock level manually and sends several types of paper cards to the Purchasing Department based different stock levels for each spare part.

The existing process relies heavily on manual effort and paper-based documents. The objective of the new system is to enhance operations and increase the company's market share.

## 1.2 Problems

Although the current procedure works fine, some problems may influence the working efficiency and accuracy leading to reduced marketplace. For instance, we do not have a standard order request for incoming orders. Our staff inputs all requests however typos may occur. The most important thing is we do not have a hardcopy from our customers for reference, hence it is difficult to trace order history. Besides, the stock management is checked manually, the quantity might not update frequently and there is a lack of accuracy especially since there has not been any notification when out of stock.

Moreover, the progress of spare dispatch is too complex, it needs to duplicate the same data on an invoice sat during this process, delay may occur due to mail shipment or order modifications, mistakes may also be made. To change the current situation, the system provides a more systematic workflow that makes the ordering process and stocking recording procedure as a whole.

## 2. Problem Findings

### 2.1 Invoice Management

#### 2.1.1 Need Manually Distribute the New Version of Receipt

After the customer submits the order, the receipt is sent back through email, but the email might be invalid after a period or after any information has changed. We need to regenerate and manually send to customers for references. The new system provides an entry for finding and downloading invoices as long as logging in to a user account or a unique number produced when submitting the order. A more convenient system for our customers gets a receipt anytime anywhere with the most up-to-date version.

#### 2.1.2 The Invoice Step is Complicated

Now, 4 copies of invoices are needed for each order. If there are changes, those changes must carry to all 4 copies. However, if the invoice is already shipped to the dealer, the invoice that is kept by LC and the dealer become inconsistent. Also, the shipping procedure takes time, and it delays the progress of the order. The solution to this is to make the invoice electronic by creating an invoice system, dealers will receive notification when the invoice is ready, and they can check it out by logging in to the system. Then, they can click the “Confirm Invoice” button to confirm that they received the invoice.

### 2.2 Order Processing & Management

#### 2.2.1 Could Not Provide Client-side Order System

The orders must go through staff and then into the system as we do not have an interface for customers to self-service. All orders are batching input by staff in the afternoon. Therefore, we cannot return the invoice instantly to the customer for checking. With the new system customers order are directly stores into database without any manual operations. It not only reduces the staff's workload but also provides a better shopping experience. Also, the system offers plenty of features like uploading product images and details, and price counting. Those can leave a positive image for our customers as we care about what they need.

#### 2.2.2 Does Not Have a Standard Order Form

Now, all requests from customers are collected by various means via email, phone calls, instances of communication software, etc. Then, it is manually inputted by staff. The process increases the workload and mistakes may occur. The solution is to request the customers to use the order system to place orders. After making an order on the system, the sales order office will receive the order for further processing.

### 2.2.3 Inadequate Order Tracking

Now, the dealer cannot track and monitor the progress of their order, if there are some issues in their order such as delay in delivery, the dealer cannot know the instant situation of their order and affect their satisfaction to LC. The solution is to build a tracking system, every time each procedure is completed such as storeman assembled the order and spares are ready for delivery, the staff responsible for that should mark the procedure as completed on the tracking system, the dealer will receive notifications each time the staff update the progress of the order.

### 2.2.4 Modifying Order Information is Difficult

Those ordering forms are stored in hardcopy instead of the database system. If our customer wants to modify the order, it may take a period to find the form and then re-send it to the Spares despatch department. As a result, the order processing time becomes longer due to complex procedures. However, using a database system makes the process easier as it will automatically change all data that is related to it. The whole company can view the latest forms to make changes. thus, improving the average waiting time for our customers.

### 2.2.5 Outstanding Order is Not Handled Immediately When There are Sufficient Stock Level Again

Now, the outstanding order is handled when the dealer makes a new order again or inspected weekly. This can lower the satisfaction of our dealer as they need to wait at least a week if they do not make a new order even if there is enough stock again. The solution is the system automatically instructs the storeman and Spares Despatch Department to handle the outstanding order item once the warehouse has enough stock again after they reorder it.

### 2.2.6 Incomplete Order Information

The sales office collects all incoming orders in several ways, but some of the orders have missing information and the staff need to follow up. That may involve extra workload or delay. With the new system, when customers miss or forget to provide necessary information it will remind the user and cannot submit the form.

## **2.3 Stock Management**

### 2.3.1 Difficult to Analyze Product Sales Statistics

Reports are important for making decisions or analyzing the trace of the market. However, the current system cannot generate any of the statistics as all data are independent. To use with the new system all data are related to from a relation. It can effortlessly generate several types of reports for each type of product. Visualize reports clearly show which sales are the most or least.

### 2.3.2 Lack of Re-order Notification

The stock was checked by storeman and request re-order when stock level drop to various levels, but it may be too late to be notified, especially there are large orders came in. To improve this situation, the new system automatically sends a warning when reaches a different level. Besides the new system enables staff to set the level limits differing depending on divers of products. Thus replenish the spare as fast as possible and shorten the time it takes during the entire process.

### 2.3.3 Need Manually Input the Stock Quantity

The stock is checked and input manually by the stock manager, but the actual number might be different from the input. Eventually, the discrepancies will become larger and larger. As a result, write-offs increase due to inaccuracy counting. With the new system, this process no longer needs manual operation since the new system will automatically minimize the quantity when an order comes in and increase it when restocked otherwise.

### 2.3.4 Need to Train Before Using the Stock Management System

The system in the spares despatch department uses SQL to modify stock recording at present. Hence, it requires training and staff with a few IT skills before using it. The new system provides a graphics user interface, only needs to fill in the blanks no longer needs any SQL codes. The entire process is both simple and straightforward. Inexperienced staff can easily get started with the instructions provided.

### 2.3.5 The Stock Level May Not be Accurate

If the stock level is not accurate, LM may not be able to offer enough spares to the dealer. Now, the stock level is updated after the spares is dispatched and the invoice is issued, the time difference between ordering and dispatching may result in the stock level inaccurate, this may affect the customer satisfaction if LM cannot provide enough spares due to inaccurate stock level. The solution is to deduct the number of stocks immediately once the dealer places an order on the system. Also, the system should require the storeman to enter the number of spares he picked up for that order to see if it matches the number required for the order to ensure accurate stock level

## **2.4 User Account Management**

### 2.4.1 Customers is Difficult to Modify Their Information

If the customer needs to change their information, they need to contact staff during working hours and via email or telephone backward and forward several times for a change. The new system provides an online self-service platform to change their profile conveniently. That can reduce the staff's workload and ensure data are up to date.

### 2.4.2 Customers Unable to Create Account

Each customer account is created by staff when the customer has the first-time orders. There are no other means to create a user account for previewing products purpose. The new system enables the user to create account themselves and then examine them by staff. It makes the customer learn more details and makes an order when in need.

#### 2.4.3 The Dealer Information May Not be Latest

If the dealer information is not the latest, the staff may not be able to contact the dealer using the contact information in the database. If there are some unexpected things such as out of stock or delay in delivery, LC cannot contact the dealer to follow up the case. The solution is to request the dealer to confirm their information is up to date every time they make a new order, if they make any changes, the system will update the database immediately.

## 3. FUNCTIONAL REQUIREMENTS

### 3.1 Invoice Management Function

#### 3.1.1 Auto Distribution

##### **Solved Problem: 2.1.1 Need Manually Distribute the New Version of Receipt**

If any change has been made to the invoice in the system, it will auto-distribute to different who are related, by using the method last time used to transfer the latest version, or if no will use the system default.

#### 3.1.2 Search Invoice

Customer can search for the invoice by entering the LM serial number of the order.

#### 3.1.3 Confirm Invoice

After the invoice is generated, the customer can confirm the invoice by clicking the ‘Confirm Invoice’ button. After the customer confirms the invoice, notification will be sent to the sale order office and storeman.

#### 3.1.4 Electronic Invoice Generation

##### **Solved Problem: 2.1.2 The Invoice Step is Complicated**

After the customer places an order, the system will automatically generate an invoice for that order, the customer can view it online without waiting for the delivery of the invoice, it is more convenient.

#### 3.1.5 Feedback Collection

Customers can give feedback rates about their experience of using the system. Staff can view the feedback given by customers. This function is to collect valuable opinions and suggestions from customers about their experience of the system and the product for improvement.

#### 3.1.6 Invoice Download

##### **Solved Problem: 2.1.3 Need Manually Distribute the New Version of Receipt**

If the customer wants to keep a copy of the invoice, they can download the invoice in PDF format.

#### 3.1.7 Share Invoice

Each receipt has an extra link for sharing purposes in a period. Customers can use this link to share in their department or anyone. In the sharing version receipt, there is a watermark embedded for tracking.

#### 3.1.8 Search Previous Invoice

This function allows customers to search the invoice of their past order.

#### 3.1.9 View Previous Order's Invoice

This function allows customers to access and view the invoice of their past order. This enables our customers to keep record of their past orders if they forget to do so.

### 3.1.10 View Shipping Detail

Customer can view the shipping detail such as time, date, and mode of delivery at the invoice section.

### 3.1.11 Printout a Hardcopy

The printout function converts and generates standard form makes staff and customers printout using the system's default printer.

### 3.1.10 Grouping Invoices

### 3.1.12 Count Total

#### **Solved Problem: 2.3.1 Difficult to Analyze Product Sales Statistics**

The count function can get the total in a period of dates or on a specified user or a group of products, etc. For data analysis.

## **3.2 Order Function**

### 3.2.1 Add to Cart

Customer can add the spare part that they desired to cart. This function is convenient and flexible.

### 3.2.2 Add to “Favorite”

Customer can add their most purchased spare part to ‘Favourite’ section so that they can quickly find the item every time they want to make an order.

### 3.2.3 Edit Quantity in Cart

#### **Solved Problem: 2.2.4 Modifying Order Information is Difficult**

If a spare part is added to the cart but the customer wants to buy more than the quantity in cart, they can edit it by adding. Also, they can deduct the quantity if they want.

### 3.2.4 List Product with Sorting

Customer can list out the product available will different kind of sorting such as price, product date and country of origin.

### 3.2.5 Order Cancellation

After an order is placed by the customer, if they no longer want to have this order, they can cancel it at the system. However, if the order is already shipped, they cannot cancel it.

### 3.2.6 Order Modification

#### **Solved Problem: 2.2.4 Modifying Order Information is Difficult**

After an order is placed by the customer, if they want to make any change

such as adding spare part or removing spare part, they can modify the order in the system, the system will notify the sale order office of the change. If the order is already shipped, they cannot modify it.

### 3.2.7 Place Order

#### **Solved Problem: 2.2.3 Does not have a standard order form**

After all the spare part that the customer wants to buy is in the cart, they can confirm and place the order. All customers must place orders with this system.

### 3.2.8 Remove from Cart

If the customer no longer wants to buy the spare part, they can remove it from the cart before an order has been made.

### 3.2.9 Reserve product for That is in Cart

If a customer adds spare parts to the shopping cart, the system will deduct the remaining inventory quantity in the inventory management system so that when the customer places an order, it can ensure that there are enough spare parts available for the customer. This can avoid the situation where enough spare parts cannot be provided when there are multiple large orders placed at the same time.

### 3.2.10 Re-order Quick Button

This function is to provide the customer with an efficient way to repeat previous orders. This allows customers to quickly re-order spare parts that they have previously purchased without having to go through selection of spare parts.

### 3.2.11 Special Instruction

When the customer confirms to place an order, they can give some special instruction such as package handing instruction or time to avoid for delivery.

### 3.2.12 Shipment Options

When a customer confirms to place an order, they can choose the mode of delivery, time, and date the shipment will take.

### 3.2.13 Search Product

Customer can search product with name or spare part number.

### 3.2.14 Graphics User Interface

#### **Solved Problem: 2.2.1 Could Not Provide Client-side Order System**

The system provides a web-based client-side ordering platform. The Customers can view the product on the site and place an order. All interfaces are graphical, it is easy to use at first time. The staff can manage the site though backstage.

### 3.2.15 View Order History

This function allows customers to view their past order records. It allows them to review their previous order records including order dates, lists of spare parts, quantity, price, and shipping details.

### 3.2.16 View Product

Customer can have a comprehensive information about each spare part such as product image, description, price, country of origin and contact of the manufacturer.

### 3.2.17 View Search History

This function allows customers to view their past search queries within the system. This allows them to revisit a spare part that have already search by simply refer to their search history instead of manually re-entering the name or spare part number

### 3.2.18 Online Ordering Platform

#### **Solved Problem: 2.2.1 Could Not Provide Client-side Order System & 2.2.2 Dose Not Have a Standard Order Form**

To provide an entry for customers to self-services. On the platform, customers can view the produce, place an order, and get the total amount.

### 3.2.19 Auto Fill-in

When the user inputs a serial number of the product name the search system will give some related results in the drop-down window. Increase the searching speed and accuracy.

### 3.2.20 Message Communication

Customers can contact our staff to seek help when they get into trouble. Customer can leave a message in the message box and the staff will response to the customer.

### 3.2.21 Calculate Total Price in Cart

The system on the client system will automatically calculate the total amount and reflash when every change has been made. There are not take may server resources as this function is implemented on the client side.

### 3.2.22 Select Product Specifications

The system lets the user choose the manufacturing location and the different specifications of the product.

### 3.2.23 Recommend Related Products

The system will recommend the product with the same brand or type. That customer might be interested with

### 3.2.24 Pre-order Product

If the product that the customer wants to order but out of stock, the customer can still add it to the cart. A pre-order requirement will be sent to the purchasing department for restocking the product as soon as possible.

## **3.3 Order Processing Function**

### 3.3.1 Confirm Order

When an order is placed by a customer, it will be forwarded to the sales order office, staff of the sales order office can confirm the order after reviewing the order detail such as customer information, spare parts ordered, quantities and shipping instruction.

### 3.3.2 Assign LM Serial Number

This function is to assign a LM serial number to each order confirmed so that the order can be identifiable.

### 3.3.3 DIC and DID Generation

When an order is received and confirmed, a Despatch Instruction Cover (DIC) will be generated for each order. Also, Despatch Instruction Detail Sheet (DID) will be generated for each item on that order.

### 3.3.4 Handle Outstanding Order Automatically

When there is enough stock again, the system will handle the outstanding order automatically by notification to sales order office. The sales order office can then handle the outstanding order by confirming it and generate the DIC and DID.

### 3.3.5 View Outstanding Order

If there are outstanding orders that are not settled yet, sales order office staff can view the details of each outstanding order such as what spare part is needed to settle the order and how long the order has been in arrears.

### 3.3.6 Priority Setting

#### **Solved Problem: 2.2.7 The Order Priority is Unclear & 2.2.5 Outstanding Order is Not Handled Immediately When There are Sufficient Stock Level Again**

The system can let the user set the priority condition when the incoming order achieves the condition, the system will remind the staff and label the order in different color.

### 3.3.7 Deadline Notification

#### **Solved Problem: 2.2.5 Outstanding Order is Not Handled Immediately When There are Sufficient Stock Level Again**

The staff can set the deadline for each order, the system will have a notification when near the date.

### 3.3.8 Auto Error Checking

#### **Solved Problem: 2.2.6 Incomplete Order Information**

When the incoming order is incomplete the system will warn the user to supplement relevant information if still missing the system will ask staff to intervene.

## **3.4 Order Tracking Function**

### 3.4.1 Update Order Status

This function allows the staff responsible for the order to update and communicate the current status of an order to the customer. It allows the staff to update the status as it goes through various stages such as order received, processing, assembled, shipped, or canceled. By updating status, this allows others involved in the process to be aware of the progress and take appropriate action. It also allows customers to view the progress of the order.

### 3.4.2 View Order Progress

This function allows customers and staff to check and monitor the current status of the order in the system. They can know the most up-to-date information about the order such as order received, processing or delivered.

### 3.4.3 Notification to Customer at Each Stage

This function is to send automated notification to customer at various stage of the order fulfillment. When each stage is complete, an automatic notification will be sent to the customer. This can keep the customer informed about the status of the order without logging in to the system.

### 3.4.4 Input Express Tracking Number

The express tracking number can be input into the system. The customer can find it on the online order platform.

### 3.4.5 Dynamic Graphics Transportation Progress

For visible shipment progress, the current location of the delivery person will appear on the map and keep up date.

### 3.4.6 Contact Deliveryman

The contact number of the delivery person will also be provided on the online order platform, for a customer to change delivery place and time if needed.

## **3.5 Stock Management Function**

### 3.5.1 Add New Spare Part and Set Spare Part Number

This function allows staff to input and store information about a new spare part to the system. Also, it allows to give a new spare part number to the spare part. This can ensure that the system includes all available new spare parts.

### 3.5.2 Create Spare Part List with Sorting

This function allow staff to generate a list of spare parts will sorting option such as name, spare part number, quantity left, country of origin etc. This can facilitate the efficient of stock management and analysis.

### 3.5.3 Deduct Number of Stock Automatically When Order Received

#### **Solved Problem: 2.3.3 Need Manually Input the Stock Quantity & 2.3.6 The Stock Level May Not be Accuracy**

This function is to perform automatic reduction of stock quantity when an order is received. The system deducts the corresponding quantity of spare parts from the stock management system. This deduction occurs in real-time to ensure the stock level is updated immediately upon order confirmation. This can help to prevent overselling, stockout or differences between available stock and fulfilled orders.

### 3.5.4 Modify Spare Part Information

This function is to allow staff to make changes or update the information associated with spare parts. They can edit the details of spare parts stored in the system. This includes information such as part names, descriptions, quantities, prices, and country of origin. This function ensures that the stock management system reflects the most accurate and up-to-date information about each spare part. The changes made will also reflect on the ordering system for customers.

### 3.5.5 Remove Spare Part

This function is to allow staff to delete or remove spare parts from the system. Staff can select which spare part to be removed. This can ensure the system only contains spare parts that are available. These changes will reflect on the ordering system for customers.

### 3.5.6 Set Re-order Level and Minimum Stock Level

This function is to allow sales manager and storeman to set the re-order level (ROL) and minimum stock level (Danger Level). Once the level is set, the system continuously monitors the stock level of each spare part. This can minimize the risk of stockout.

### 3.5.7 Re-order Level and Minimum Stock Level Alert

#### **Solved Problem: 2.3.2 Lack of Re-order Notifications**

This function is to prompt an alert to storeman when different spare parts reach the re-order level or the minimum stock level. This can minimize the risk of stockout.

### 3.5.8 Send Re-order Request

This function allows the storeman to send the re-order card and danger card through the system to the purchasing department when there are re-order levels or minimum stock level alerts. This can inform the purchasing department to replenish the spare parts more efficiently and maintain optimal inventory levels.

### 3.5.9 Non-Text User Interface

#### **Solved Problem: 2.3.4 Need to Train Before Using the Stock Management System.**

The new system no longer needs any SQL commands, all operations are done on the GUI just simply fill in the blanks. The system will convert it into SQL code into database system.

### 3.5.10 Record the Physical Location

Not only the category letter plus a 5-digit number but also the physical location detail, for instance, the left right, or middle of the bin works like an index.

### 3.5.11 Advanced search

The advanced search function has a list of options to filter out unrelated data for fuzzy searching or more detail. Users can select the time and date period, the manufacturer locations, the brand, etc.

## **3.6 User Account Management Function**

### 3.6.1 Access Control

Allow the IT department to assign different access rights to different types of users. For example: the customer account can only access the ordering function, the manager of each department has the right to add new staff account for their department, only the storeman and Sales Manager can set re-order level and minimum stock level (Danger Level) etc.

### 3.6.2 Add Staff Account

This function allows the manager to create new accounts for staff members if there are new staff joining the company.

### 3.6.3 Create Customer Account

#### **Solved Problem: 2.4.2 Customer Unable to Create Account**

Allow dealers to create accounts used in the system. Dealers can register a customer account that allows them to view available and place an order.

### 3.6.4 Create Dealer List with Sorting

The Sale Order Office can list out the dealer according to different types of sorting such as province, city, amount purchased, and the date that the dealer became LC's customer.

### 3.6.5 Create Staff List with Sorting

Manager of each department can list out the staff in his/her department according to different type of sorting such as position, salary and date joined.

### 3.6.6 Customer's Information Confirmation

#### **Solved Problem: 2.4.3 The dealer information may not be the latest**

Every time the dealer places a new order, the system will prompt the dealer to confirm their information is up to date before the order is sent out. If they want to update their information, the system will redirect them to the "Update Information" section of the system.

### 3.6.7 Delete Customer Account

If the dealer no longer wants to buy from LC, they can delete their account. Notification will be sent to Sales Order Office Sale Manager. The Sales Order Office can make a copy of the information about the deleted dealer.

### 3.6.8 Disable Staff Account

If a staff leave LC, the manager of that staff can disable the account of that staff so that the staff can no longer access the system, but LC can still have the account information kept.

### 3.6.9 Edit User Account

Allow customers to edit the information of their account such as username, password, phone number, address. The manager of each department can edit their subordinate's department if they move to another department.

### 3.6.10 Login History

The user can view their login history sorted by date and time to keep their account safe.

### 3.6.11 Login the System

Allow the user to login to the system by entering the username and password.

### 3.6.12 Logout the System

Allow the user to log out of the system.

### 3.6.13 Password Recovery

Designed to provide a mechanism for users to regain access to their accounts if they forget their password. It provides a way to reset or recover

password through a secure and user-friendly process.

#### 3.6.14 Update Password Reminder

Prompt the user to update their account password every three months. They can choose to update or not update as this is a reminder only.

#### 3.6.15 View Customer's Purchase History

The Sales Order Office can list the purchase history of each customer.

#### 3.6.16 View User Profile

Allow staff to view the profile which contains the basic information of other users. For example: the dealer's contact, the storemen's contact and storeman location.

#### 3.6.17 Personalize User Profile

##### **Solved Problem: 2.4.1 Customers Hard to Modify Their Information**

The system provides a profile to the customers to fill in their information and change it easily when needed, the data will update when every change has been made.

#### 3.6.18 Delivery Address Management

Customers can add more than one delivery address in the address library and set one as default. The system allows them to change the address before submitting the order.

#### 3.6.19 Payment Method Selection

Users can choose different payment methods when submitting the order, for example, Alipay, WeChat pay which is well-known in China, PayPal, or Visa more international.

#### 3.6.20 Data Provision Settings

Users can determine whether to provide unnecessary data in the profile, like age, gender, and date of birth.

#### 3.6.21 Found User

The staff can find customers via a unique number or name.

#### 3.6.22 Block User

For malicious registration, staff can block the phone number or email address for registration again.

#### 3.6.23 Create a Sub-account

The system allows the customer to create sub-accounts for their

employees, the accounts belong to the customer account, only for placing orders other settings are fixed.

## 3.7 Product Management Function

### 3.7.1 Embedding multimedia

Various multimedia can be embedded into the description of the product. For instance, images of different angles, or a short video of the product. To give customers more information.

### 3.7.2 Discount Setting

The staff can set discounts during festivals or for large orders. The discounts will only apply to the specified user, the link is invalid for other users.

### 3.7.3 Auto Removed from Shelves

#### **Solved Problem: 2.2.6 The Customer Does Not Know If It is in Stock**

If the product is out of stock or restocked, they will automatically be removed from shelves to prevent users ordering that product. A watermark "Restocking" will appear on the product image, and the product will not be deleted from the list therefore the user can still view the product details.

## 4. NON- FUNCTIONAL REQUIREMENTS

### 4.1 Accessibility

#### 4.1.1 The System Provide Convenience to Who Has Shortsighted

For those users on the computer client side, we have provided an image zoom-in function to view the product in detail.

#### 4.1.2 The System can Still Provide Product Detail Even Poor Image Quality

Each image has a definition in HTML to support the text-to-speech function on customer's computer system.

#### 4.1.3 The System is Friendly to Users in Different Environments

The system can let users change the background color to black with white text or light with black test depending on the environment.

### 4.2 Operational

#### 4.2.1 The System will be Responsive on Various Devices

The system will have responsive user interface design that allows it to be used on different screen sizes and resolutions, including desktop computers, mobile devices, or tablets. This is convenient for the storeman to use the system while he is picking up different spare parts. It is also good for the customer's ordering system, as each customer may have a different monitor size.

#### 4.2.2 The System will be Multi-Platform Support

The system will be supported by different operating systems such as Windows, macOS and Linux as different customers may use different operating systems for their computer.

#### 4.2.3 The System can Integrate with Other Department's System

The system can be compatible with the existing system and technologies used in different departments. The system can provide well-defined and documented APIs to facilitate integration with systems in different departments.

#### 4.2.4 The System can Operate on Different Architectures

There are different architecture systems in various departments, to reduce the cost of changing all devices in the company the system can operate correctly on micro-computers, mini computer etc.

#### 4.2.5 Spare Part Database will be Constructed

A spart part database will be constructed to facilitate searches by number,

name, country of origin and price. The database will be designed with appropriate data structure and indexing such as spare part name, spare part number and price. The database will enforce data consistency and integrity to ensure accurate search results by using correct data type and constraints.

#### 4.2.6 Low System Resource Requirements

The system only needs low system resources as the system is implemented on the web, therefore it can operate smoothly on every kind of device.

#### 4.2.7 Centralized Database

For data integrity and up to date, the system uses a centralized database, it collects all the data from every department and keeps updated. Every copy from it will synchronize automatically.

### **4.3 Performance**

#### 4.3.1 The System can Support 50000 Customers to Use at the Same Time

Since there are 50000 main dealers for LC, the system is designed to support 50000 users to use the system at the same time. The system can provide a smooth user experience and maintain high performance even during peak usage period.

#### 4.3.2 The System can Integrate with External System such as Payment Gateway

The System is designed to integrate smoothly and efficiently with a payment gateway. This allows for seamless processing of payment transactions when customer places an order, enhancing the user experience and enabling reliable and secured payment with the system.

#### 4.3.3 Support Offline Client-side limited Services

The system can still have limited-service users even without the Internet as the counting function is implemented on the client side. The user can offer an order the system will send it when have an internet connection.

#### 4.3.4 Support UDP

The system will automatically choose TCP or UDP to transfer the order depending on the internet connection quality. If the connection is unstable will be through UDP otherwise TCP.

### **4.4 Security**

#### 4.4.1 The Customer Information will be Secured

The system will employ encryption techniques to protect sensitive customer information during storage and transmission. Secure Protocols (e.g., HTTPS) will be used for data transmission to prevent unauthorized access. Also, without the permission of the manager, staff cannot access the information of the dealer unless they are dealing with his/her order.

#### 4.4.2 The Payment Information will be Encrypted and Secured

The system will integrate with trustworthy payment gateways to handle the payment of order. The system will undergo regular security audits and assessments to identify and deal with potential vulnerabilities and weaknesses in the payment information security.

#### 4.4.3 The system Will Automatically Backup Every Day

To prevent data from being lost to unexpected events or virus intrusion, the system will be backed up every day. When the system fails it will automatically fully recover in a half hour.

#### 4.4.4 Telephone Number Encrypt

To protect the customer's real telephone number the system will generate a virtual number and then divert it to the real phone number.

### **4.5 Cultural and Political**

#### 4.5.1 Simplified Chinese, Traditional Chinese and English will be Available

The system will provide 3 language including Simplified Chinese, Traditional Chinese, and English. The Simplified Chinese is to allow the dealer in the PRC to use the system. Traditional Chinese and English is for the staff to choose which language they familiar with.

#### 4.5.2 Currency used is Renminbi

The ordering system will show the price using Renminbi (RMB) as the main user of the ordering system is the dealer from PRC, RMB is the official currency of PRC.

#### 4.5.3 Support Different Coding System

As simplified and traditional chinse use different coding systems, Garbled characters may occur if used incorrectly. Therefore, the system uses Unicode for all characters it supports all languages in the world.

#### 4.5.4 Private policies that apply worldwide

All the information the system has collected follows the privacy policy. Only used for the whole ordering process and reasonably collected.

### **4.6 Usability**

#### 4.6.1 The system Provides a Graphical User Interface

The system provides a graphical user interface. To use the system no extra training is needed. It is more user-friendly and easier to use.

#### 4.6.2 Error with Solution Instructions

To help users solve the problem with meets errors, on each error that occurs, there is have instruction, to solve the error the user only needs to follow

the guide.

#### 4.6.3 Skeuomorphism Interface

The system interface will skeuomorphism the hard copy. Therefore, users can easily swap to use the new system like filling in the real hardcopy.

## 5. FESIBILITY ANALYSIS

### 5.1 Economic Feasibility

5.1.1 A cost-benefit analysis was performed; The new Order Processing and Stock Recording System is likely to significantly improve the company's bottom line

- ROI over 3 years: 260%
- NPV over 3 years: \$1,250,000
- Break-even occurs after 0.23 years (about 3 months)

5.1.2 Extra Costs:

- \$300,000 for update old machines
- \$180,000 for hire 5 IT staffs for helping in the first half month

5.1.3 Intangible Costs and Benefits:

- Improve the existing operation and increase the market share.
- Fixed the issues of inability to answer dealer's queries and reserve stock.
- Improve customer usage experiences and satisfaction.

### 5.2 Organizational Feasibility

5.2.1 From an organization perspective, this project has low risk.

- The head of the IT department suggested developing the system.
- This system can improve the information we have provide between the customers, for instance the quantity of stock, for customers to make decisions to prevent losing those customers.
- Some staff may concern the new system fails like the one before.

5.2.2 Staffing:

- Should consider hiring a consultant with expertise in similar applications to assist with the project.
- May need new staff to provide customer service for client-side online platform services.
- May need to train the staff in the company before swap to the new system.
- 

### 5.3 Technical Feasibility

5.3.1 A new Order Processing and Stock Recording System is feasible technically, with a few minor risks.

5.3.2 Risk regarding familiarity with the system is moderately high:

- Consultants have experience with an automatic re-ordering system based on stock records and average consumption rates.
- The IT department has not designed any similar system before.

5.3.3 Risk regarding familiarity with the technology is moderately low:

- Our project members have knowledge of the new Order Processing and Stock

### Recording System.

- The staff in the company are familiar with the current progress.

#### 5.3.4 The project size is considered low:

- The project will consist of 4 people.
- The project time frame is flexible.

#### 5.3.5 The compatibility with existing technical infrastructure should be high:

- The system in different offices and departments is not the same.
- May need to coordinate and systematic the computer system in different departments.

## 6. How can an organization get benefit from this central computerized management system?

Implementing a centralized central computerized management system can bring multiple benefits to an organization. It is a system that improves efficiency and productivity by automating manual processes such as order processing, inventory management and ordering. Reduce errors, optimize operations, and ensure seamless collaboration between departments. Having real-time information facilitates decision-making, customer service, order and message tracking, and supports a personalized customer experience. The system's data analysis capabilities provide high-quality information for strategic decision-making, while strict security measures protect sensitive information. Scalability enables the system to adapt and support the growth of the organization. Overall, a central computerized management system can improve operations, improve customer service and increase company success.

## 7. Constraints and Limitations

### 7.1 Operating System

As the system is developed as a Windows form application using Visual Studio and .Net framework, the client must use the system on Windows, other operating systems are not supported such as MacOS and Linux. If any department is using an operating system other than Windows, they need to change it to Windows, extra cost is incurred.

Also, if Microsoft launches any new version of Windows, the system also needs to be upgraded to adapt to the new operating system, extra cost will be incurred.

### 7.2 System integration

Since different offices and departments in LM use their own budgets to develop computer systems to support their own operations, there may be several problems:

#### 7.2.1 Data Compatibility

The data format, structures and standards may be different for each department, when combining them into one single database, data conversion and mapping may be required. Therefore, mistakes may be made and it is time-consuming.

#### 7.2.2 Technology Familiarity

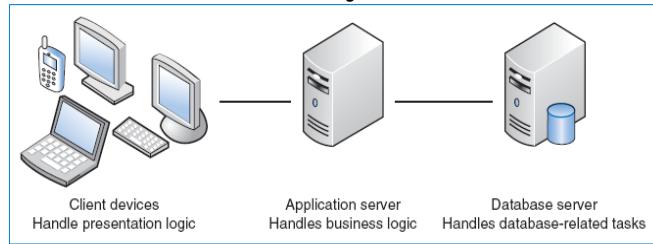
Since some departments are using mini-computer systems and some use micro-computer-based systems, the staff in those departments may not be familiar with Windows form applications and may be confused by such a large system. Therefore, training is required before using the system and thus, training costs are needed. Also, a lot of work is paper-based now (e.g. sending re-order cards), some staff may refuse to use the system as they are already accustomed to the existing process and workflow.

### 7.3 System Design

As mentioned above, most of the work is in paper-based now, so, the system must be designed as similar to the existing paper-based workflow as possible. It is because this can reduce the time needed to learn how to use the system and can avoid mistakes made by staff. Besides, a system that is similar to the existing workflow can make the staff more willing to use the new system. In view of this, the system should be designed carefully and user-friendly.

## 8. System Architecture

### 8.1 Three Tier System Architecture System



The Three tier System Architecture is proposed for the system for several important reasons, mainly its ability to solve several important issues that the system is aiming to solve, it allows one uniformed system that contacts with the customer and dealers to interact with, it allows the customer to interact with the system in a safe way with less overhead by the staff, this also allows a standardized way for staff to submit data to the database to reduce conflicts.

The Customer can use a registered account to check the latest info and modify their personal information the need of staff.

### 8.2 Hardware and Software

#### 8.2.1 Hardware - Development

Computer	
CPU:	Intel Core i5 or equivalent
RAM:	8 GB or more
Storage:	256 GB SSD or larger
Network:	1 Gbps Ethernet or faster

Data Server	
CPU:	Intel Xeon or equivalent
RAM:	16 GB or more
Storage:	1 TB SSD or larger in RAID configuration
Network:	1 Gbps Ethernet or faster

#### 8.2.2 Hardware - Operation

Computer	
CPU:	Intel Core i5 , 2Ghz CPU
RAM:	8 GB or more
Storage:	512 GB Disk Drive
Network:	Integrated 802.11 ac or better wireless networking

Data Server
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CPU:	2 GHz+ CPU
RAM:	6 GB or more
Storage:	1 TB Disk Drive
Network:	Duel 500mbps Ethernet

### 8.2.3 Software - Development

Operating System:	Windows 10 or later
Development Environment:	Integrated Development Environment: Visual Studio
Database Management System:	MySQL
Version Control:	GitHub
Project Management Tools:	JIRA or Trello for task tracking and agile project management
Collaboration Software:	Microsoft Teams for team communication

### 8.2.4 Software – Operation

Operating System:	Windows 10 or later
Database Management System:	MySQL
Special Software:	Microsoft Excel Adobe Acrobat Reader

## 9. Budgeting

### 9.1 Development Cost

Development Team Salaries:	Project manager: HKD\$30000/month Programmer: HKD\$18000/month System analyst: HKD\$20000/month
Consultant Fee:	HKD\$30000/month
Development training:	HKD\$2000/month
Hardware and Software:	HKD\$100000
Vendor installation:	HKD\$50000
Data conversation cost:	HKD\$20000
Office space and Equipment:	HKD\$100000

### 9.2 Operational Cost

Software upgrade:	HKD\$20000
Software license cost:	HKD\$400000
Hardware upgrades:	HKD\$50000
Hardware repair:	HKD\$50000
Operational team salaries:	HKD\$100000/month
Communication charges:	HKD\$50000
User training:	HKD\$20000/month to hire a trainer for training

### 9.3 Tangible Benefits

Increased sales:	HKD\$50000
Reduction in staff:	HKD\$50000
Reductions of IT cost:	HKD\$50000

### 9.4 Intangible Benefits

- Increased market price
- Increased brand recognition
- Improved customer service

## 10. Staffing

<b>Role</b>	<b>Description</b>	<b>Assigned to</b>
Project manager	Overseeing projects to ensure that they achieve their objectives on time and within budget.	Fung Wai Lim
System analyst	Designing information systems – with focus on the data models and system performance.	Fung Wai Lim Li Ning
System analyst	Designing information systems - focusing on the user interface design and process models.	Hong Wing Hang
Programmer	Codes system	Fung Wai Lim
Programmer	Codes system	Hong Wing Hang
Programmer	Codes system	Ling Ning

## 11. Actor Description

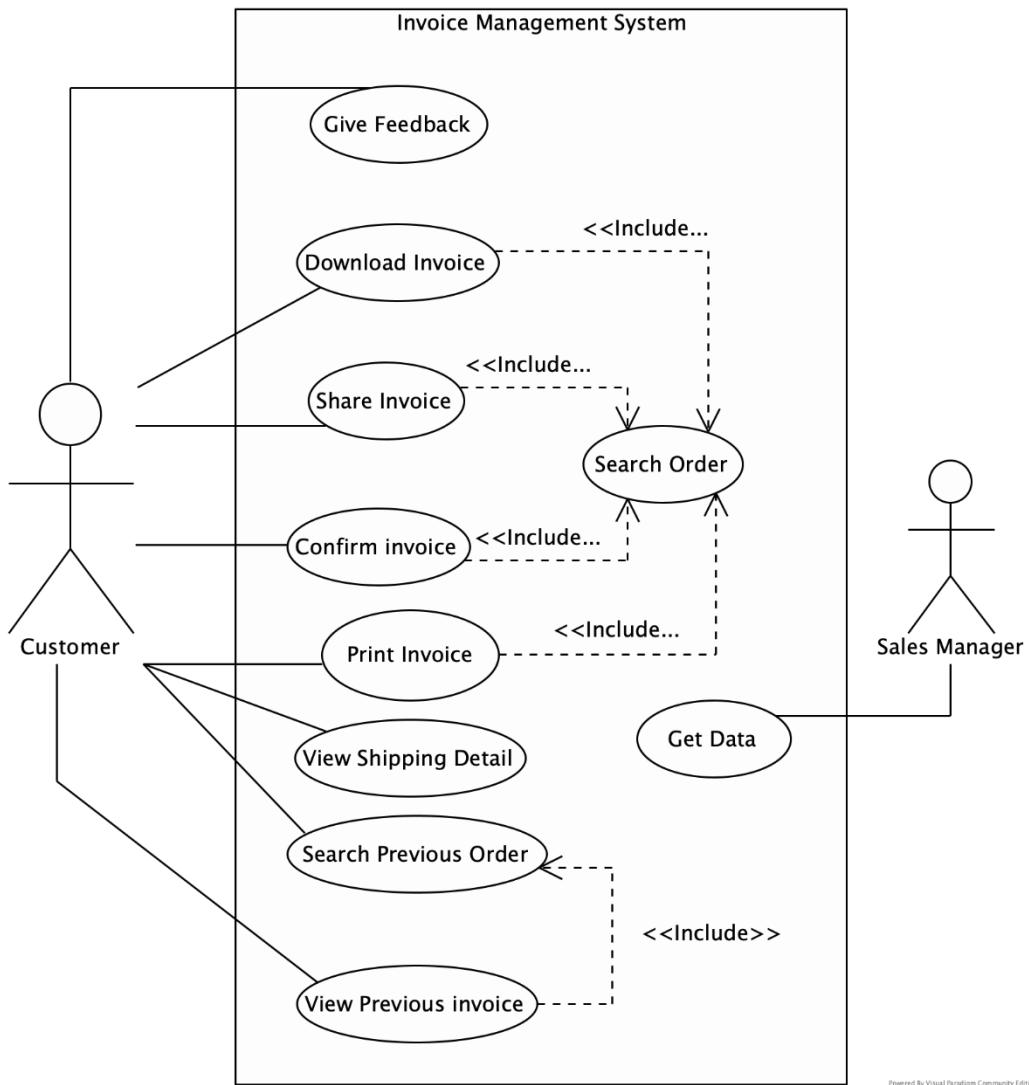
Actor specification	
Actor name	Description
Customer/ Dealer	<p><b>Order System:</b> A customer can create a customer account to view spare part, buy it, search it, cancel and modify order, view order, leave message.</p> <p><b>Invoice Management System:</b> A customer can also view an invoice, search it, download it, share it and give feedback about their experience on using the system</p> <p><b>User Account Management System:</b> A customer can view login history, create customer account, modify information and delete account.</p> <p><b>Order Tracking System:</b> A customer can update status, enter express number, view progress and receive notification.</p>
Sales Manager	<p><b>Invoice Management System:</b> A sales manager can get the data and report on sales.</p> <p><b>Order Processing System:</b> A sales manager can confirm an order, set order priority and deadline and view outstanding order</p> <p><b>User Account Management System:</b> A sales manager can view log in history, found user, edit profile, show notification.</p> <p><b>Stock Management System:</b> A sales manager can set reorder and danger level.</p>

	<p><b>Order Tracking System:</b> A sales manager can update status, enter express number and view progress.</p> <p><b>Product Management System:</b> A sales manager can set discount, add item, modify information and remove item from shelves.</p>
Order Processing Clerk	<p><b>Order Processing System:</b> An order processing clerk mainly process the order. They can confirm an order placed by customer.</p> <p><b>Order System:</b> An order processing clerk can also reply to customer's message.</p> <p><b>Order Processing System:</b> An order processing clerk can set the priority and deadline of order, they can view outstanding order.</p> <p><b>User Account Management System:</b> An order processing clerk can view log in history, found user and edit profile.</p>
Storeman	<p><b>Stock Management System:</b> A storeman can modify spare part information, add new spare part, remove spare part, set reorder and danger level, send re-order request, create spare part list and receive order.</p> <p><b>Order Tracking System:</b> A storeman can update status, enter express number and view progress.</p> <p><b>User Account Management System:</b> A storeman can view log in history, found user and edit profile.</p>
Purchase Department Staff	<b>Stock Management System:</b>

	A purchase department staff can receive the re-order request and sent restocked. <b>User Account Management System:</b> A purchase department staff can edit profile, found user and view login history.
Department Manager	<b>User Account Management System:</b> A department manager can view login history, set access control, add staff account, view all staff account, edit user account and found user.
Delivery Man	<b>Order Tracking System:</b> A delivery man can update the express statues, enter the express number, and search the order.

## 12. Use Case Diagram and Description

### 12.1 Invoice Management System



<b>Use case name:</b>	Search Order
<b>Use case ID:</b>	UC - 100
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	A customer can search for a order
<b>Preconditions:</b>	An valid buy order is placed

<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The user input the LM serial number</li> <li>2. The user press “Search”</li> <li>3. The system will display the order</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	If the customer input a wrong LM serial number, repeat step 1 until a correct number is entered

<b>Use case name:</b>	Confirm Invoice
<b>Use case ID:</b>	UC - 101
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	A customer can confirm the invoice of the order placed
<b>Preconditions:</b>	An valid buy order is placed
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Search Order UC - 100)</li> <li>2. The user press “Confirm”</li> <li>3. The system will show a message “The invoice is confirmed”</li> </ol>
<b>Postconditions:</b>	The invoice is confirmed
<b>Alternative flow and exception</b>	

<b>Use case name:</b>	Share Invoice
<b>Use case ID:</b>	UC - 102

<b>Primary actor:</b>	Customer
<b>Brief description:</b>	A customer can share the invoice to other
<b>Preconditions:</b>	The customer has a valid invoice
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Search Order UC - 100)</li> <li>2. The user press “Share”</li> <li>3. The system will display a list of method</li> <li>4. The user choose a method to share</li> </ol>
<b>Postconditions:</b>	The invoice is shared
<b>Alternative flow and exception</b>	

<b>Use case name:</b>	Download Invoice
<b>Use case ID:</b>	UC - 103
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	A customer can download the invoice
<b>Preconditions:</b>	The customer has a valid order
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Search Order UC - 100)</li> <li>2. The user press “Download”</li> </ol>
<b>Postconditions:</b>	The invoice is downloaded
<b>Alternative flow and exception</b>	

<b>Use case name:</b>	Print Invoice
<b>Use case ID:</b>	UC - 104
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	A customer can print the invoice
<b>Preconditions:</b>	The customer has a valid order
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Search Order UC - 100)</li> <li>2. The user press “Print”</li> </ol>
<b>Postconditions:</b>	The invoice is printed
<b>Alternative flow and exception</b>	

<b>Use case name:</b>	View Shipping Detail
<b>Use case ID:</b>	UC - 105
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	A customer can view the shipping detail of the order
<b>Preconditions:</b>	The customer has a valid order
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Search Order UC - 100)</li> <li>2. The user press “View Shipping Detail”</li> <li>3. The system display the shipping detail</li> </ol>
<b>Postconditions:</b>	

<b>Alternative flow and exception</b>	
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<b>Use case name:</b>	Search Previous Order
<b>Use case ID:</b>	UC - 106
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	A customer can search past order
<b>Preconditions:</b>	The customer has past order
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The customer search the order by entering LM serial number</li> <li>2. The system display the order match the entered number</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	If the customer input a wrong LM serial number, repeat step 1 until a correct number is entered

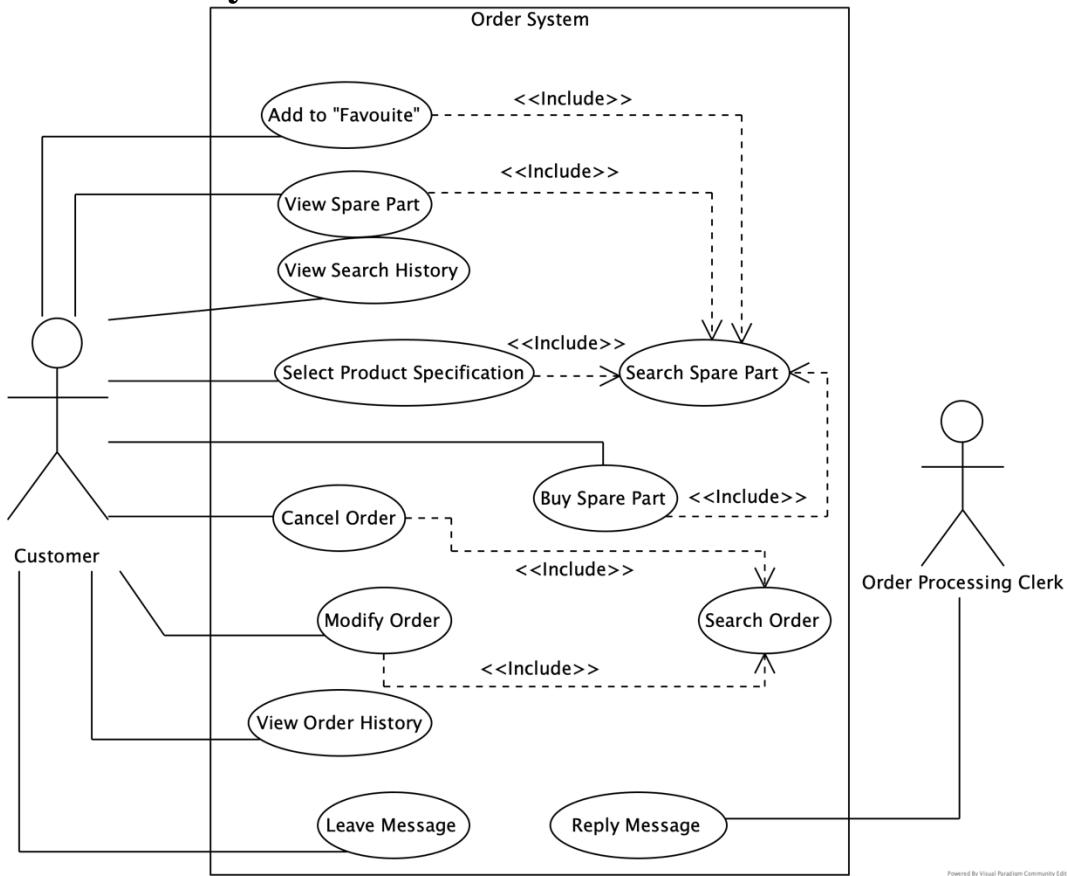
<b>Use case name:</b>	View Previous Invoice
<b>Use case ID:</b>	UC - 107
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	A customer can view invoice of past order
<b>Preconditions:</b>	The customer has past order

<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Search Previous Order UC - 105)</li> <li>2. The user select the invoice they want</li> <li>3. The system display the selected invoice</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	

<b>Use case name:</b>	Give Feedback
<b>Use case ID:</b>	UC - 108
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	A customer can give feedback about the system
<b>Preconditions:</b>	The customer has past order
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The customer select “Give Feedback”</li> <li>2. The system display a textbox</li> <li>3. The customer enter feedback in the textbox</li> <li>4. The customer press “Submit”</li> <li>5. The system display message “Feedback sent”</li> </ol>
<b>Postconditions:</b>	A feedback is sent
<b>Alternative flow and exception</b>	If the customer enter nothing, step 4 will not run and the system display a message “Please enter something”

<b>Use case name:</b>	Get Data
<b>Use case ID:</b>	UC - 109
<b>Primary actor:</b>	Sales Manager
<b>Brief description:</b>	Sales manager can get the total in a period of dates or on a specified user or a group of products
<b>Preconditions:</b>	
<b>Flow of events:</b>	<ol style="list-style-type: none"><li>1. Sales Manager press “Analysis”</li><li>2. Sales Manager choose the date, customer or product</li><li>3. The system display the information</li></ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	

## 12.2 Order System



<b>Use case name:</b>	Search Spare Part
<b>Use case ID:</b>	UC-200
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	The customer can search spart parts
<b>Preconditions:</b>	
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The customer search by entering keyword.</li> <li>2. The system display a list of spare part that match the keyword.</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	If no spart part match the keyword, the

	system ask the customer to enter keyword again
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<b>Use case name:</b>	Buy Spare Part
<b>Use case ID:</b>	UC-201
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	The customer can buy spare parts
<b>Preconditions:</b>	
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Search Spare Part UC - 200)</li> <li>2. The customer press a spare part on the list</li> <li>3. the customer press “Add to Cart”</li> <li>4. The system ask how many spare part are needed</li> <li>5. The customer enter the quantity</li> <li>6. The customer press “Check Out”</li> </ol>
<b>Postconditions:</b>	A buy order is created
<b>Alternative flow and exception</b>	

<b>Use case name:</b>	Add to “Favourite”
<b>Use case ID:</b>	UC-202
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	The customer can add their most purchased spare part to “Favourite” section

<b>Preconditions:</b>	The spare part have not been added to “Favourite”
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Search Spare Part UC - 200)</li> <li>2. The customer press a spare part on the list</li> <li>3. The customer press “Add to favourite”</li> </ol>
<b>Postconditions:</b>	If the spare part already in “Favourite”, the system will show “already in ‘Favourite’ ” next to the “Add to favourite” button and step 3 will not run
<b>Alternative flow and exception</b>	If the spare part already in “Favourite”, the system will display a message “Already in “Favourite” to the customer

<b>Use case name:</b>	View Spare Part
<b>Use case ID:</b>	UC-203
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	The customer view spare part
<b>Preconditions:</b>	The customer perform searching
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Search Spare Part UC - 200)</li> <li>2. The customer press a spare part on the list</li> <li>3. The system display the information of the selected spare part</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	

<b>Use case name:</b>	Select Product Specification
<b>Use case ID:</b>	UC-204
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	The customer can choose the manufacturing location and the different specifications of the spare part
<b>Preconditions:</b>	The customer perform searching
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Search Spare Part UC - 200)</li> <li>2. The customer press a spare part on the list</li> <li>3. The customer select manufacturing location</li> <li>4. The customer select other specification</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	If no specification need to be chosen, step 3 – 4 will not run

<b>Use case name:</b>	View Search History
<b>Use case ID:</b>	UC-205
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	The customer can view previous search result
<b>Preconditions:</b>	The customer have perform searching
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The customer press “View Search History”</li> </ol>

	<p>2. The system display a list of search history</p> <p>3. The customer select the search history they want</p>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	If there are no search history, the system will display a message “No Search History” to the customer after step 1, step 2 – 3 will not run

<b>Use case name:</b>	Cancel Order
<b>Use case ID:</b>	UC-206
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	The customer can cancel the order
<b>Preconditions:</b>	The customer have a valid buy order
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Search Order - 209)</li> <li>2. The customer press “Cancel Order”</li> <li>3. The customer select the order they want</li> <li>4. The customer press “Cancel”</li> <li>5. The system ask the customer “Are you confirm to cancel the order?”</li> <li>6. The customer press “Yes”</li> <li>7. The system display the message “Order cancelled”</li> </ol>
<b>Postconditions:</b>	The buy order is cancelled and notify the order processing staff
<b>Alternative flow and exception</b>	If the customer press “No” in step 4, step 5

	<p>will not happen</p> <p>If there are no unfinished order, the system will display a message “No Valid Order” to the customer after step 1, step 2 – 3 will not run</p> <p>If the order is about to be dispatch, the system will not allow the customer to cancel it</p>
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<b>Use case name:</b>	Modify Order
<b>Use case ID:</b>	UC-207
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	The customer can modify the order
<b>Preconditions:</b>	The customer have a valid buy order
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Search Order - 209)</li> <li>2. The customer select the order they want</li> <li>3. The customer press “Modify”</li> <li>4. The system display a list of spart part that include in the order</li> <li>5. The customer select one spart part</li> <li>6. The customer press “Modify”</li> <li>7. The system display what can the customer modify</li> <li>8. The customer modify the thing they want</li> <li>9. The customer press “Confirm”</li> <li>10. The system display the message “Order modified”</li> </ol>

<b>Postconditions:</b>	The buy order is modified and notify the order processing staff
<b>Alternative flow and exception</b>	<p>Step 1 to 7 can repeat many time</p> <p>If there are no unfinished order, the system will display a message “No Valid Order” to the customer after step 1, step 2 – 3 will not run</p> <p>If the order is about to be dispatch, the system will not allow the customer to cancel it</p>

<b>Use case name:</b>	View Order History
<b>Use case ID:</b>	UC-208
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	The customer can view past order
<b>Preconditions:</b>	The customer have past buy order
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The customer press “View Search History”</li> <li>2. The system display a list of past order of the customer</li> <li>3. The customer select the order they want</li> <li>4. The customer press “View”</li> <li>5. The system display a list of spart part that include in the order</li> </ol>
<b>Postconditions:</b>	

<b>Alternative flow and exception</b>	If there are no past order, the system will display a message “No Past Order” to the customer after step 1, step 2 -5 will not run
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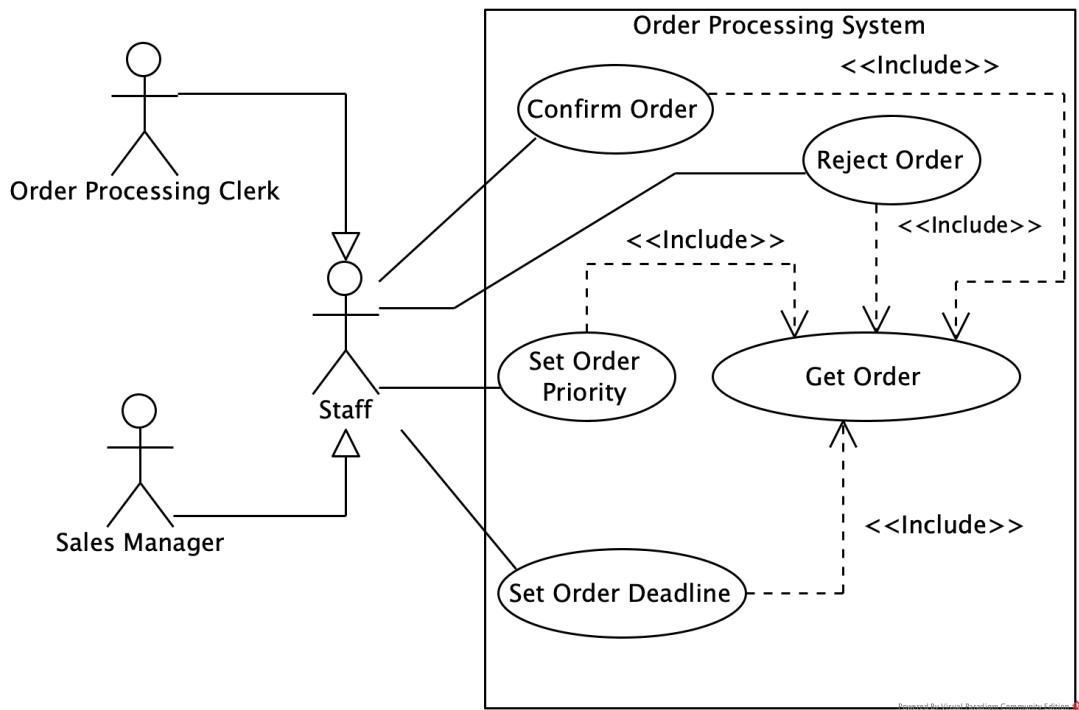
<b>Use case name:</b>	Search Order
<b>Use case ID:</b>	UC-209
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	The customer can an order placed
<b>Preconditions:</b>	There are order already placed
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The user input the LM serial number</li> <li>2. The user press “Search”</li> <li>3. The system will display the order</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	If the customer input a wrong LM serial number, repeat step 1 until a correct number is entered

<b>Use case name:</b>	Leave Message
<b>Use case ID:</b>	UC-210
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	The customer can leave a message to staff
<b>Preconditions:</b>	

<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The customer press “Leave Message”</li> <li>2. The system display a textbox</li> <li>3. The customer can enter message in textbox</li> <li>4. The customer press “Send”</li> <li>5. The system send the message</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	

<b>Use case name:</b>	Reply Customer
<b>Use case ID:</b>	UC-211
<b>Primary actor:</b>	Order Processing Staff
<b>Brief description:</b>	Order Processing Staff can reply customer’s message
<b>Preconditions:</b>	There are message waiting to be reply
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>4. The order processing clerk press “Reply”</li> <li>5. The system display a textbox</li> <li>6. The order processing clerk enter reply message</li> <li>7. The order processing clerk press “Reply”</li> <li>8. The system send the message</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	

## 12.3 Order Processing System



<b>Use case name:</b>	Confirm Order
<b>Use case ID:</b>	UC - 300
<b>Primary actor:</b>	Order Processing Clerk Sales Manager
<b>Brief description:</b>	When a customer placed an order, the actor can confirm the order
<b>Preconditions:</b>	The is a buy order placed by customer
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Get Order UC - 302)</li> <li>2. The actor select an order</li> <li>3. The actor press “Confirm”</li> <li>4. The system display a message “Order is confirmed”</li> </ol>
<b>Postconditions:</b>	A buy order is created

<b>Alternative flow and exception</b>	
<b>Use case name:</b>	Reject Order
<b>Use case ID:</b>	UC - 301
<b>Primary actor:</b>	Order Processing Clerk Sales Manager
<b>Brief description:</b>	When a customer placed an order, the actor can confirm the order
<b>Preconditions:</b>	The is a buy order placed by customer
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Get Order UC - 302)</li> <li>2. The actor select an order</li> <li>3. The actor press “Reject”</li> <li>4. The system display a textbox</li> <li>5. The actor enter remark why reject the order</li> <li>6. The actor press “Confirm”</li> <li>7. The system display a message “Order is rejected”</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	

<b>Use case name:</b>	Get Order
<b>Use case ID:</b>	UC - 302
<b>Primary actor:</b>	Order Processing Clerk

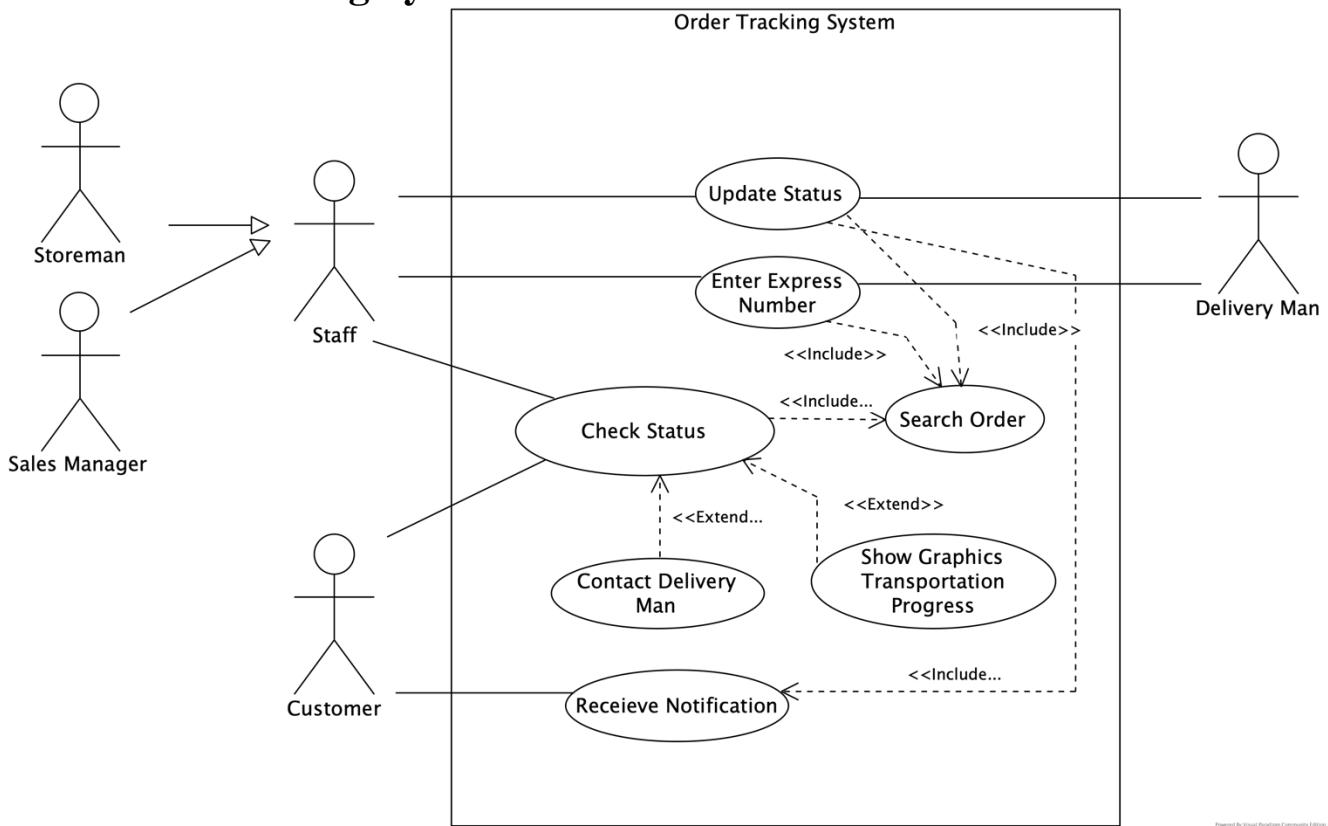
	Sales Manager
<b>Brief description:</b>	The actor can view order
<b>Preconditions:</b>	There is order exist
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The actor press “View Order”</li> <li>2. The system display a list of order</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	If there are no order, step 2 display nothing

<b>Use case name:</b>	Set Order Priority
<b>Use case ID:</b>	UC - 303
<b>Primary actor:</b>	Order Processing Clerk Sales Manager
<b>Brief description:</b>	When there are more than one orders waiting to be fulfilled, the actor can set the priority of order
<b>Preconditions:</b>	There is more than one orders waiting to be fulfilled
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Get Order UC - 302)</li> <li>2. The actor select an order</li> <li>3. The actor press “Set priority”</li> <li>4. The system display a number box next to each outstanding order</li> <li>5. The actor can edit the number in each number box to indicate the priority. 1 is the</li> </ol>

	top priority 6. The actor press “Confirm” 7. The system display a message “Priority saved”
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	If there are only one outstanding order, step 2 to 7 will not happen

<b>Use case name:</b>	Set Order Deadline
<b>Use case ID:</b>	UC - 304
<b>Primary actor:</b>	Order Processing Clerk Sales Manager
<b>Brief description:</b>	The actor can set deadline for each order
<b>Preconditions:</b>	There is a unfulfilled order
<b>Flow of events:</b>	1. Include (Get Order UC - 302) 2. The actor select an order 3. The actor press “Set deadline” 4. The system display a date & time picker 5. The actor select a date and time to be deadline 6. The actor press “Confirm”
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	If the date chosen already past, the system will ask the actor to choose again

## 12.4 Order Tracking System



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<b>Use case name:</b>	Update Status
<b>Use case ID:</b>	UC-400
<b>Primary actor:</b>	Stoneman, Sale Order Manager, Delivery Man
<b>Brief description:</b>	Allows user to update the express status for the express number of the order.
<b>Preconditions:</b>	The order has created and exists in database, and the express number has been entered.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Search Order UC-402)</li> <li>2. Users select the order.</li> <li>3. User input the latest status.</li> <li>4. Users confirm data that has inputted.</li> <li>5. The system updates the status.</li> <li>6. Include (Receive Notification UC-406)</li> <li>7. The system returns a message “Updated”</li> </ol>

<b>Postconditions:</b>	The status of the order is updated.
<b>Alternative flow and exception</b>	In step 1, If the user entered wrong order number, the system would display “Order Not Found.”

<b>Use case name:</b>	Enter Express Number
<b>Use case ID:</b>	UC-401
<b>Primary actor:</b>	Stoneman, Sale Order Manager, Delivery Man
<b>Brief description:</b>	The user can input the express number for the corresponding order.
<b>Preconditions:</b>	The order and express number have created and exists in database.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Search Order UC-402)</li> <li>2. Users select the order.</li> <li>3. User input the express number.</li> <li>4. Users confirm data that has inputted.</li> <li>5. The system stores the number into database.</li> <li>6. The system changes the order state to shipping.</li> <li>7. Include (Receive Notification UC-406)</li> </ol>
<b>Postconditions:</b>	The status of the order is updated, and the number has stored into database.
<b>Alternative flow and exception</b>	In step 1, If the user entered wrong order number or not a express number format, the system would display “Order Not Found.” and “Incorrect express number”

<b>Use case name:</b>	Search Order
<b>Use case ID:</b>	UC-402
<b>Primary actor:</b>	Stoneman, Sale Order Manager, Customer, Delivery Man
<b>Brief description:</b>	User can find order by enter order number.
<b>Preconditions:</b>	The order has created and exists in database.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Users enter the order number into the system.</li> <li>2. The system compares the inputted data in database.</li> <li>3. The system displays the result.</li> </ol>
<b>Postconditions:</b>	The status is update to “Shipping” and the express number is store in database.
<b>Alternative flow and exception</b>	In step 2, Users enter a wrong order number, or the order is progress has not been input to the database yet. The system would display “Order Not Found.”

<b>Use case name:</b>	Check Status
<b>Use case ID:</b>	UC-403
<b>Primary actor:</b>	Stoneman, Sale Order Manager, Customer
<b>Brief description:</b>	The system will show the whole express progress of the selected order.
<b>Preconditions:</b>	The order and express number have created and exists in database.

<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Search Order UC-402)</li> <li>2. The system displays the whole progress of the selected order.</li> <li>3. If user wants to contact delivery man executes use case UC-404 “Contact Delivery Man”</li> <li>4. If user wants to view graphics transportation progress executes use case UC-405 “Show Graphics Transportation Progress”</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	In step 1, Users enter a wrong order number. The system would display “Order Not Found.”

<b>Use case name:</b>	Contact Delivery Man
<b>Use case ID:</b>	UC-404
<b>Primary actor:</b>	Stoneman, Sale Order Manager, Customer
<b>Brief description:</b>	The system will show the delivery man’s phone number, user can contact them via it.
<b>Preconditions:</b>	The order and express number have created and exists in database. The order is in “Shipping” status.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Users select the order.</li> <li>2. Users click “Contact Delivery Man”</li> <li>3. The system displays the delivery man’s phone number</li> </ol>
<b>Postconditions:</b>	

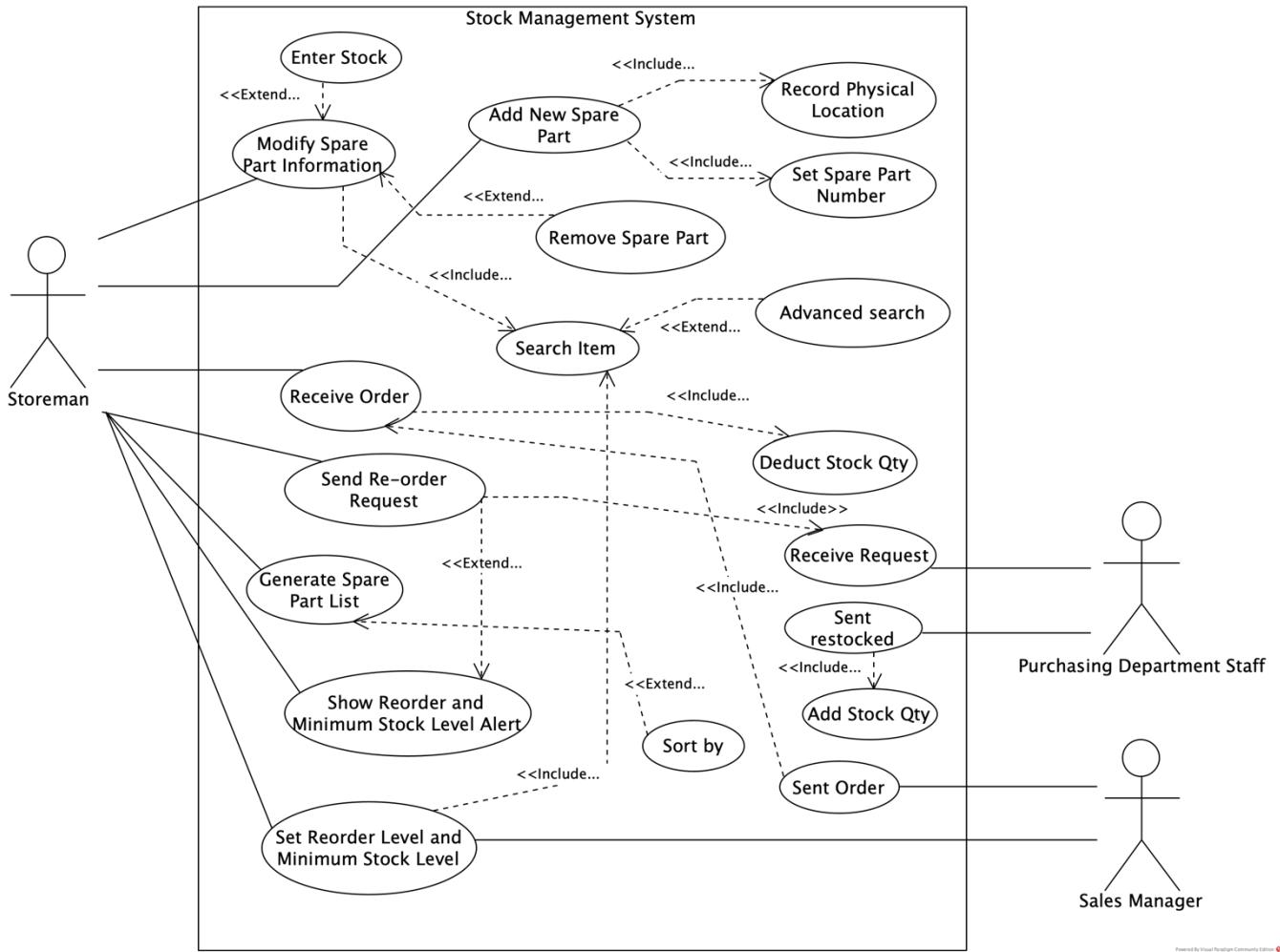
<b>Alternative flow and exception</b>	In step 1, Users enter a wrong order number. The system would display “Order Not Found.”
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<b>Use case name:</b>	Show Graphics Transportation Progress
<b>Use case ID:</b>	UC-405
<b>Primary actor:</b>	Stoneman, Sale Order Manager, Customer
<b>Brief description:</b>	The system displays the graphical Transportation Progress to the user
<b>Preconditions:</b>	The order and express number have created and exists in database. The order is in “Shipping” status.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Search Order UC-402)</li> <li>2. Users select the order.</li> <li>3. Users click “show graphics transportation progress”</li> <li>4. The system displays the graphics transportation progress</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	In step 1, Users enter a wrong order number. The system would display “Order Not Found.”

<b>Use case name:</b>	Receive Notification
<b>Use case ID:</b>	UC-406
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	If the status of the order of express the system

	will send a notification to the customer.
<b>Preconditions:</b>	There has change made to the order or express status.
<b>Flow of events:</b>	<ol style="list-style-type: none"><li>1. Include (Update Statue UC-400)</li><li>2. The system sends a notification to the customer.</li></ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	

## 12.5 Stock Management System



<b>Use case name:</b>	Modify Spare Part Information
<b>Use case ID:</b>	UC-500
<b>Primary actor:</b>	storeman
<b>Brief description:</b>	The user can modify the spare part information such as update, remove, restock.
<b>Preconditions:</b>	The item number has exists in the database.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Search Item UC-506)</li> <li>2. The user selects the item that needs to modify.</li> <li>3. The system ask user to input new value.</li> </ol>

	4. The user input the latest information. 5. If user wants to restock executes use case UC-501 “Enter Stock” 6. If user wants to remove item executes use case UC-503 “Remove Spare Part” 7. The system checks all inputted data. 8. The system ask user to confirm 9. The change has stored in database. 10. The system returns a message “Changed”
<b>Postconditions:</b>	The change has been made is update into the database.
<b>Alternative flow and exception</b>	<p>In step 1, User inputted wrong item name or the item is not exit in database. the system return ”Item not found.”.</p> <p>In step 7, user forget to fill in the necessary data, the system will remind user to supplement the data.</p>

<b>Use case name:</b>	Enter Stock
<b>Use case ID:</b>	UC-501
<b>Primary actor:</b>	storeman
<b>Brief description:</b>	The user can change the stock quantity for each item if wants to manual restocking,
<b>Preconditions:</b>	The item number has exists in the database.
<b>Flow of events:</b>	1. Include (Search Item UC-506) 2. Users select the item that needs to modify. 3. The system ask user to input the new value. 4. The user changes the value. 5. The system ask user to confirm. 6. The change has stored in database.

	7. The system returns a message “Changed”
<b>Postconditions:</b>	The change has been made is update into the database.
<b>Alternative flow and exception</b>	<p>In step 1, User inputted wrong item name or the item is not exit in database. the system return “Item not found.”.</p> <p>In step 3, user input the value less than 0 the system will remind user to reinput a new value.</p>

<b>Use case name:</b>	Add New Spare Part
<b>Use case ID:</b>	UC-502
<b>Primary actor:</b>	storeman
<b>Brief description:</b>	The user can add a new spare part item in to the system and store in database.
<b>Preconditions:</b>	The new item is not existed in current database.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Set Spare Part Number UC-506)</li> <li>2. The system ask user to enter new spare part information.</li> <li>3. The user enters the information of the spare part.</li> <li>4. Include (Record Physical Number UC-504)</li> <li>5. The system ask user to confirm.</li> <li>6. The system checks all inputted data.</li> <li>7. The item is now added and stored in database.</li> <li>8. The system returns a message “Added”</li> </ol>
<b>Postconditions:</b>	The new item is added to the database.

<b>Alternative flow and exception</b>	In step 2, the user inputted incomplete information, the system will ask user to fill in.
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<b>Use case name:</b>	Remove Spare Part
<b>Use case ID:</b>	UC-503
<b>Primary actor:</b>	storeman
<b>Brief description:</b>	The user can remove the spare part item in the database.
<b>Preconditions:</b>	The spare part is exists in database.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Search Item UC-506)</li> <li>2. The user selects the item that needs to delete.</li> <li>3. The system ask user to confirm the operation.</li> <li>4. The system changes the status of the item to “removed”</li> <li>5. The system returns a message “Deleted”</li> </ol>
<b>Postconditions:</b>	The item status has change to “removed”
<b>Alternative flow and exception</b>	In step 1, User inputted wrong item name or the item is not exit in database. the system return ”Item not found.”.

<b>Use case name:</b>	Record Physical Location
<b>Use case ID:</b>	UC-504
<b>Primary actor:</b>	storeman

<b>Brief description:</b>	The system stores the physical location in the bin.
<b>Preconditions:</b>	The spare part is exits in database.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The system ask user to select one location.</li> <li>2. The user selects the location of the spare parts.</li> <li>3. The system ask user to confirm the operation.</li> <li>4. The system stores the data into the database.</li> </ol>
<b>Postconditions:</b>	The data has been stored into the database
<b>Alternative flow and exception</b>	In step 1, user does not select any the system will remind user to select one.

<b>Use case name:</b>	Set Spare Part Number
<b>Use case ID:</b>	UC-505
<b>Primary actor:</b>	storeman
<b>Brief description:</b>	The system generates a spare part number
<b>Preconditions:</b>	The user adds a new item.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The system compares with the current exits number in the database.</li> <li>2. The system generate a unique spare part number.</li> </ol>
<b>Postconditions:</b>	

<b>Alternative flow and exception</b>	
<b>Use case name:</b>	Search Item
<b>Use case ID:</b>	UC-506
<b>Primary actor:</b>	Storeman, Sales Order Manager
<b>Brief description:</b>	The user searches an item, the system returns the result.
<b>Preconditions:</b>	The item is exit in the database.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The system ask user to input the name or data.</li> <li>2. If user unclear with the item name executes use case UC-507 “Advanced search”</li> <li>3. The user enters the item name or spare part number.</li> <li>4. The system compares the inputted value with the database.</li> <li>5. The system returns the result.</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	In step 1, User inputted wrong item name or the item is not exit in database. the system return "Item not found.".

<b>Use case name:</b>	Advanced search
<b>Use case ID:</b>	UC-507
<b>Primary actor:</b>	Storeman, Sales Order Manager

<b>Brief description:</b>	If user unclear with the proper name or the spare part number. This function can return related results.
<b>Preconditions:</b>	The item is exit in the database.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The system ask user to enter the key words of the item name.</li> <li>2. The user entered the keywords.</li> <li>3. The system compares the keywords in the database.</li> <li>4. The system returns results that include the keywords.</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	In step 1, User inputted wrong item name or the item is not exit in database. the system return "Item not found."

<b>Use case name:</b>	Receive Order
<b>Use case ID:</b>	UC-508
<b>Primary actor:</b>	Storeman, sales manager
<b>Brief description:</b>	The system allows storeman to receive the orders form the sales manager and auto deduct the stock quantity.
<b>Preconditions:</b>	The item is exit in the database and have enough stock.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Sent Order UC-517)</li> <li>2. The system receives the order from the sales manager.</li> <li>3. The system shows a message to the</li> </ol>

	<p>storeman.</p> <ol style="list-style-type: none"> <li>4. The storeman confirm the order.</li> <li>5. The system checks the value of the stock.</li> <li>6. Include (Deduct Stock Qty UC-509)</li> </ol>
<b>Postconditions:</b>	The value of the stock has changed.
<b>Alternative flow and exception</b>	<p>In step 4, the user can reject the order then a message will sent to sales manager "Order rejected".</p> <p>In step 5, there has not enough stock for the current order, the system will ask storeman to send Re-order Request.</p>

<b>Use case name:</b>	Deduct Stock Qty
<b>Use case ID:</b>	UC-509
<b>Primary actor:</b>	Storeman
<b>Brief description:</b>	The system will automatically change the value when storeman confirm the order.
<b>Preconditions:</b>	The item is exit in the database and have enough stock.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The system receives the order.</li> <li>2. The system compares the stock in the database.</li> <li>3. The system changes the value of the stock.</li> </ol>
<b>Postconditions:</b>	The value of the stock has changed.
<b>Alternative flow and exception</b>	<p>In step 2, there has not enough stock for the current order, the system will ask storeman to send Re-order Request.</p>

<b>Use case name:</b>	Send Re-order Request
<b>Use case ID:</b>	UC-510
<b>Primary actor:</b>	Storeman, Purchasing department staff
<b>Brief description:</b>	The user can send the danger card and reorder card to the purchasing department for request restocking.
<b>Preconditions:</b>	When reach the reorder level of minimum stock level.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The system sends the danger card and reorder card to the purchasing department staff</li> <li>2. Include (Receive Request UC-511)</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	

<b>Use case name:</b>	Receive Request
<b>Use case ID:</b>	UC-511
<b>Primary actor:</b>	Storeman, Purchasing department staff
<b>Brief description:</b>	The Purchasing department staff
<b>Preconditions:</b>	There has a danger card and reorder card send from storeman.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The receives a danger card and reorder card.</li> <li>2. The system shows a message to the</li> </ol>

	<p>purchasing department staff</p> <p>3. The system asks the purchasing department staff to confirm the order.</p> <p>4. The system returns a “confirmed” message to the stockman.</p>
<b>Postconditions:</b>	The order is confirmed.
<b>Alternative flow and exception</b>	

<b>Use case name:</b>	Generate Spare Part List
<b>Use case ID:</b>	UC-512
<b>Primary actor:</b>	Storeman
<b>Brief description:</b>	This function is to generate a list for stock management and analysis.
<b>Preconditions:</b>	
<b>Flow of events:</b>	<p>1. Include (Search Item UC-506)</p> <p>2. If user wants to sort the data executes use case UC-513 “Sort by”</p> <p>3. The system generates the report and show to the user.</p>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	In step 1, user select nothing, the system will ask user to select at least one item.

<b>Use case name:</b>	Sort by
<b>Use case ID:</b>	UC-513

<b>Primary actor:</b>	Storeman
<b>Brief description:</b>	This function can sort the data in order.
<b>Preconditions:</b>	User select at least one item.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The user selects one method to arrange the data.</li> <li>2. The system returns the sorted list.</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	In step 1, user has not selected any of the method, the system will ask user to choose one.

<b>Use case name:</b>	Show Recorder and Minimum Stock Level Alert
<b>Use case ID:</b>	UC-514
<b>Primary actor:</b>	Storeman
<b>Brief description:</b>	The system automatically shows the alert to warn storeman to restock the item.
<b>Preconditions:</b>	The item reaches the reorder level or minimum stock level
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The item reaches the reorder level or minimum stock level</li> <li>2. The system shows a warning message to user.</li> <li>3. If user wants to restock executes use case UC-510 “Send Re-order Request”</li> </ol>
<b>Postconditions:</b>	

<b>Alternative flow and exception</b>	<p>In step 3, if user don't select to sent a reorder request, the system will keep warning user to restock.</p> <p>In step 3, the user can reject the order then a message will storeman "Order rejected".</p>
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<b>Use case name:</b>	Set Recorder Level and Minimum Stock Level
<b>Use case ID:</b>	UC-515
<b>Primary actor:</b>	Storeman, Sales Order Manager
<b>Brief description:</b>	The user can set different recorder level and minimum stock level to each item, when reach it the system will remind user.
<b>Preconditions:</b>	The item is exit in the database.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (Search Item UC-506)</li> <li>2. The user selects one item.</li> <li>3. The user input the value.</li> <li>4. The system ask user to confirm the value.</li> <li>5. The value has store into the database.</li> <li>6. When reach it the system will remind user.</li> </ol>
<b>Postconditions:</b>	The recorder level and minimum stock level has store into database.
<b>Alternative flow and exception</b>	<p>In step 1, User inputted wrong item name or the item is not exit in database. the system return "Item not found.".</p> <p>In step 3, If user inputted a value less than 0 the system will remind user to input a new one.</p>

<b>Use case name:</b>	Sent Restocked
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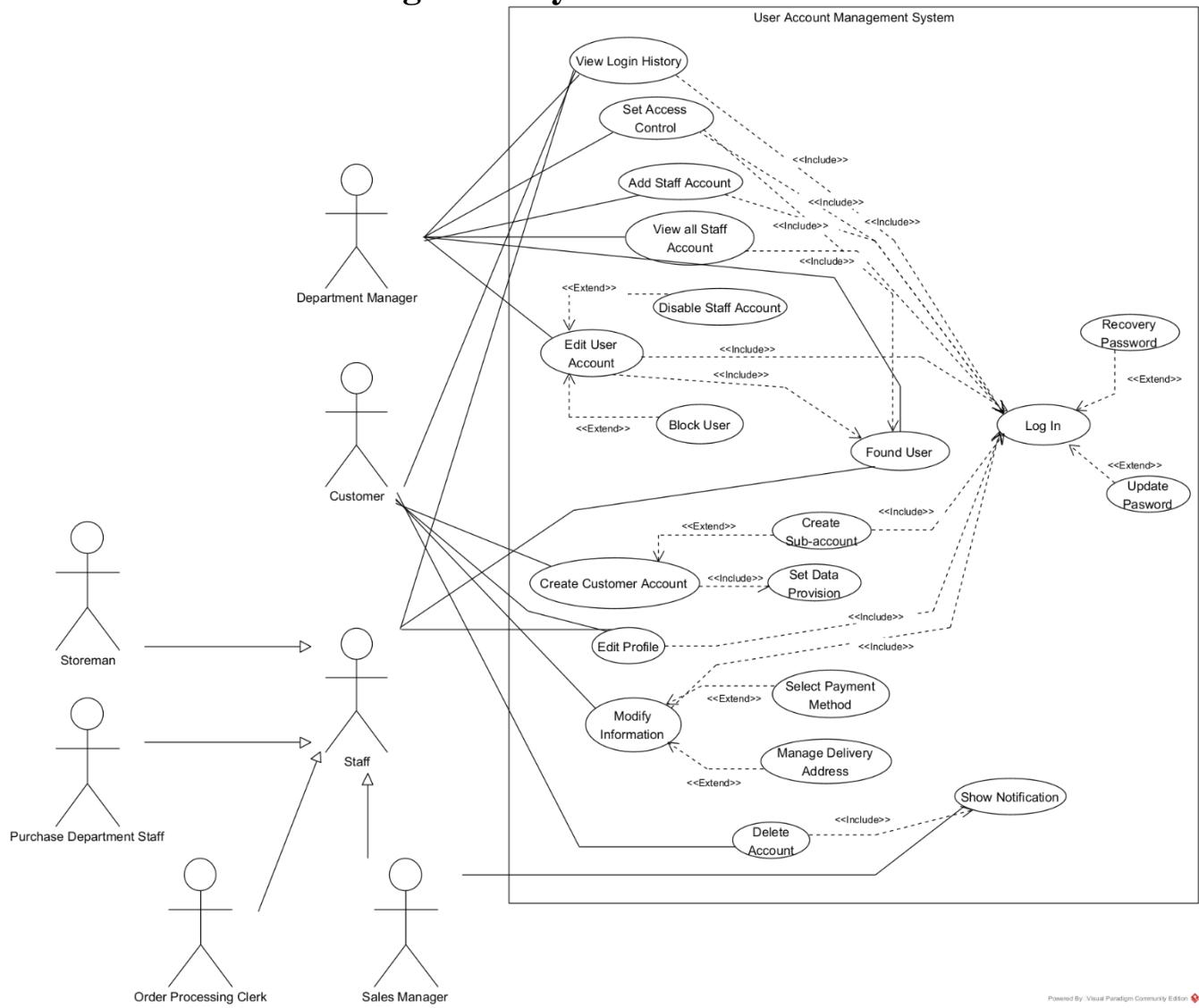
<b>Use case ID:</b>	UC-516
<b>Primary actor:</b>	Storeman, Sales Order Manager
<b>Brief description:</b>	This function lets purchasing department staff to sent a restock message and the system will automatically increase the stock quantity.
<b>Preconditions:</b>	Has receive a re-order request.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The purchasing department select a restock order that has receives from the storeman.</li> <li>2. The system sent the restocked message to the storeman.</li> <li>3. Include (Add Stock Qty UC-518)</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	

<b>Use case name:</b>	Sent Order
<b>Use case ID:</b>	UC-517
<b>Primary actor:</b>	Storeman, Sales Order Manager
<b>Brief description:</b>	The sales order manager can send the order to the storeman.
<b>Preconditions:</b>	
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The system asks sales manager to fill in the order request.</li> <li>2. The sales manager filled and sent the request.</li> <li>3. Include (Receive Order UC-508)</li> </ol>

<b>Postconditions:</b>	The order is store in the database system.
<b>Alternative flow and exception</b>	

<b>Use case name:</b>	Add Stock Qty
<b>Use case ID:</b>	UC-518
<b>Primary actor:</b>	Sales Order Manager
<b>Brief description:</b>	The system will automatically increase the stock when purchasing department staff sent restocked.
<b>Preconditions:</b>	Has receive a re-order request.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The system updates the value of the restocked item.</li> <li>2. The system sent a message to sales order manager and storeman.</li> </ol>
<b>Postconditions:</b>	The stock value has update in the database.
<b>Alternative flow and exception</b>	

## 12.6 User Account Management System



<b>Use case name:</b>	View Login History
<b>Use case ID:</b>	UC-600
<b>Primary actor:</b>	Department Manager, Customer, Staff
<b>Brief description:</b>	The system stores the log in time and date, the user can view all the records.
<b>Preconditions:</b>	Is a registered user.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (UC-617 Log in)</li> <li>2. The system shows the log in history lists to</li> </ol>

	the user.
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	

<b>Use case name:</b>	Add Staff Account
<b>Use case ID:</b>	UC-601
<b>Primary actor:</b>	Department Manager
<b>Brief description:</b>	The department Manager can add and register a new staff account.
<b>Preconditions:</b>	The staff has not registered before.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (UC-617 Log in)</li> <li>2. The system ask user to enter the staff information.</li> <li>3. The user entered staff data.</li> <li>4. The system ask user to confirm the inputted data.</li> <li>5. The user confirmed.</li> <li>6. The system stores the data in to the database.</li> </ol>
<b>Postconditions:</b>	The new account is stored in database and activated.
<b>Alternative flow and exception</b>	In step 3, the user has not entered the necessary information, the system will remind the user.

<b>Use case name:</b>	Set Access Control
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<b>Use case ID:</b>	UC-602
<b>Primary actor:</b>	Department Manager
<b>Brief description:</b>	The department manager can set the access control to each staff account
<b>Preconditions:</b>	The staff account is exists in database and it's on activate status.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (UC-617 Log in)</li> <li>2. Include (UC-607 Found User)</li> <li>3. The user selects user that needs to set access control.</li> <li>4. The system shows a list of permission.</li> <li>5. The user selects the permission.</li> <li>6. The system ask user to confirm the operation.</li> <li>7. The user confirms the operation.</li> <li>8. The change has updated into the database.</li> </ol>
<b>Postconditions:</b>	The changes have been made and updated into the database.
<b>Alternative flow and exception</b>	In step 5, user dose not select any type of the access control, the system will show the message "Please select one permission or cancel operation"

<b>Use case name:</b>	View all Staff Account
<b>Use case ID:</b>	UC-603
<b>Primary actor:</b>	Department Manager
<b>Brief description:</b>	The department manager can view all department's staff account.

<b>Preconditions:</b>	The user has log in into the system.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (UC-617 Log in)</li> <li>2. The user selects a department.</li> <li>3. The system shows a list of the staff in the chosen department.</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	In step 2, the user has not selected any department, the system will return an empty list.

<b>Use case name:</b>	Disable Staff Account
<b>Use case ID:</b>	UC-604
<b>Primary actor:</b>	Department Manager
<b>Brief description:</b>	The department manager can disable staff account. The staff no longer be long in.
<b>Preconditions:</b>	The staff account is on activate status
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (UC-605 Edit user account)</li> <li>2. The system changes the user status to “disabled” and stores in to the database.</li> </ol>
<b>Postconditions:</b>	The status of the staff account is change to “disabled” in the database.
<b>Alternative flow and exception</b>	

<b>Use case name:</b>	Edit user account
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<b>Use case ID:</b>	UC-605
<b>Primary actor:</b>	Department Manager
<b>Brief description:</b>	The department Manager can edit the all the user account in the system.
<b>Preconditions:</b>	The user needs to log in and found a user.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (UC-617 Log in)</li> <li>2. Include (UC-607 Found user)</li> <li>3. If user wants to disable staff's account execute use case UC-604 "Disable Staff Account"</li> <li>4. If user wants to block user execute use case UC-606 "Block User"</li> <li>5. The user changes the account information.</li> <li>6. The system ask user to confirm the operation.</li> <li>7. The user confirmed.</li> <li>8. The system updates the changes in to the database.</li> </ol>
<b>Postconditions:</b>	All the change is stored in the database and effective immediately.
<b>Alternative flow and exception</b>	In step 5, the user has not change anything, the system will show a message "Nothing changed"

<b>Use case name:</b>	Block User
<b>Use case ID:</b>	UC-606
<b>Primary actor:</b>	Department Manager

<b>Brief description:</b>	The department manager can block user's register email or phone number. Thus, new user cannot use it to register an account anymore.
<b>Preconditions:</b>	The user selects to edit user account
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (UC-605 Edit user account)</li> <li>2. The system ask user to confirm the operation.</li> <li>3. The user confirmed.</li> <li>4. The system stores the email and phone in to the blacklist.</li> </ol>
<b>Postconditions:</b>	The phone or email address is stored in the blacklist.
<b>Alternative flow and exception</b>	

<b>Use case name:</b>	Found User
<b>Use case ID:</b>	UC-607
<b>Primary actor:</b>	Department Manager, Staff
<b>Brief description:</b>	The user can find a registered user.
<b>Preconditions:</b>	The department manager or staff wants to edit staff account status, block user, set access control.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The user enters the username or user id.</li> <li>2. The system compares the data with the database.</li> <li>3. The system returns the list of results.</li> </ol>
<b>Postconditions:</b>	

<b>Alternative flow and exception</b>	In step 1, user inputted a wrong id or name, the system shows a message "User not found."
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<b>Use case name:</b>	Create Customer Account
<b>Use case ID:</b>	UC-108
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	The customer can create a new account or a sub-account for their staff.
<b>Preconditions:</b>	The email or phone has no been registered a account.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The user selects "Create Account"</li> <li>2. The system ask user the enter the information.</li> <li>3. The user entered the data.</li> <li>4. If user wants set data provision execute user case UC-610 "Set Data Provision"</li> <li>5. The system asks user to confirm the operation.</li> <li>6. The account is created and stored into the database.</li> </ol>
<b>Postconditions:</b>	The new account has stored in the database.
<b>Alternative flow and exception</b>	In step 3, the user entered wrong type of data or incomplete information, the system will remind the user.

<b>Use case name:</b>	Create Sub-Account
<b>Use case ID:</b>	UC-609

<b>Primary actor:</b>	Customer
<b>Brief description:</b>	The customer can create an account for their employee.
<b>Preconditions:</b>	The user has a customer account.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (UC-608 Create Customer Account)</li> <li>2. The user selects to create sub account.</li> <li>3. Include (UC-617 Log in)</li> <li>4. The system ask user to fill in the user information.</li> <li>5. The user enters the information.</li> <li>6. The system ask user to confirm the operation.</li> <li>7. The account has created and store into the database.</li> </ol>
<b>Postconditions:</b>	The new account has stored in the database.
<b>Alternative flow and exception</b>	In step 5, the user entered wrong type of data or incomplete information, the system will remind the user.

<b>Use case name:</b>	Set Data Provision
<b>Use case ID:</b>	UC-610
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	The user can set the data provision to decides what information to provide.
<b>Preconditions:</b>	The user has a customer account.

<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (UC-608 Create Customer Account)</li> <li>2. The system shows the types of permission for user to select.</li> <li>3. The user selects the permissions.</li> <li>4. The system ask user to confirm the operation.</li> </ol>
<b>Postconditions:</b>	The information has stored in the database.
<b>Alternative flow and exception</b>	In step 03, the user does not select any type of the permission the system will automatically selects all and show

<b>Use case name:</b>	Edit Profile
<b>Use case ID:</b>	UC-611
<b>Primary actor:</b>	Staff, Customer
<b>Brief description:</b>	The user can edit their profile.
<b>Preconditions:</b>	The user has an account and logs in the system.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (UC-617 Log in)</li> <li>2. The user selects the information that needs to change.</li> <li>3. The user changes the data.</li> <li>4. The system ask user to confirm the change.</li> <li>5. The system updates the change into the database.</li> </ol>
<b>Postconditions:</b>	The changed information has stored in the database.
<b>Alternative flow and exception</b>	In step 3, the user entered wrong type of data

	or incomplete information, the system will remind the user.
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<b>Use case name:</b>	Modify information
<b>Use case ID:</b>	UC-612
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	The customer can modify their information, to select the payment method or manage the delivery address.
<b>Preconditions:</b>	The user has an account.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (UC-617 Log in)</li> <li>2. The user can select the information that needs to change.</li> <li>3. If the user wants to select payment address executes use case UC-613 “Select Payment Method”</li> <li>4. If the user wants to manage delivery address execute use case UC-614 “Manage Delivery Address.”</li> <li>5. The user entered the data.</li> <li>6. The system ask user to confirm the data.</li> <li>7. The system stores the changes into the database.</li> </ol>
<b>Postconditions:</b>	The system stores the changes into the database
<b>Alternative flow and exception</b>	In step 5, the user entered wrong type of data or incomplete information, the system will remind the user.

<b>Use case name:</b>	Select Payment Method
<b>Use case ID:</b>	UC-613
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	The user can select a payment method as default.
<b>Preconditions:</b>	The user has an account and logs in the system.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The system shows the payment method.</li> <li>2. The user selects one payment method as default.</li> <li>3. The system updates the change into the database.</li> </ol>
<b>Postconditions:</b>	The default payment method has update in the database.
<b>Alternative flow and exception</b>	In step 2, if user dose not select one of the payment methods, the system will choose the one that user last time used.

<b>Use case name:</b>	Manage Delivery Address
<b>Use case ID:</b>	UC-614
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	The user can add or delete delivery address and set one as default.
<b>Preconditions:</b>	The user has an account and logs in the system.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The user clicks “add address”</li> </ol>

	<ol style="list-style-type: none"> <li>2. The system ask user to input the detail.</li> <li>3. The user inputted the data.</li> <li>4. The system ask user to select an address as default.</li> <li>5. The change has stored in the database.</li> </ol>
<b>Postconditions:</b>	The new address and default address has stored in the database.
<b>Alternative flow and exception</b>	In step 4, the system set the new address as default if the user has not selected one.

<b>Use case name:</b>	Delete Account
<b>Use case ID:</b>	UC-615
<b>Primary actor:</b>	Customer
<b>Brief description:</b>	The customer can delete their account and a notification will send to the sales manager.
<b>Preconditions:</b>	The customer has a registered account.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (UC-617 Log in)</li> <li>2. The user clicks “delete account”</li> <li>3. The system ask user to confirm the operation.</li> <li>4. The user confirmed the operation.</li> <li>5. The customer account and information has removed in the database.</li> </ol>
<b>Postconditions:</b>	The customer account and information has deleted in the database.
<b>Alternative flow and exception</b>	

<b>Use case name:</b>	Show Notification
<b>Use case ID:</b>	UC-616
<b>Primary actor:</b>	Sales Manager
<b>Brief description:</b>	If a customer deletes their account a notification will send to the user.
<b>Preconditions:</b>	A customer deletes their account.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (UC-615 Delete Account)</li> <li>2. The system will send a message to the sales manager “IDXXXX has deleted”</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	

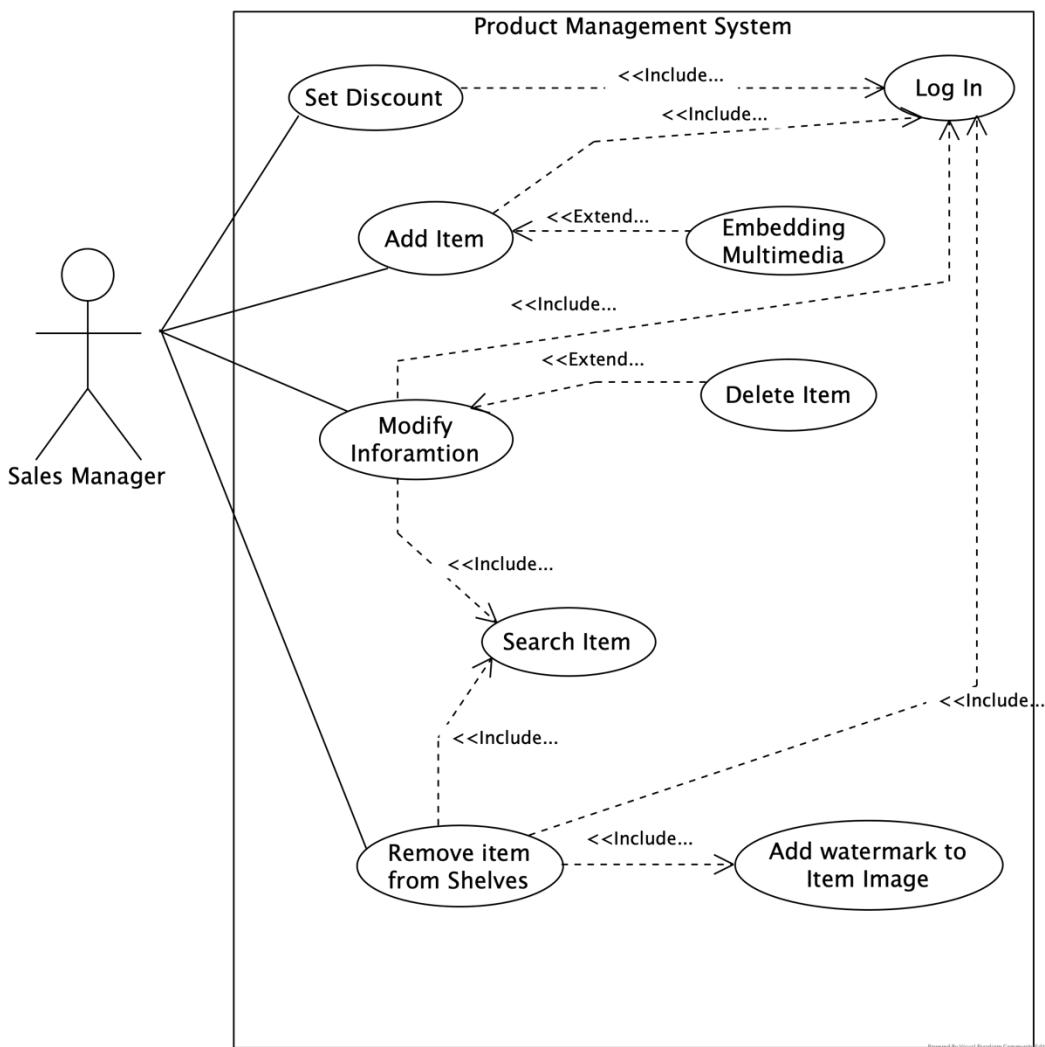
<b>Use case name:</b>	Log in
<b>Use case ID:</b>	UC-617
<b>Primary actor:</b>	Department Manager, Customer, Staff
<b>Brief description:</b>	User can log in to the system.
<b>Preconditions:</b>	The user wants to View login history, set control access, add staff account, view all staff account, edit account status, edit profile, modify information, recovery password, update password.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The user enters the username and password.</li> <li>2. If user forget the password execute use case UC-619 “Recovery Password”</li> </ol>

	<ol style="list-style-type: none"> <li>3. The system compares the data with the one store in the database.</li> <li>4. If user wants to update the password execute use case UC-618 “Update password”</li> <li>5. The user logs in the system.</li> </ol>
<b>Postconditions:</b>	The log in date and time has stored in the database.
<b>Alternative flow and exception</b>	In step 1-2, if the user entered wrong username or password, the system would show the message “Incorrect username or password”

<b>Use case name:</b>	Update Password
<b>Use case ID:</b>	UC-618
<b>Primary actor:</b>	Department Manager, Customer, Staff
<b>Brief description:</b>	The user has not changed their password for a period.
<b>Preconditions:</b>	The user has logged in the system.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (UC-617 Log in)</li> <li>2. The system ask user to enter the new password twice.</li> <li>3. The user enters the password twice.</li> <li>4. The new password has update into the database.</li> </ol>
<b>Postconditions:</b>	The new password has updated in the database.
<b>Alternative flow and exception</b>	In step 3, if the user entered password is not match, the system will remind the user to reenter the password.

<b>Use case name:</b>	Recovery Password
<b>Use case ID:</b>	UC-619
<b>Primary actor:</b>	Department Manager, Customer, Staff
<b>Brief description:</b>	The user log in the system but forget their password.
<b>Preconditions:</b>	The user forgets their password when log in.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (UC-617 Log in)</li> <li>2. The system ask user to enter the email or phone to check whether the account owner.</li> <li>3. The system compares the data in the database.</li> <li>4. The system ask user to enter the new password twice.</li> <li>5. The user entered the new password twice.</li> <li>6. The account password has updated to the new one.</li> </ol>
<b>Postconditions:</b>	The new password has updated in the database.
<b>Alternative flow and exception</b>	In step 5, if the user entered password is not match, the system will remind the user to reenter the password.

## 12.7 Product Management System



<b>Use case name:</b>	Add item
<b>Use case ID:</b>	UC-700
<b>Primary actor:</b>	Sales Manager
<b>Brief description:</b>	The user can add item to the on-sales database.
<b>Preconditions:</b>	
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (UC-702 Log in)</li> <li>2. The system ask user to input the information of the product.</li> <li>3. The user input the data.</li> </ol>

	<p>4. If user want to embed multimedia execute UC-701 “Embedding Multimedia”</p> <p>5. The system adds the product in to the database.</p>
<b>Postconditions:</b>	The new item is adding to the database.
<b>Alternative flow and exception</b>	In step 3, User has not input the necessary data, the system will remind user to fill in.

<b>Use case name:</b>	Embedding Multimedia
<b>Use case ID:</b>	UC-701
<b>Primary actor:</b>	Sales Manager
<b>Brief description:</b>	The user can add multimedia to each item in the item description.
<b>Preconditions:</b>	The item has exists in the database.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The user selects a type of multimedia.</li> <li>2. The system ask user to upload the file.</li> <li>3. The user uploaded the file.</li> <li>4. The system stores the file.</li> </ol>
<b>Postconditions:</b>	The system stores the file that user has uploaded.
<b>Alternative flow and exception</b>	In step 3, the user uploads a unsupported file format, the system will show a message “Unsupported format” and let user update a new one.

<b>Use case name:</b>	Log in
<b>Use case ID:</b>	UC-702
<b>Primary actor:</b>	Sales Manager
<b>Brief description:</b>	The user can log in to the system.
<b>Preconditions:</b>	The user wants to set discount, add item, modify information, remove item from shelves.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The system ask user to input the username and password.</li> <li>2. The system compares the one in the database and user inputted data.</li> <li>3. The user log in the system.</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	In step 2, the user inputted the incorrect username or password, the system will show a message “Incorrect username and password”

<b>Use case name:</b>	Modify Information
<b>Use case ID:</b>	UC-703
<b>Primary actor:</b>	Sales Manager
<b>Brief description:</b>	The user can modify the item information.
<b>Preconditions:</b>	The item has exists in the database.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (UC-702 Log in)</li> <li>2. Include (UC-706 Search item)</li> <li>3. The user selects an item from the result</li> </ol>

	<ol style="list-style-type: none"> <li>4. If user wants to delete item execute user case UC-704 “Delete Item”.</li> <li>5. The user updates the item information.</li> <li>6. The system ask user to confirm the changes.</li> <li>7. The system updates the item in the database.</li> </ol>
<b>Postconditions:</b>	The changes have updated into the database
<b>Alternative flow and exception</b>	In step 4, the user entered wrong data type or out of range, the system will remind user to fill in the proper information.

<b>Use case name:</b>	Delete Item
<b>Use case ID:</b>	UC-704
<b>Primary actor:</b>	Sales Manager
<b>Brief description:</b>	The user can delete the item from the on-sale product.
<b>Preconditions:</b>	The item has exits in the database.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (UC-703 Modify Information)</li> <li>2. The user selects an item that needs to delete.</li> <li>3. The system ask user to confirm the operation.</li> <li>4. The item status has change to “Not available”</li> </ol>
<b>Postconditions:</b>	The item status in the database has change to “Not available”

<b>Alternative flow and exception</b>	
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<b>Use case name:</b>	Set Discount
<b>Use case ID:</b>	UC-705
<b>Primary actor:</b>	Sales Manager
<b>Brief description:</b>	The user can set discount to all the on-sale product or when the total price reaches a certain amount.
<b>Preconditions:</b>	
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (UC-702 Log in)</li> <li>2. The user selects a discount type.</li> <li>3. The user inputs the percentage or the price that will have a discount.</li> <li>4. The system ask user to confirm the operation.</li> <li>5. The discount is set and store in database.</li> </ol>
<b>Postconditions:</b>	The discount is store in the database.
<b>Alternative flow and exception</b>	In step 2, the user inputted the number is out of range, the system will remind user.

<b>Use case name:</b>	Search Item
<b>Use case ID:</b>	UC-706
<b>Primary actor:</b>	Sales Manager
<b>Brief description:</b>	The user can search item.

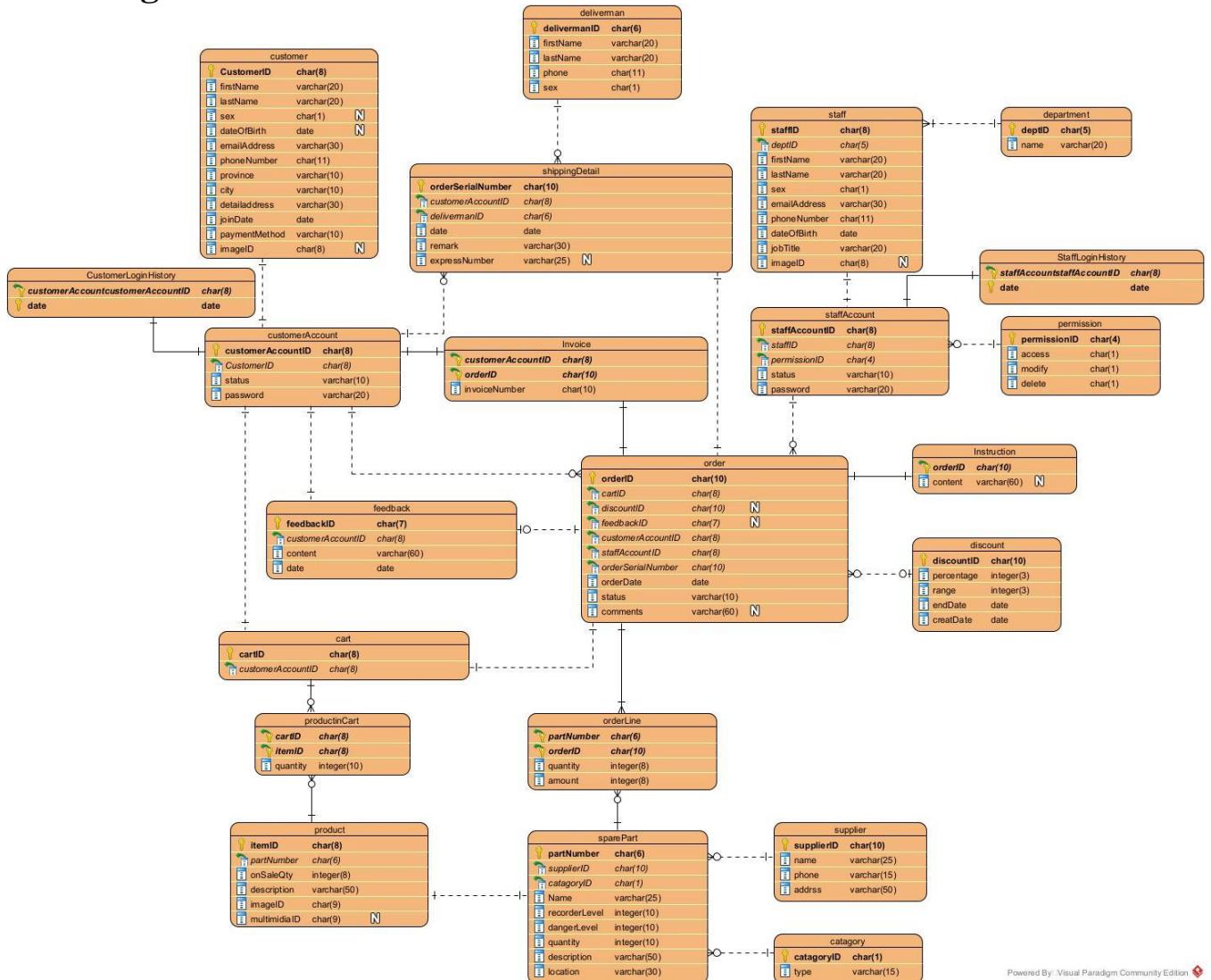
<b>Preconditions:</b>	The item has exists in the database.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. The user enters the item name or item</li> <li>2. The system compares it in the database.</li> <li>3. The system returns the list of results.</li> </ol>
<b>Postconditions:</b>	
<b>Alternative flow and exception</b>	In step 1, the user input a unknow item or wrong item name, the system will show a message “Item not found”

<b>Use case name:</b>	Remove From Shelves
<b>Use case ID:</b>	UC-707
<b>Primary actor:</b>	Sales Manager
<b>Brief description:</b>	The user can remove the item if no long to be sales.
<b>Preconditions:</b>	The item has exists in the database.
<b>Flow of events:</b>	<ol style="list-style-type: none"> <li>1. Include (UC-706 Search Item)</li> <li>2. Include (UC-702 Log in)</li> <li>3. The user selects the item</li> <li>4. The system ask user to confirm the operation</li> <li>5. The status of the item has change to “Takeoff”</li> </ol>
<b>Postconditions:</b>	The status of the item has changed to “Takeoff”
<b>Alternative flow and exception</b>	

<b>Use case name:</b>	Add watermark to Item Image
<b>Use case ID:</b>	UC-708
<b>Primary actor:</b>	Sales Manager
<b>Brief description:</b>	The system will add a watermark to the image when it was removed from the shelves.
<b>Preconditions:</b>	The item has removed from the shelves and in “Takeoff” status.
<b>Flow of events:</b>	1. The watermark has added to the image
<b>Postconditions:</b>	The watermark is added to the image of the item.
<b>Alternative flow and exception</b>	

# 13. Entity Relationship Diagram

## 13.1 Diagram



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## 13.2 Database Design

Table: order

Column Name	Data Type	Key?	Null?	Description
orderID	char(10)	PK	Not Null	The order ID
cartID	char(8)	FK	Not Null	Refer to cart.cartID
discountID	char(10)	FK	Null	Refer to discount.discountID
feedbackID	char(7)	FK	Null	Refer to feedback.feedbackID
customerAccountID	char(8)	FK	Not Null	Refer to customerAccount.customerAccountID
staffAccountID	char(8)	FK	Not Null	Refer to staffAccount.staffAccountID
orderSerialNumber	char(10)	FK	Not Null	Refer to shippingDetail.orderSerialNumber
orderDate	date	/	Not Null	The date the order placed
status	varchar(10)	/	Not Null	The status of the order(Confirmed/Rejected/In Progress/Delivered/Ready to Deliver)
comments	varchar(60)	/	Null	The comment made by customer

Table: orderLine

Column Name	Data Type	Key?	Null?	Description
partNumber	char(6)	PK/FK	Not Null	Refer to sparePart.partNumber
orderID	char(10)	PK/FK	Not Null	Refer to order.orderID
quantity	integer(8)	/	Not Null	Quantity of each spare part ordered
amount	integer(8)	/	Not Null	Subtotal price for each spare part ordered

Table: sparePart

<b>Column Name</b>	<b>Data Type</b>	<b>Key?</b>	<b>Null?</b>	<b>Description</b>
partNumber	char(6)	PK	Not Null	The unique identification of each spare part
supplierID	char(10)	FK	Not Null	Refer to supplier.supplierID
categoryID	char(1)	FK	Not Null	Refer to category.category.categoryID
name	varchar(25)	/	Not Null	The name of the spare part
reorderLevel	integer(10)	/	Not Null	The reorder level of the spare part
dangerLevel	integer(10)	/	Not Null	The danger level of the spare part
quantity	integer(10)	/	Not Null	The remaining quantity of the spare part
description	varchar(50)	/	Not Null	The description of the spare part
location	varchar(30)	/	Not Null	The location of the spare part

Table: supplier

<b>Column Name</b>	<b>Data Type</b>	<b>Key?</b>	<b>Null?</b>	<b>Description</b>
supplierID	char(10)	PK	Not Null	The unique identification of the supplier
name	varchar(25)	/	Not Null	The name of the supplier
phone	varchar(15)	/	Not Null	The phone number of the supplier
address	varchar(50)	/	Not Null	The address of the supplier

Table: category

<b>Column Name</b>	<b>Data Type</b>	<b>Key?</b>	<b>Null?</b>	<b>Description</b>
categoryID	char(1)	PK	Not Null	The unique identification of the category
type	varchar(15)	/	Not Null	The type of the category (Sheet Metal, Major Assemblies, Light Components and Accessories)

Table: product

<b>Column Name</b>	<b>Data Type</b>	<b>Key?</b>	<b>Null?</b>	<b>Description</b>
itemID	char(8)	PK	Not Null	The unique identification of the spare part that present to customer
partNumber	char(6)	FK	Not Null	Refer to sparePart.partNumber
onSaleQty	integer(8)	/	Not Null	The quantity that available to customer
description	varchar(50)	/	Not Null	The description of the item
imageID	char(9)	/	Not Null	The image of the item
multimediaID	char(9)	/	Null	The multimedia of the item

Table: productInCart

<b>Column Name</b>	<b>Data Type</b>	<b>Key?</b>	<b>Null?</b>	<b>Description</b>
cartID	char(8)	PK/FK	Not Null	Refer to cart.CartID
itemID	char(8)	PK/FK	Not Null	Refer to product.itemID
quantity	integer(10)	/	Not Null	The quantity of the item in cart

Table: cart

Column Name	Data Type	Key?	Null?	Description
cartID	char(8)	PK/	Not Null	The unique identification of the cart
customerAccountID	char(8)	FK	Not Null	Refer to customerAccount.customerAccountID

Table: feedback

Column Name	Data Type	Key?	Null?	Description
feedbackID	char(7)	PK	Not Null	The unique identification of the feedback
customerAccountID	char(8)	FK	Not Null	Refer to customerAccount.customerAccountID
content	varchar(60)	/	Not Null	The feedback content
date	date	/	Not Null	The date of the feedback

Table: instruction

Column Name	Data Type	Key?	Null?	Description
orderID	char(10)	PK/FK	Not Null	Refer to order.orderID
content	varchar(60)	/	Null	The instruction content

Table: discount

Column Name	Data Type	Key?	Null?	Description
discountID	char(10)	PK	Not Null	The unique identification of the discount
percentage	integer(3)	/	Not Null	The discount percentage

range	integer(3)	/	Not Null	The range that the discount can be used
endDate	date	/	Not Null	The date that the discount no longer available
createDate	date	/	Not Null	The date that the discount created

Table: invoice

Column Name	Data Type	Key?	Null?	Description
customerAccountID	char(8)	PK/FK	Not Null	Refer to customerAccount.customerAccountID
orderID	char(10)	PK/FK	Not Null	Refer to order.orderID
invoiceNumber	char(10)	/	Not Null	The invoice number

Table: staffAccount

Column Name	Data Type	Key?	Null?	Description
staffAccountID	char(8)	PK	Not Null	The unique identification of the staff account
staffID	char(8)	FK	Not Null	Refer to staff.staffID
permissionID	char(4)	FK	Not Null	Refer to permission.permissionID
status	varchar(10)	/	Not Null	The status of the account (active/disabled)
password	varchar(20)	/	Not Null	The password of the account

Table: customerAccount

Column Name	Data Type	Key?	Null?	Description

customerAccountID	char(8)	PK	Not Null	The unique identification of the customer account
customerID	char(8)	FK	Not Null	Refer to customer.customerID
status	varchar(10)	/	Not Null	The status of the account (active/disabled)
password	varchar(20)	/	Not Null	The password of the account

Table: permission

Column Name	Data Type	Key?	Null?	Description
permissionID	char(4)	PK	Not Null	The unique identification of the permission
access	char(1)	/	Not Null	Access right (Y/N)
modify	char(1)	/	Not Null	Modify right (Y/N)
delete	char(1)	/	Not Null	Delete right (Y/N)

Table: department

Column Name	Data Type	Key?	Null?	Description
deptID	char(5)	PK	Not Null	The unique identification of the department
name	varchar(20)	/	Not Null	The name of the department

Table: staff

Column Name	Data Type	Key?	Null?	Description
staffID	char(8)	PK	Not Null	The unique identification of the staff
deptID	varchar(5)	FK	Not Null	Refer to department.deptID

firstName	varchar(20)	/	Not Null	The first name of the staff
lastName	varchar(20)	/	Not Null	The last name of the staff
sex	char(1)	/	Not Null	The sex of the staff (M/F)
emailAddress	varchar(30)	/	Not Null	The email address of the staff
phoneNumber	char(11)	/	Not Null	The phone number of the staff
dateOfBirth	date	/	Not Null	The date of birth of the staff
jobTitle	varchar(20)	/	Not Null	The job title of the staff
imageID	char(8)	/	Null	The image of the staff

Table: customer

Column Name	Data Type	Key?	Null?	Description
customerID	char(8)	PK	Not Null	The unique identification of the customer
firstName	varchar(20)	/	Not Null	The first name of the customer
lastName	varchar(20)	/	Not Null	The last name of the customer
sex	char(1)	/	Null	The sex of the customer (M/F)
dateOfBirth	date	/	Null	The date of birth of the customer
emailAddress	varchar(30)	/	Not Null	The email address of the customer
phoneNumber	char(11)	/	Not Null	The phone number of the customer
province	varchar(10)	/	Not Null	The province that the customer located
city	varchar(10)	/	Not Null	The city that the customer located

detailAddress	varchar(30)	/	Not Null	The full address of the customer
joinDate	date	/	Not Null	The date that the customer become a customer
paymentMethod	varchar(10)	/	Not Null	The default payment method
imageID	char(8)	/	Null	The image of the customer

Table: deliverman

Column Name	Data Type	Key?	Null?	Description
delivermanID	char(6)	PK	Not Null	The unique identification of the deliverman
firstName	varchar(20)	/	Not Null	The first name of the deliverman
lastName	varchar(20)	/	Not Null	The last name of the deliverman
phone	char(11)	/	Not Null	The phone number of the deliverman
sex	char(1)	/	Not Null	The sex of the deliverman (M/F)

Table: shippingDetail

Column Name	Data Type	Key?	Null?	Description
orderSerialNumber	char(10)	PK	Not Null	The LM serial number of the order
customerAccountID	char(8)	FK	Not Null	Refer to customerAccount.customerAccountID
delivermanID	char(6)	FK	Not Null	Refer to deliverman.deliverymanID
date	date	/	Not Null	The date of delivery
remark	varchar(30)	/	Not Null	Remark when deliver

expressNumber	varchar(25)	/	Null	The delivery number
---------------	-------------	---	------	---------------------

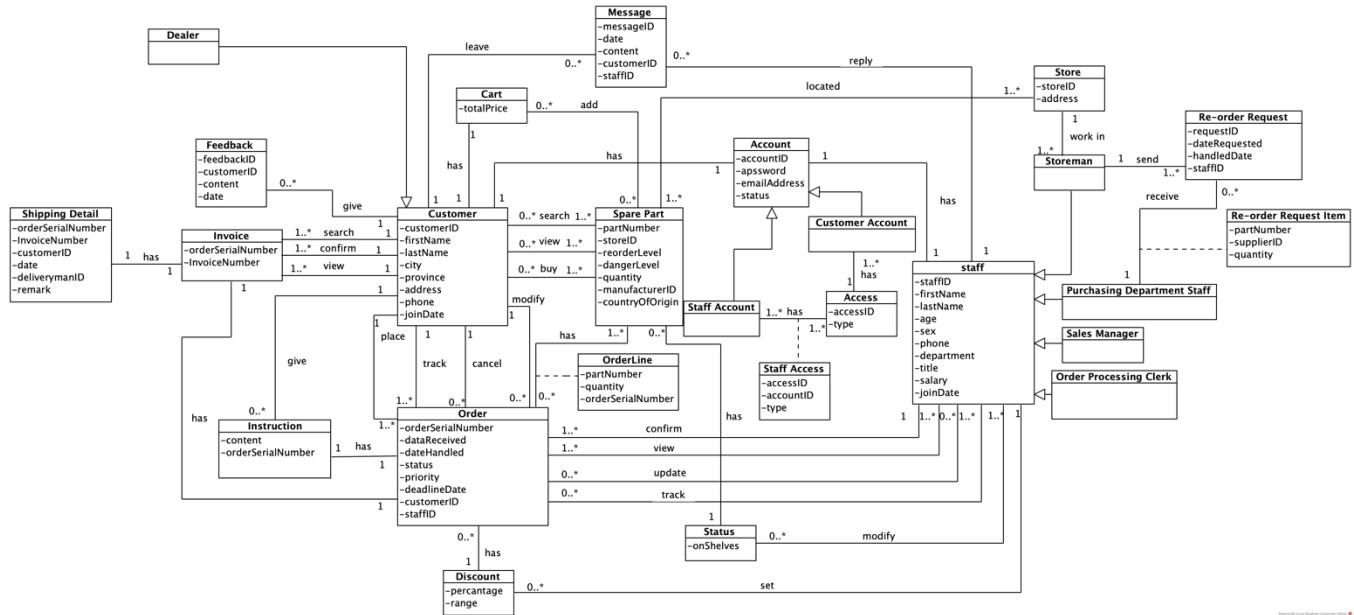
Table: customerLoginHistory

Column Name	Data Type	Key?	Null?	Description
customerAccountID	char(8)	PK/FK	Not Null	Refer to customerAccount.customerAccountID
date	date	PK	Not Null	Stores the user login date

Table: staffLoginHistory

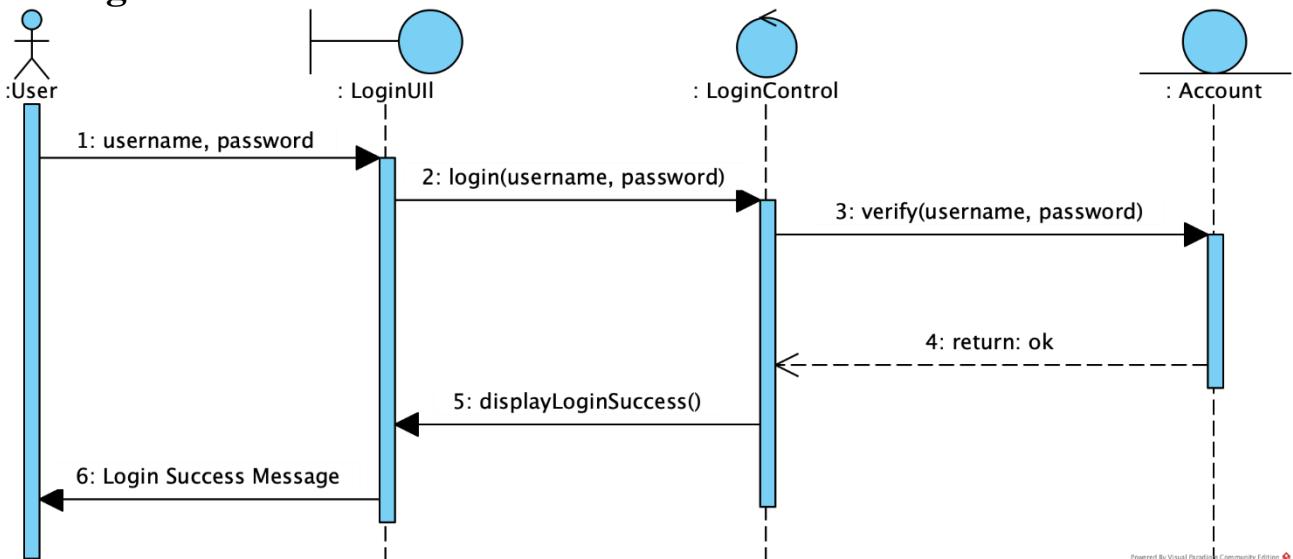
Column Name	Data Type	Key?	Null?	Description
staffAccountID	char(8)	PK/FK	Not Null	Refer to staffAccount.staffAccountID
date	date	PK	Not Null	Stores the user login date

# 14. Class Diagram

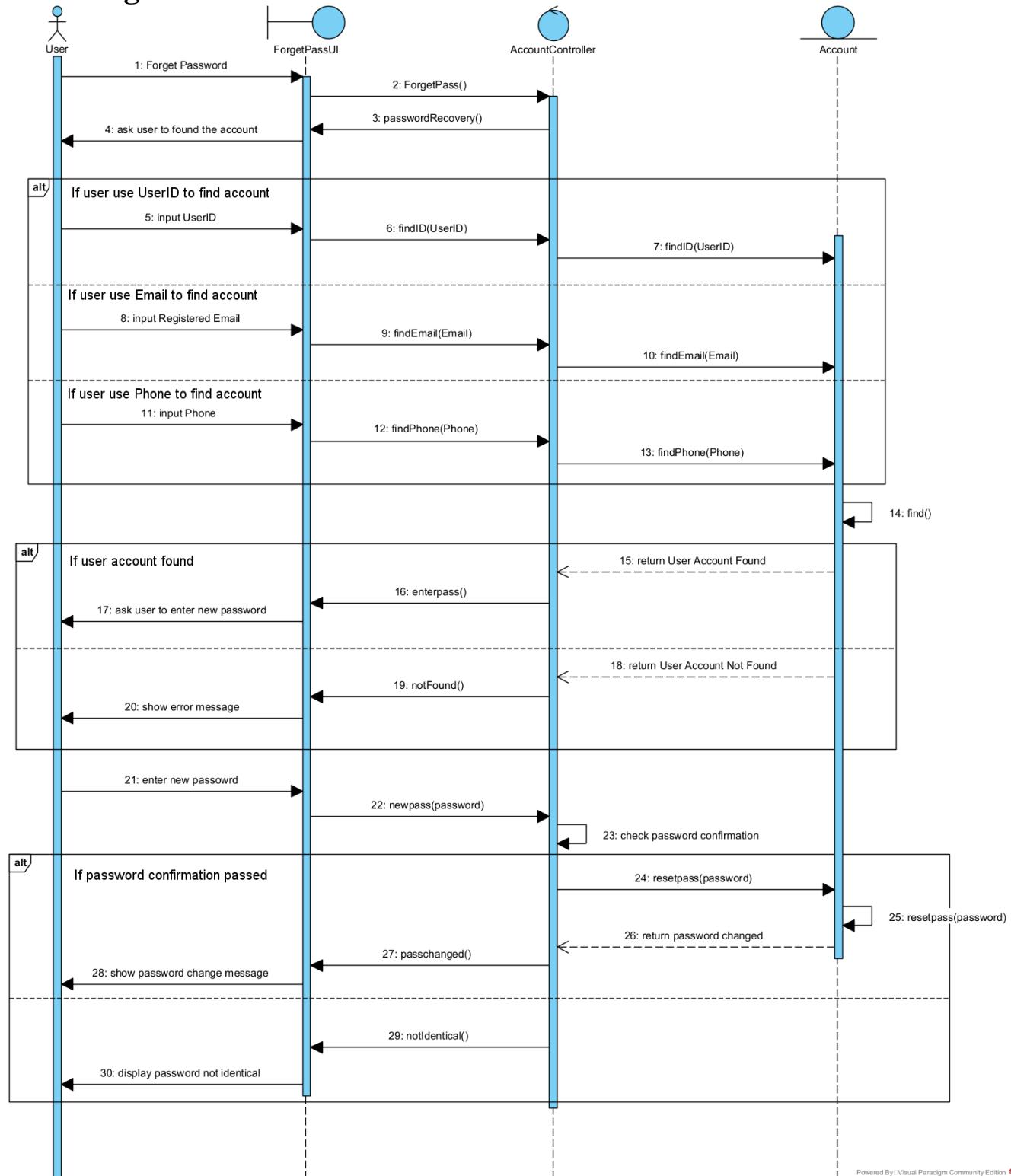


# 15. Sequence Diagram

## 15.1 Login

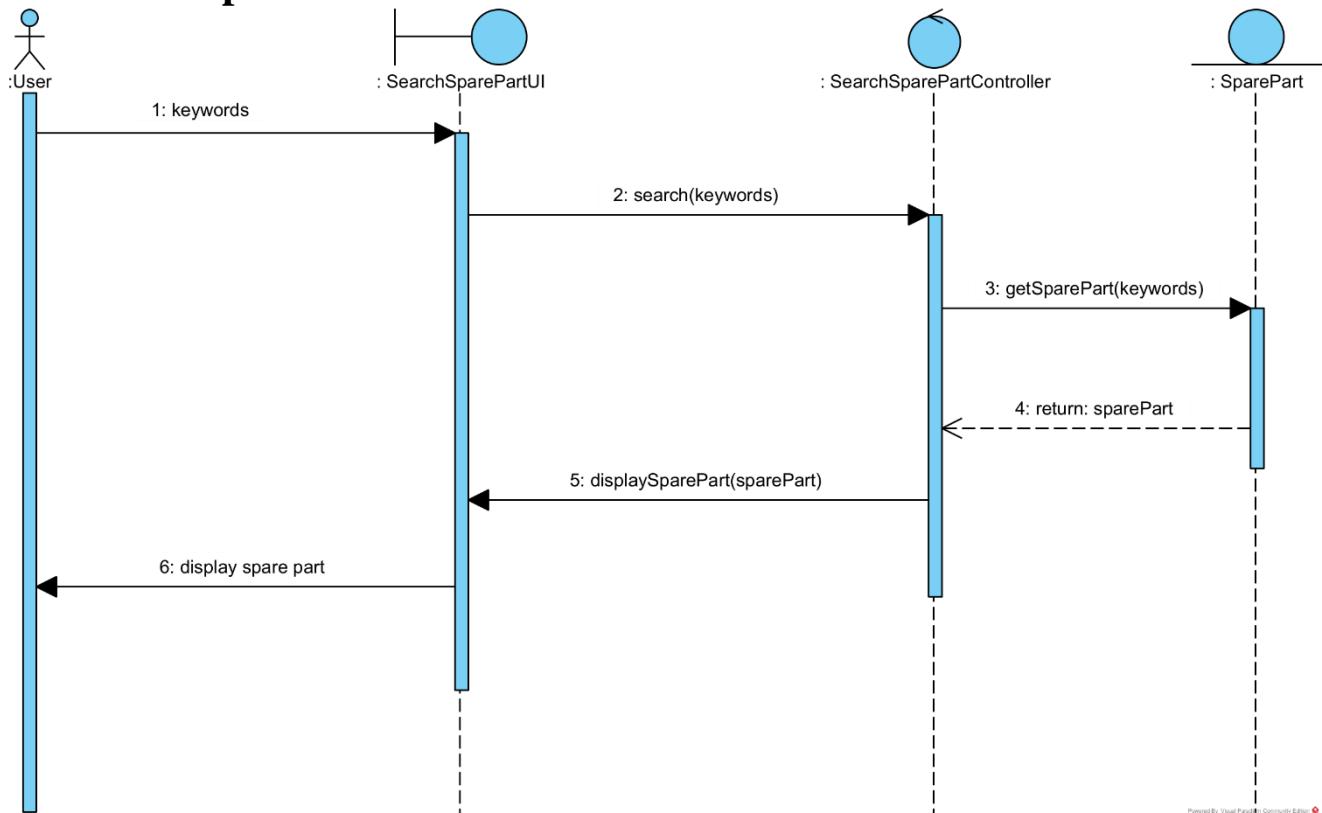


## 15.2 Forget Password

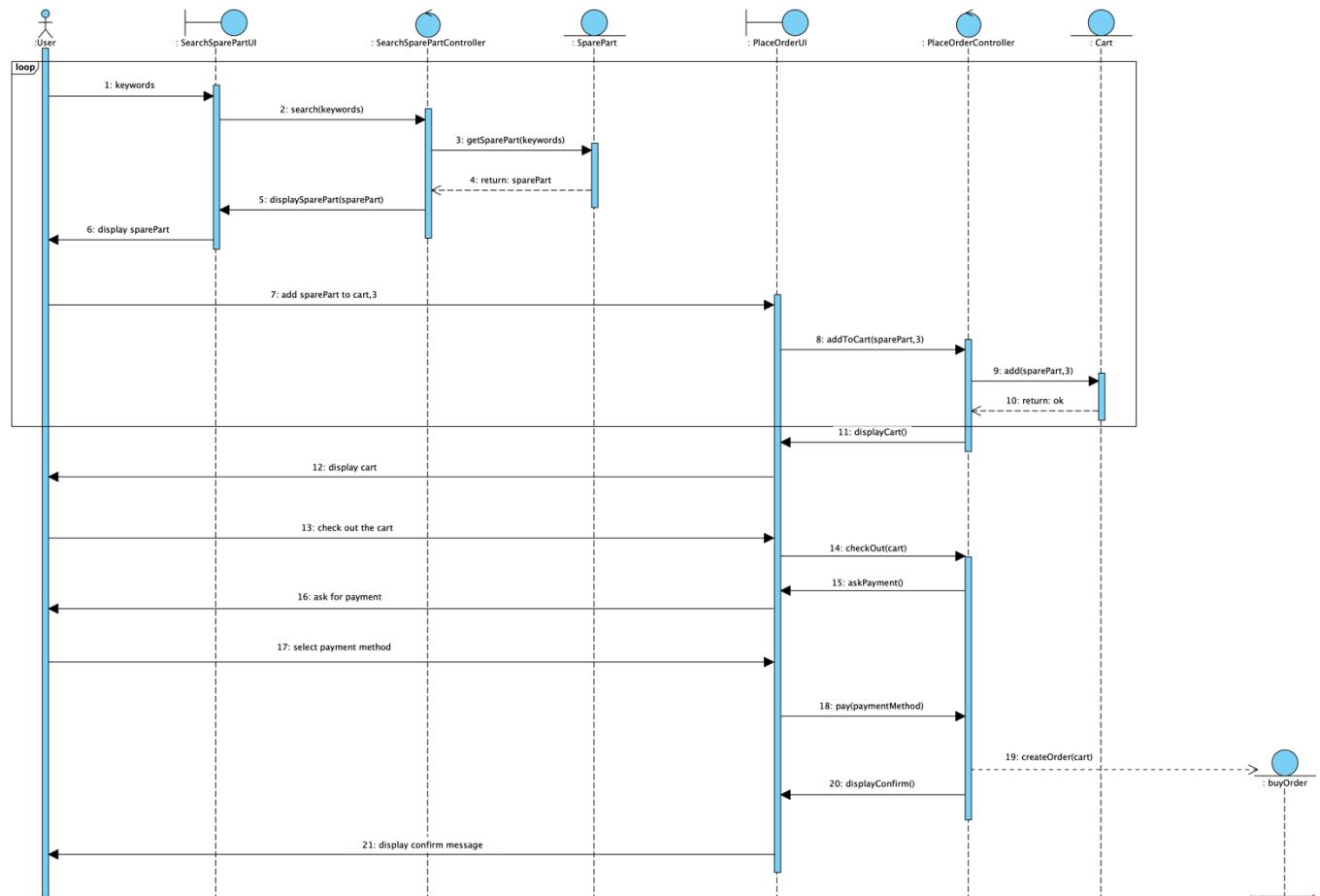


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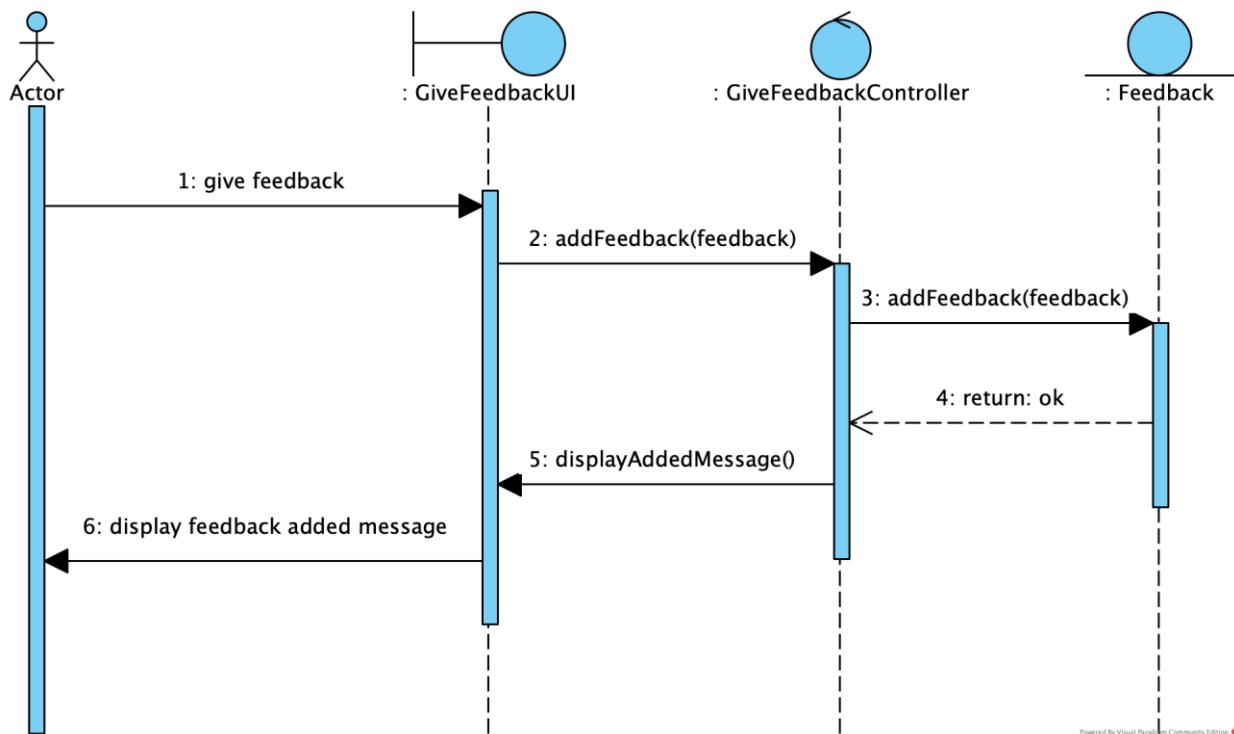
## 15.3 Search Spare Part



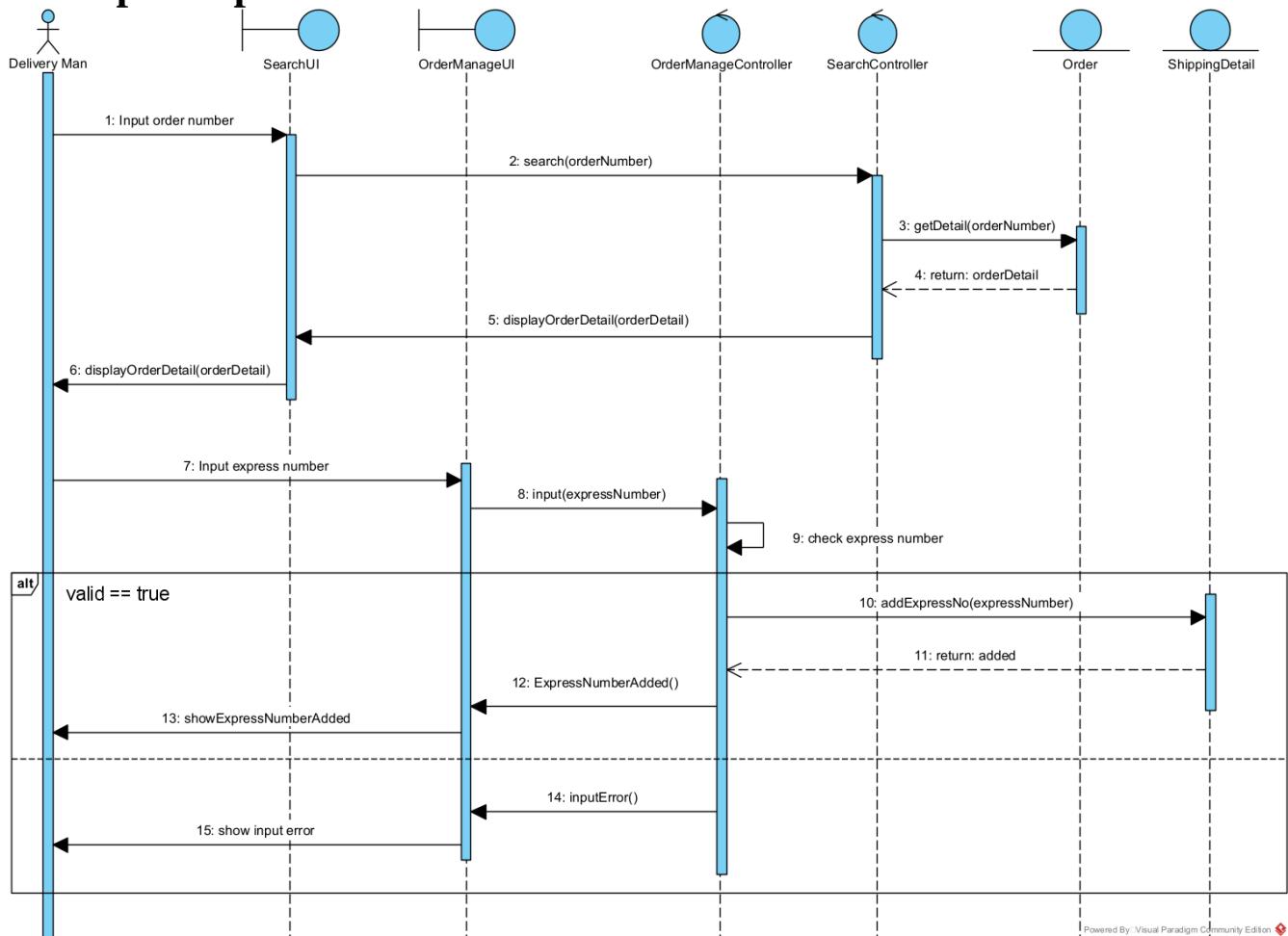
## 15.4 Place Order



## 15.5 Give Feedback



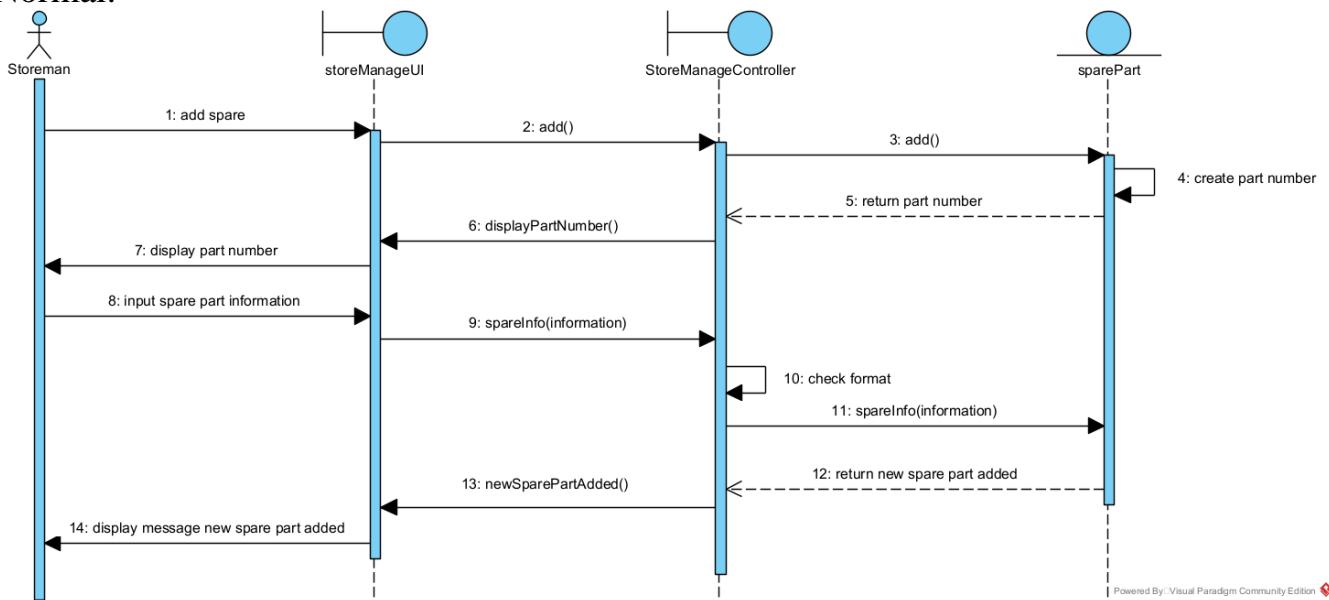
## 15.6 Input Express Number



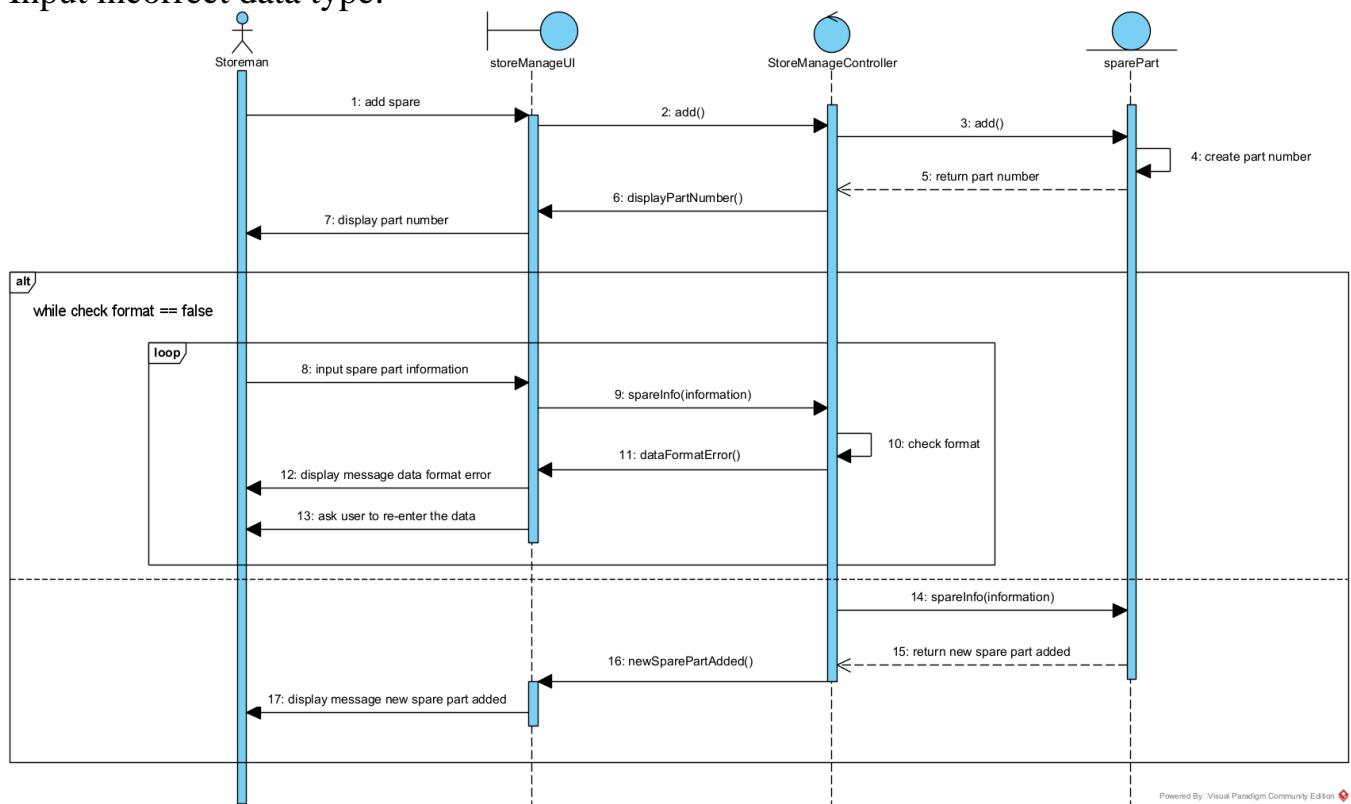
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## 15.7 Add new spare parts

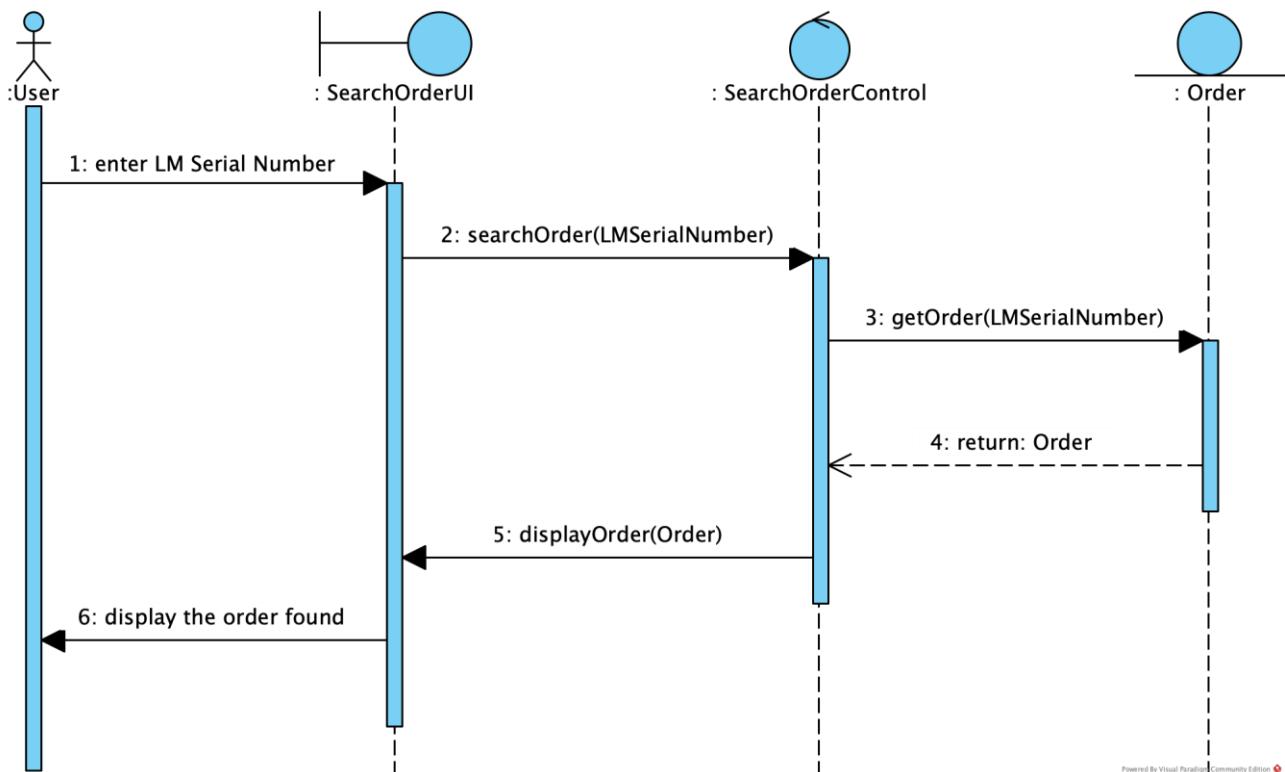
Normal:



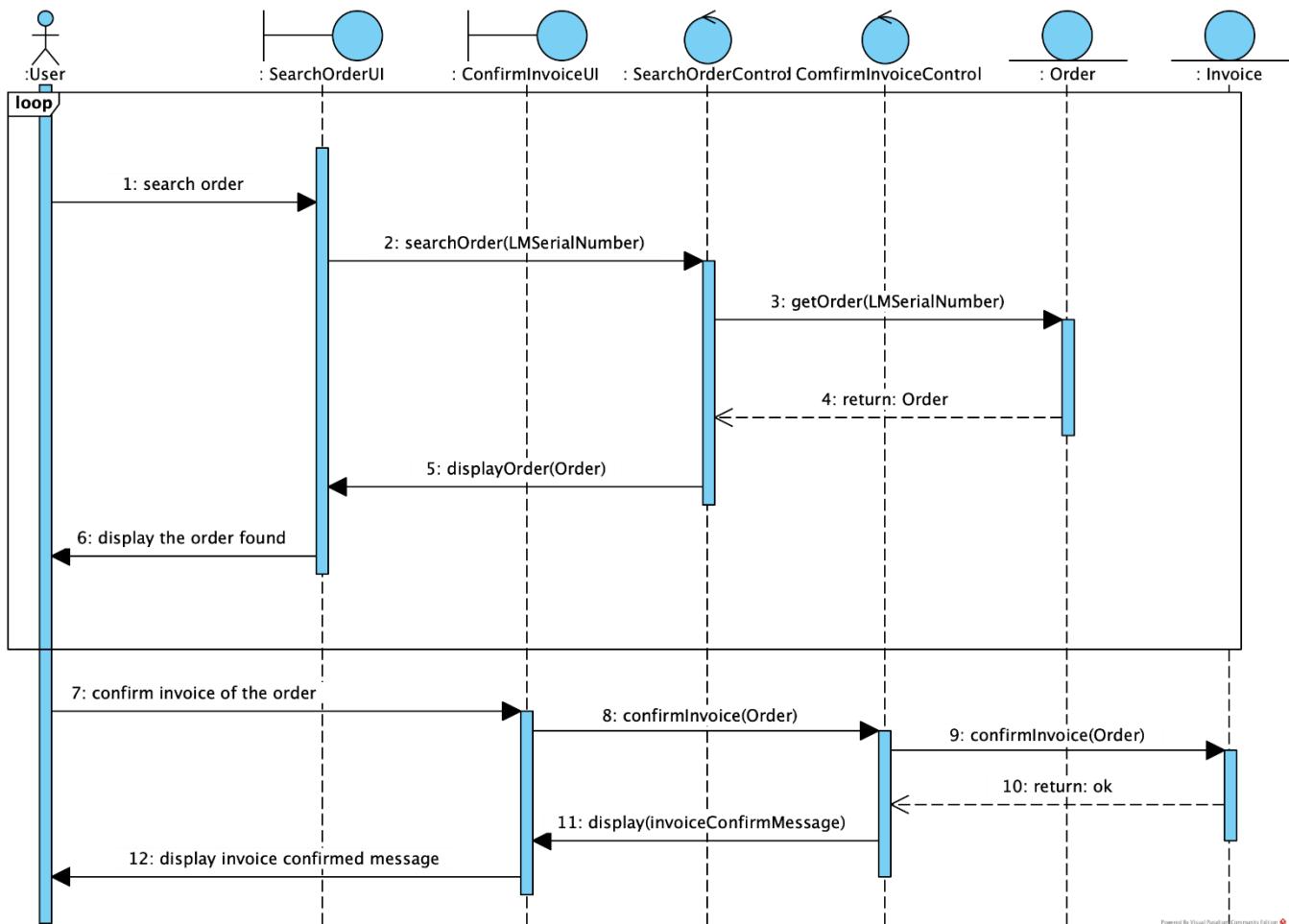
Input incorrect data type:



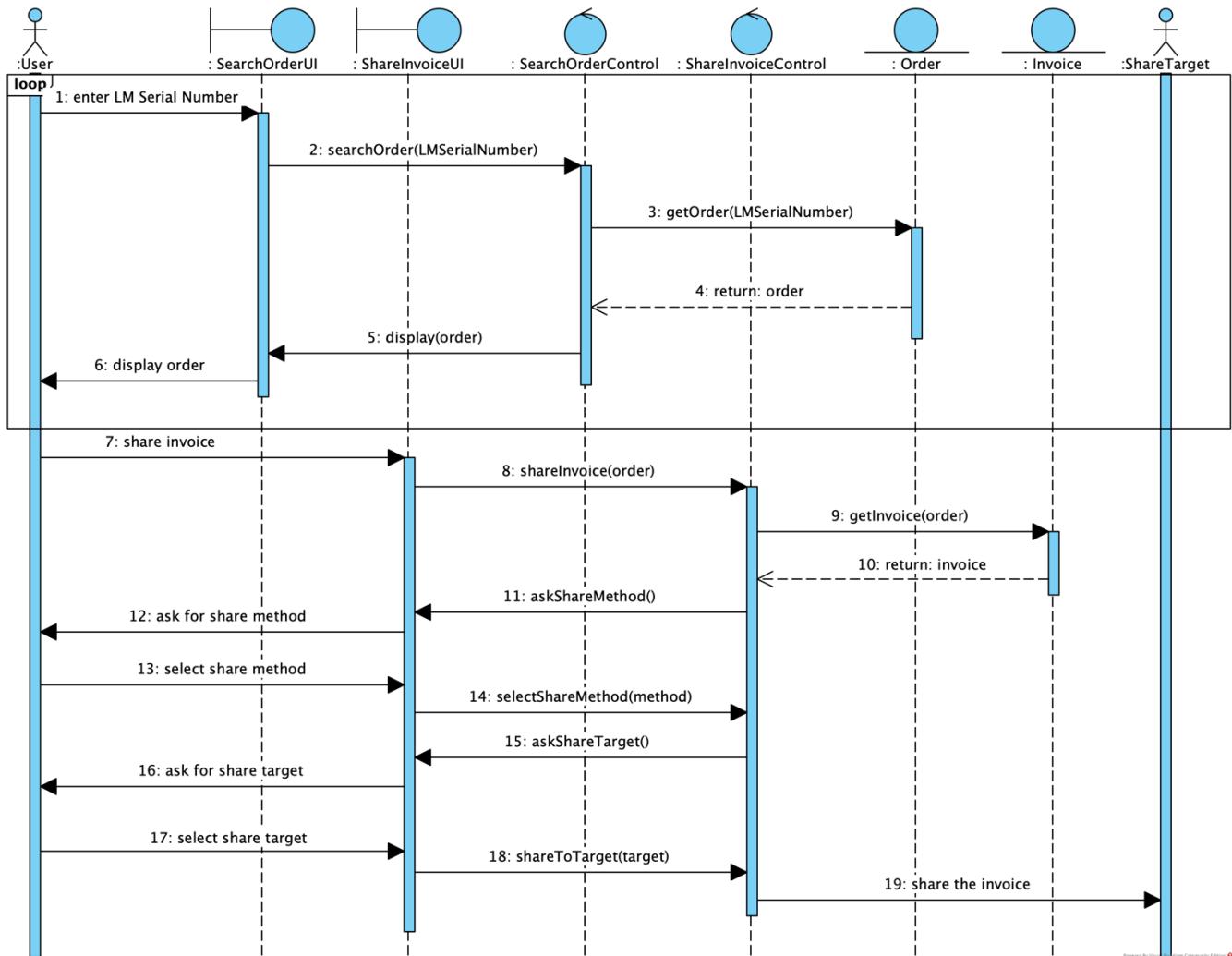
## 15.8 Search Order



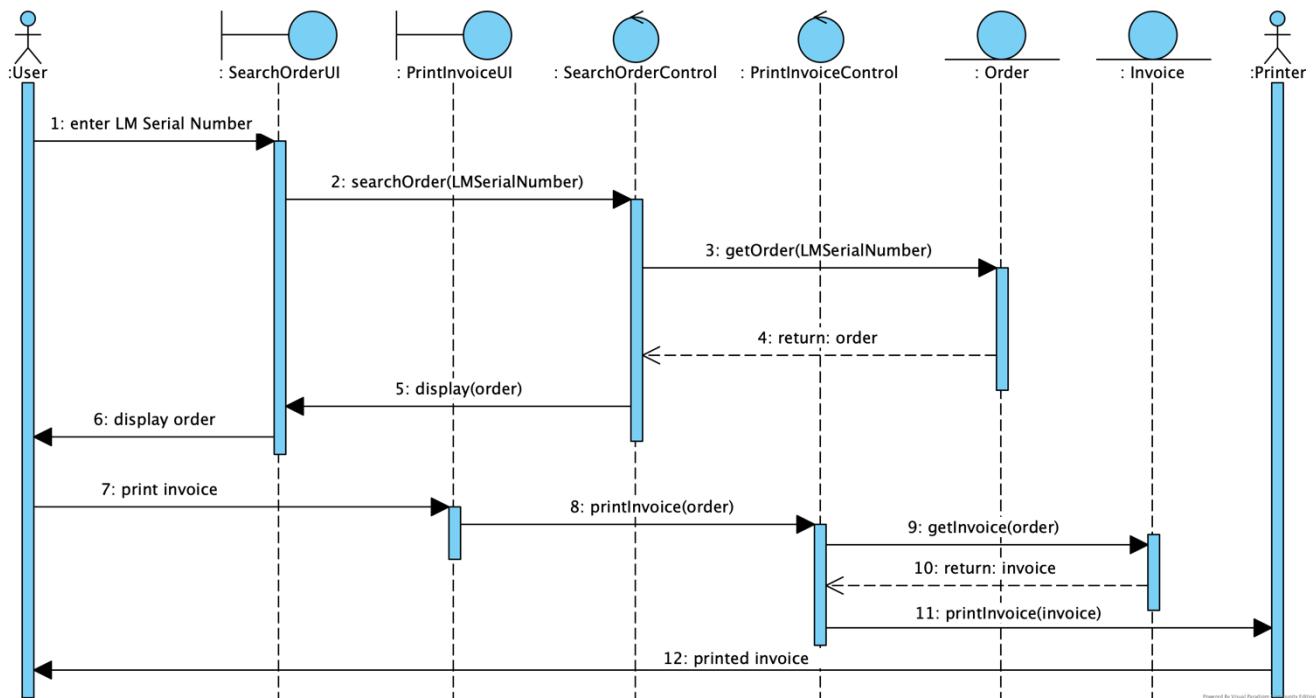
## 15.9 Confirm Invoice



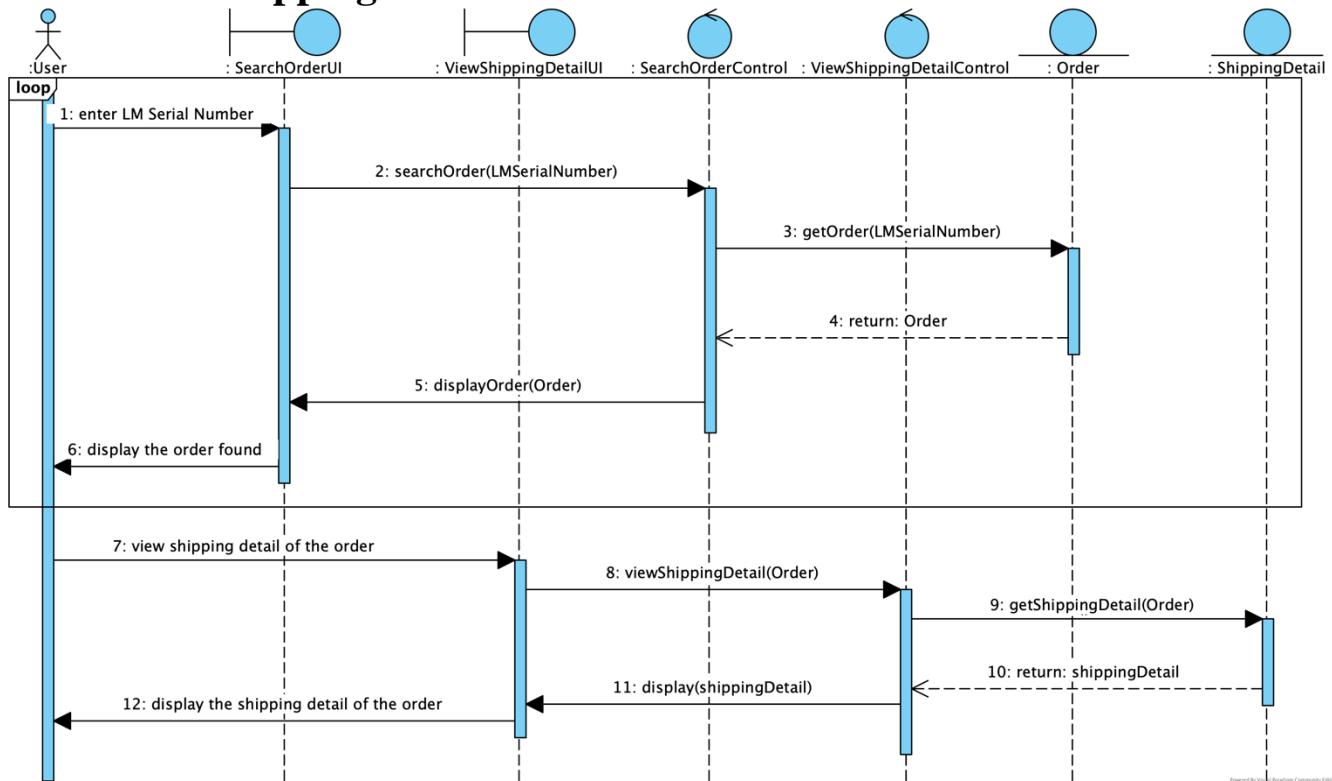
## 15.10 Share Invoice



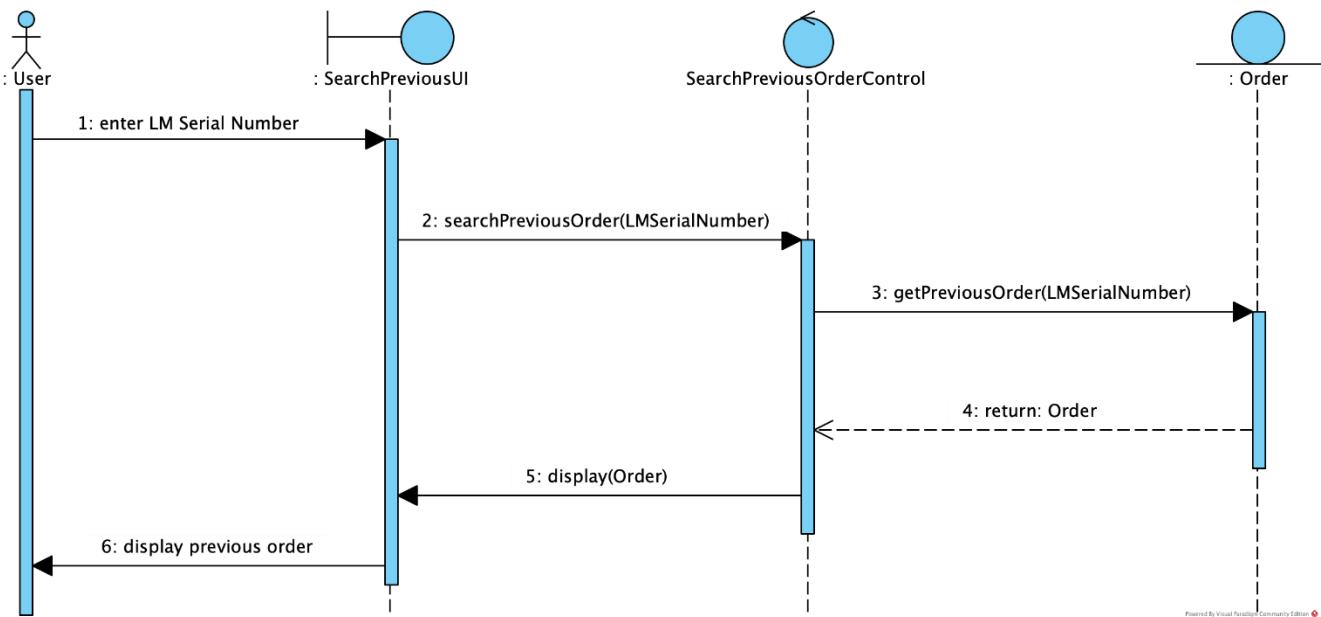
## 15.11 Print Invoice



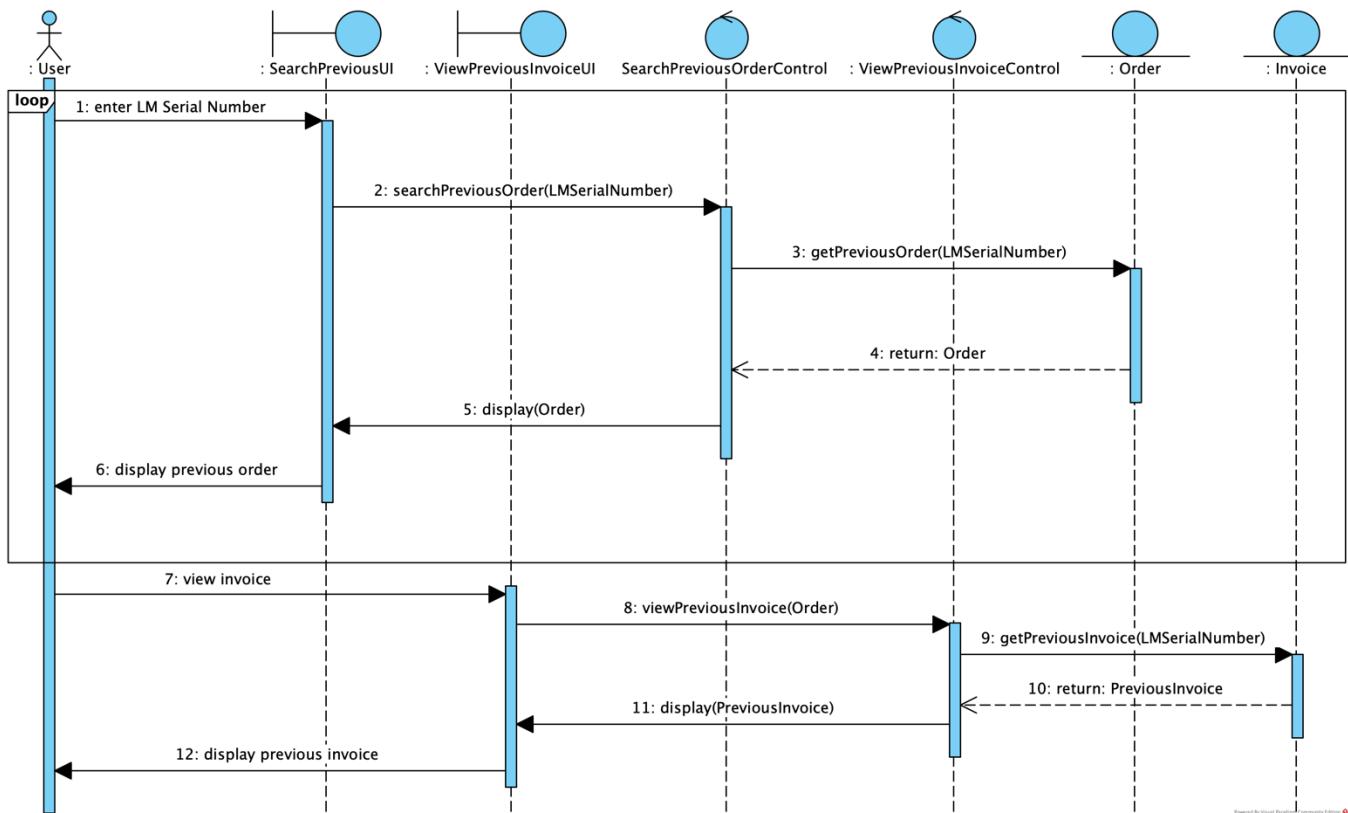
## 15.12 View Shipping Details



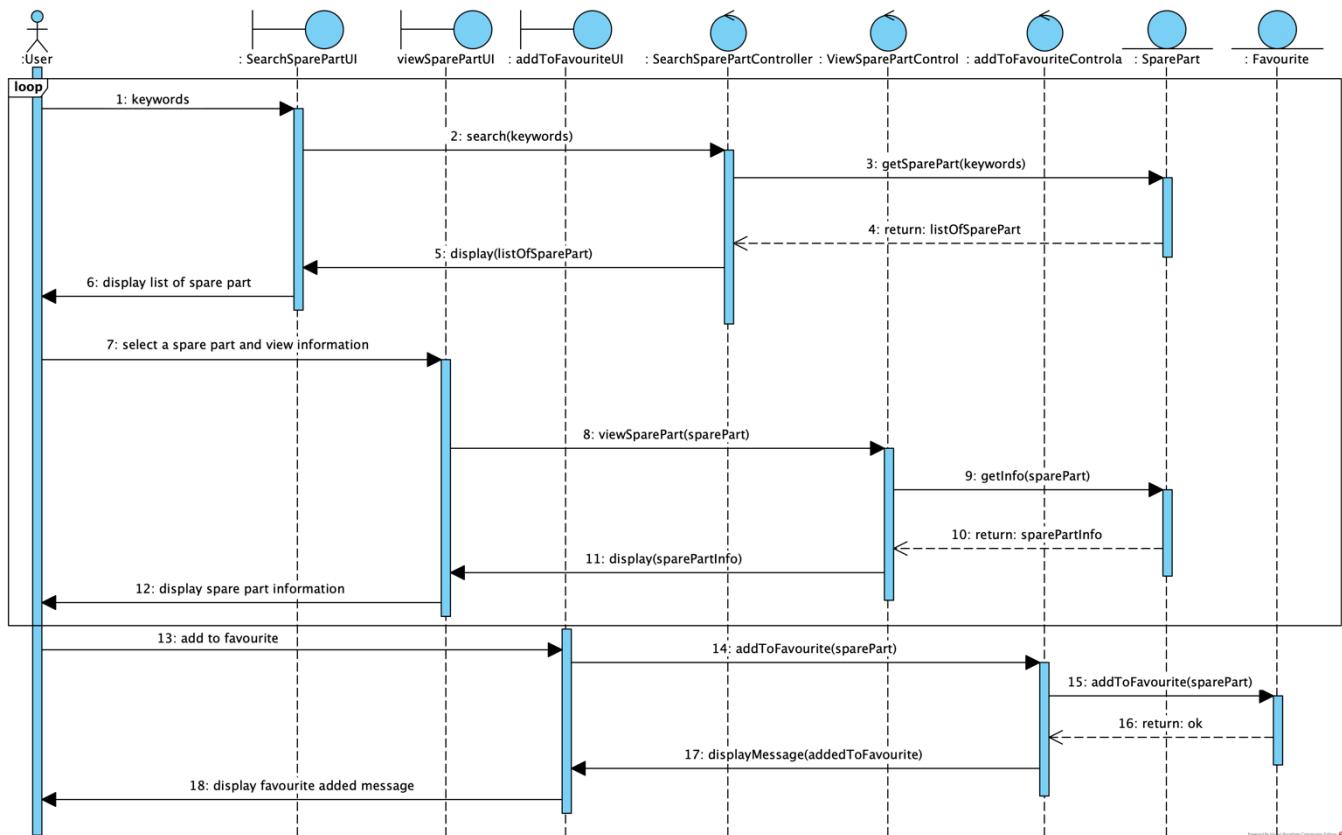
## 15.13 Search Previous Order

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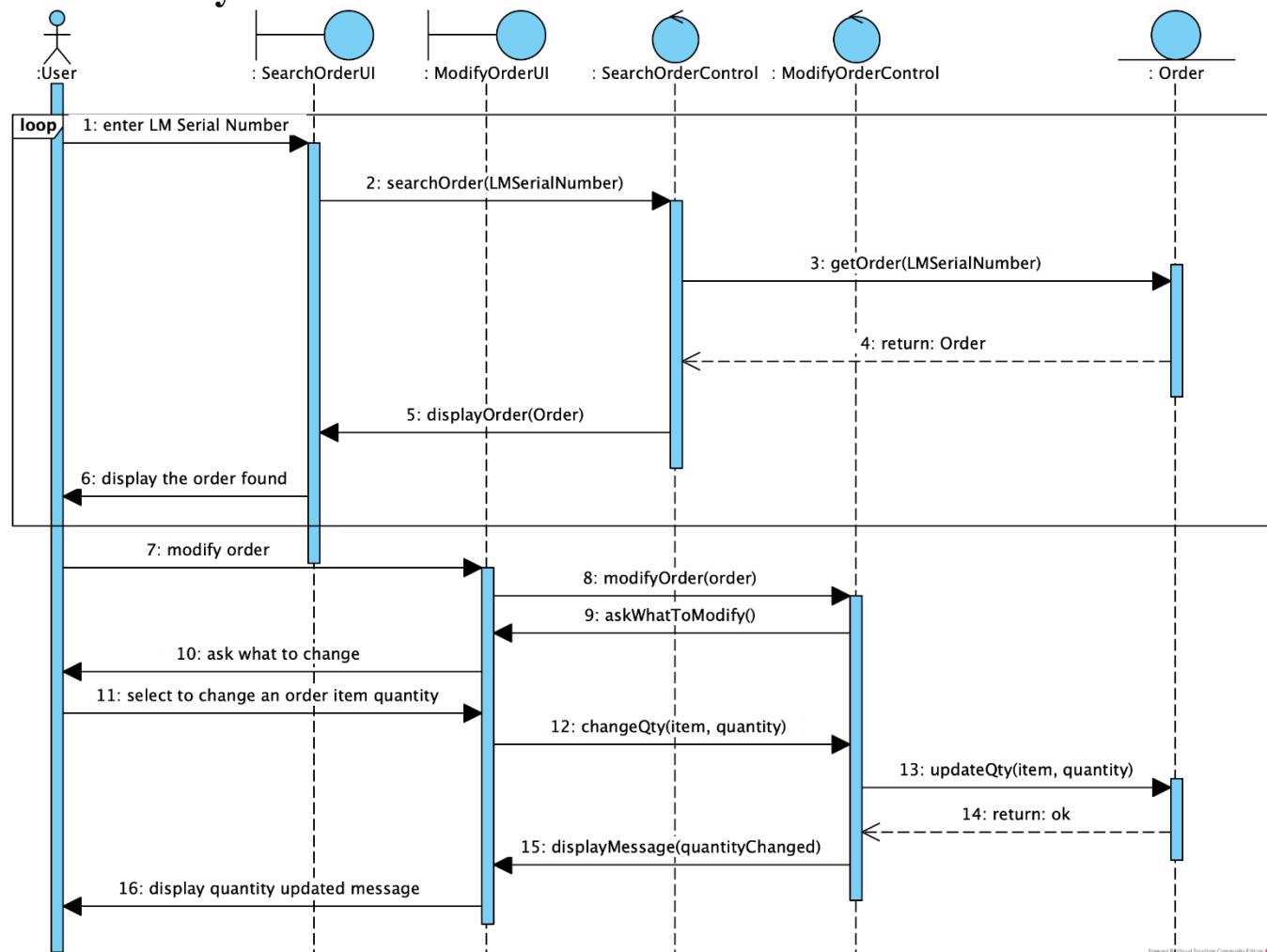
## 15.14 View Previous Invoice



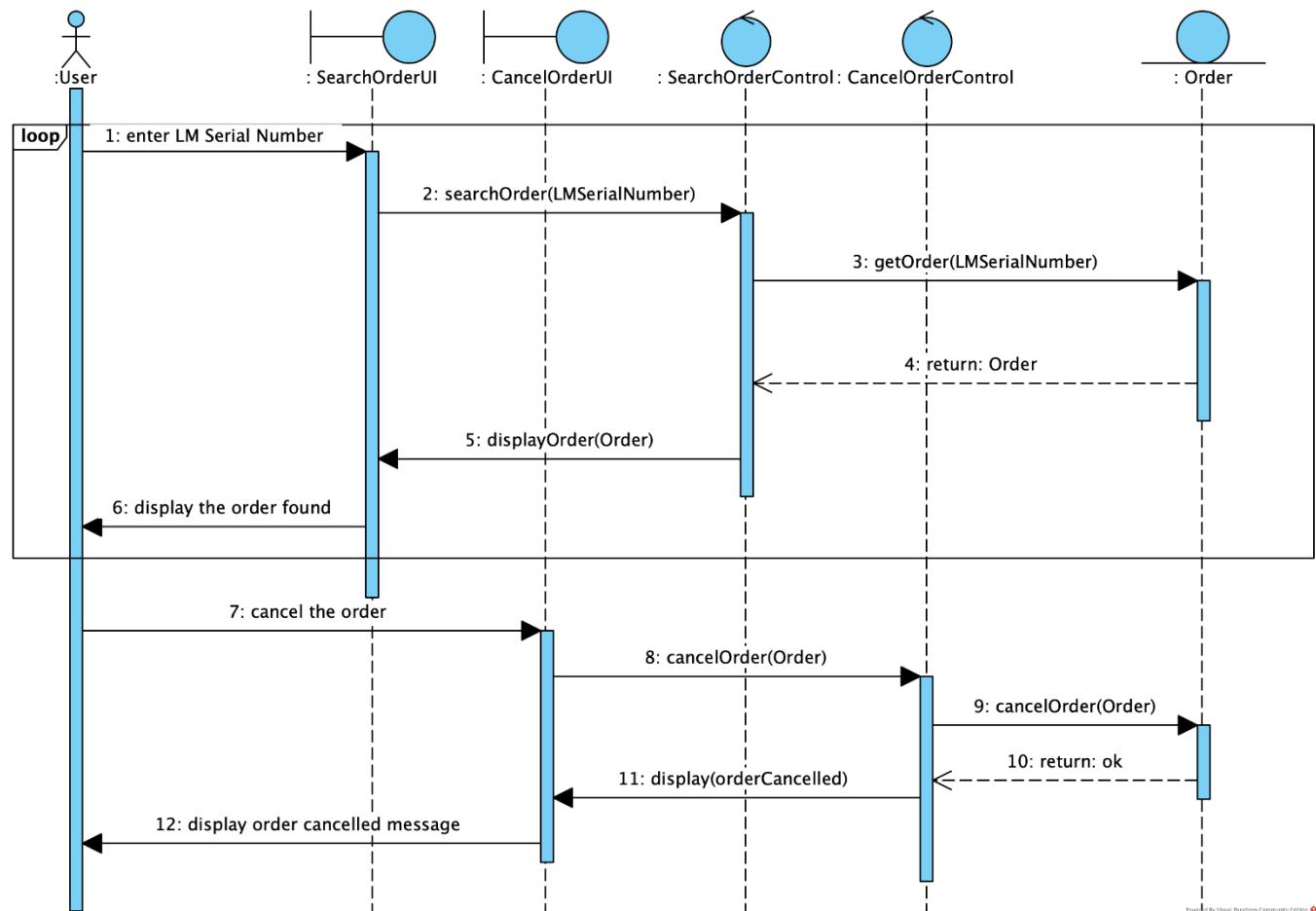
## 15.15 Add to Favorite



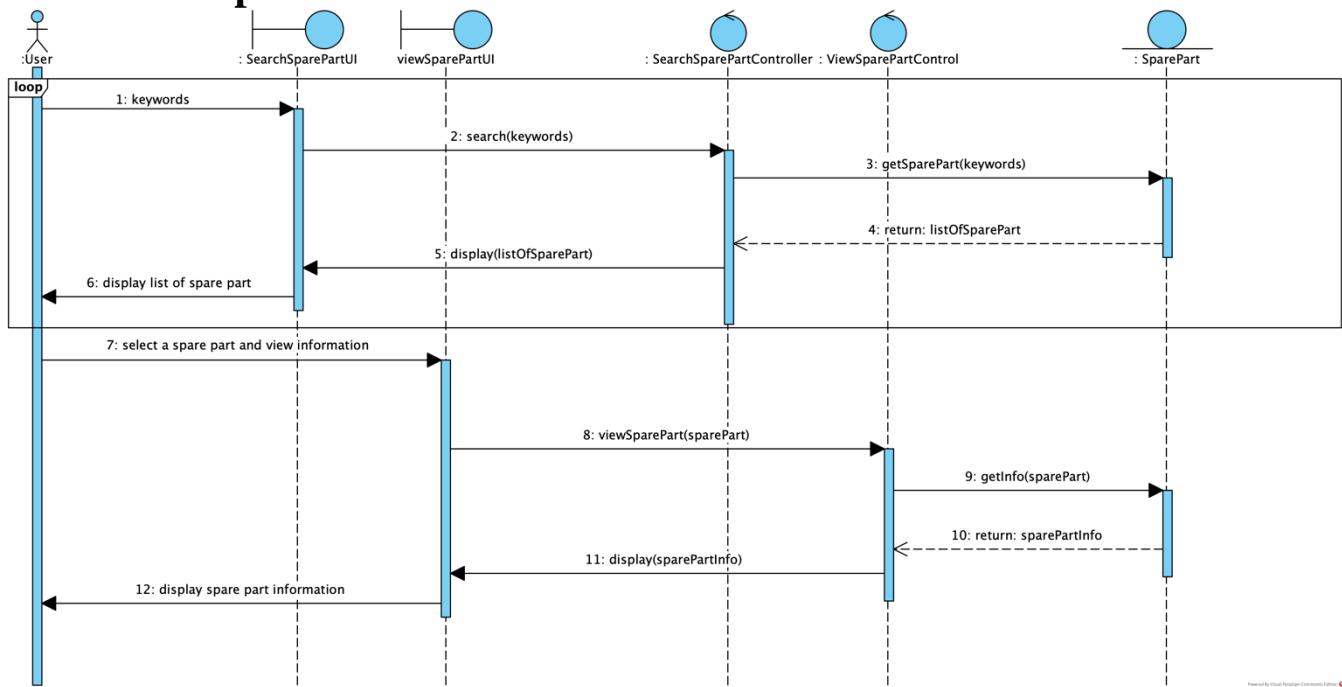
## 15.16 Modify Order



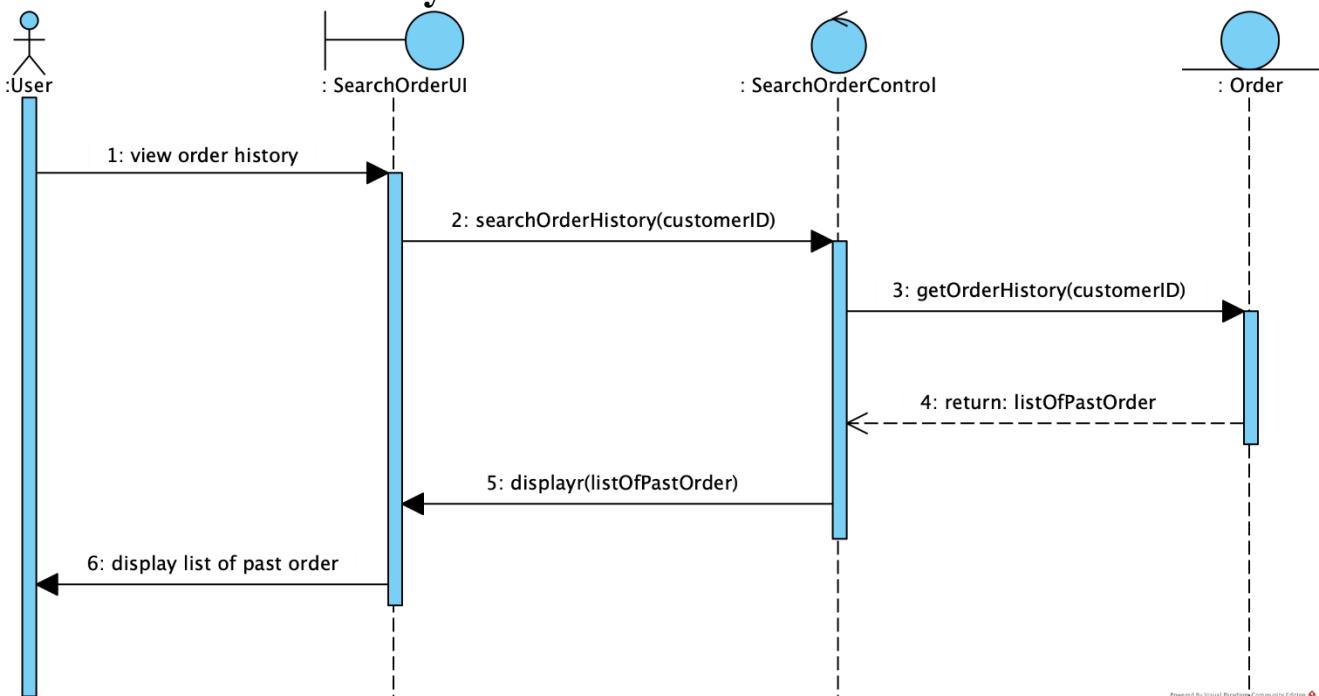
## 15.17 Cancel Order



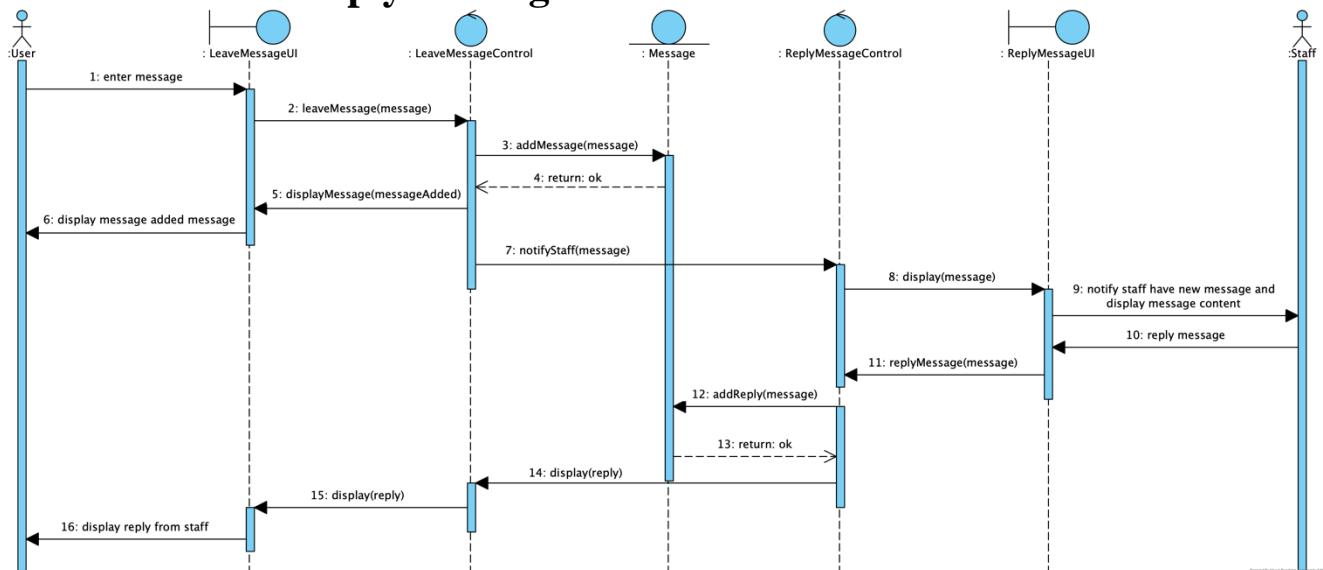
## 15.18 View Spare Part



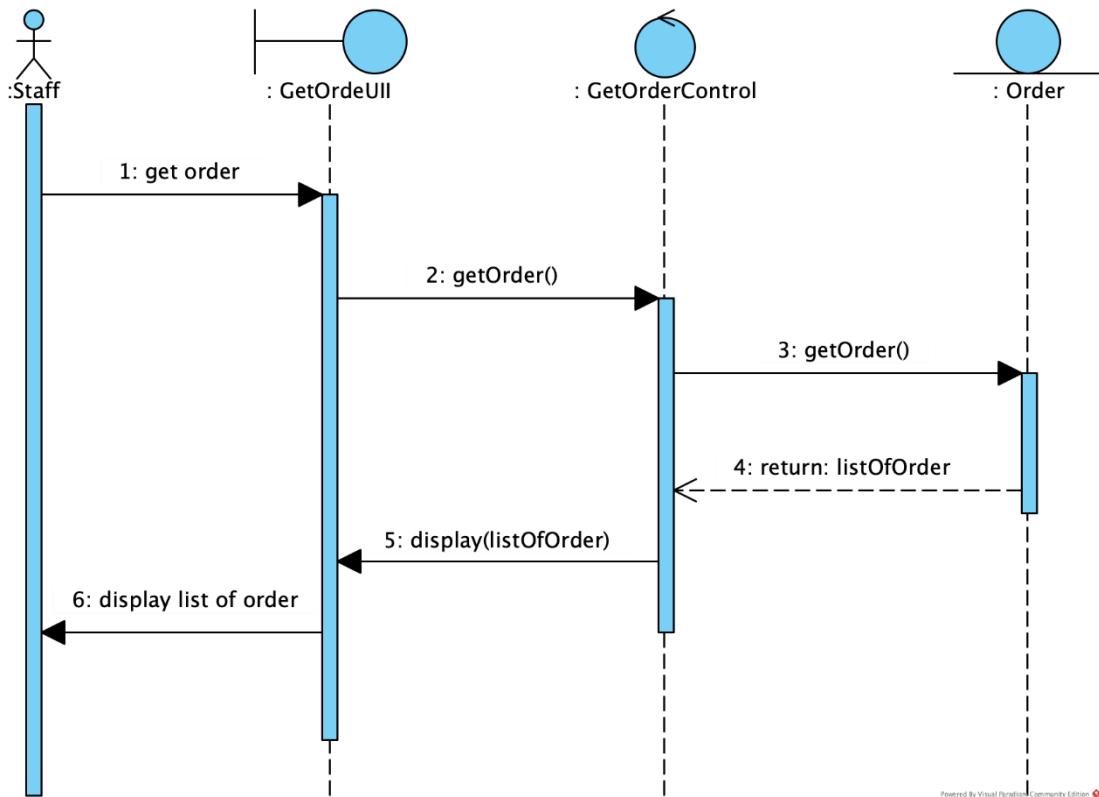
## 15.19 View Order History



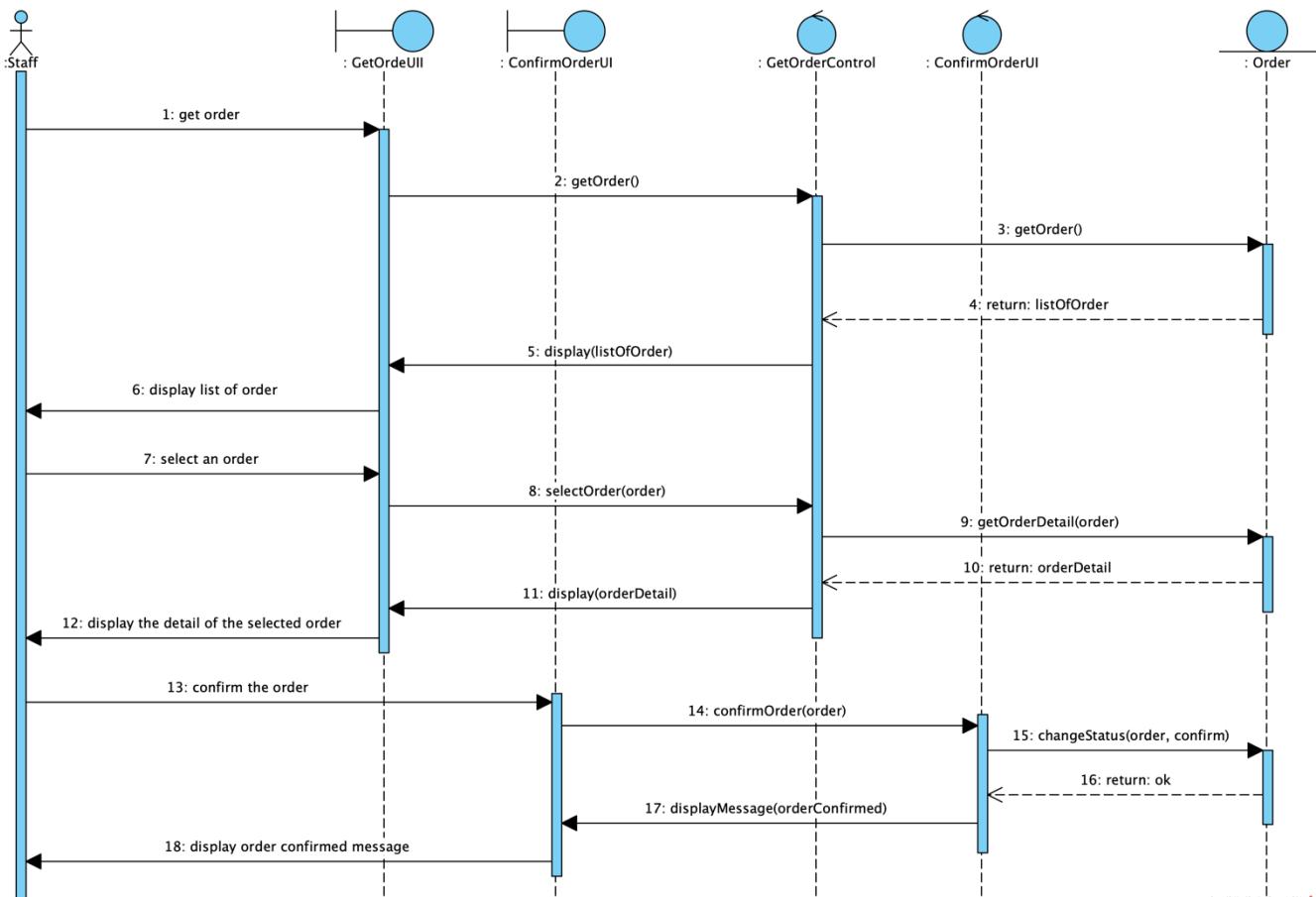
## 15.20 Leave and Reply Message



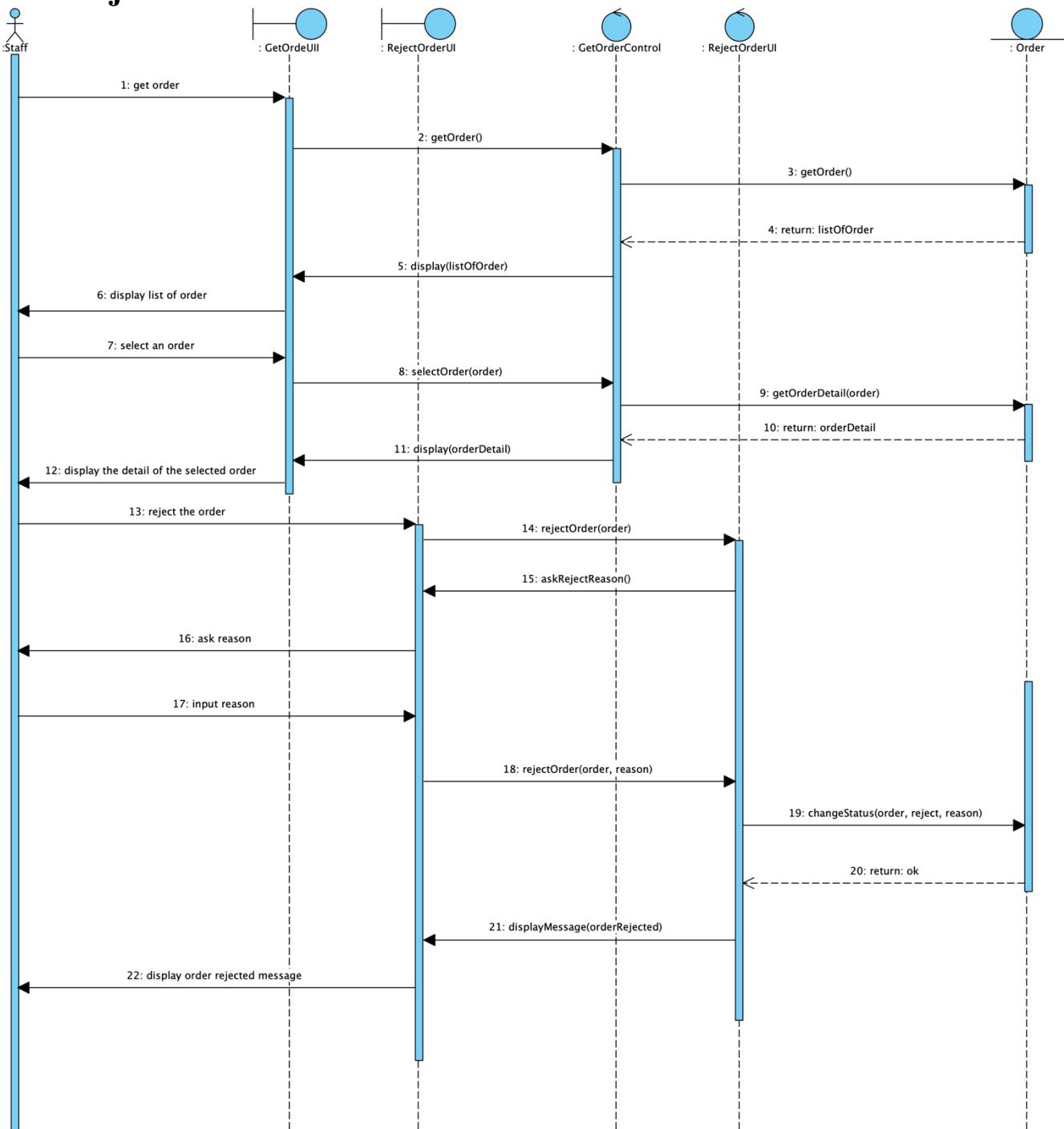
## 15.21 Staff Get Order



## 15.22 Confirm Order

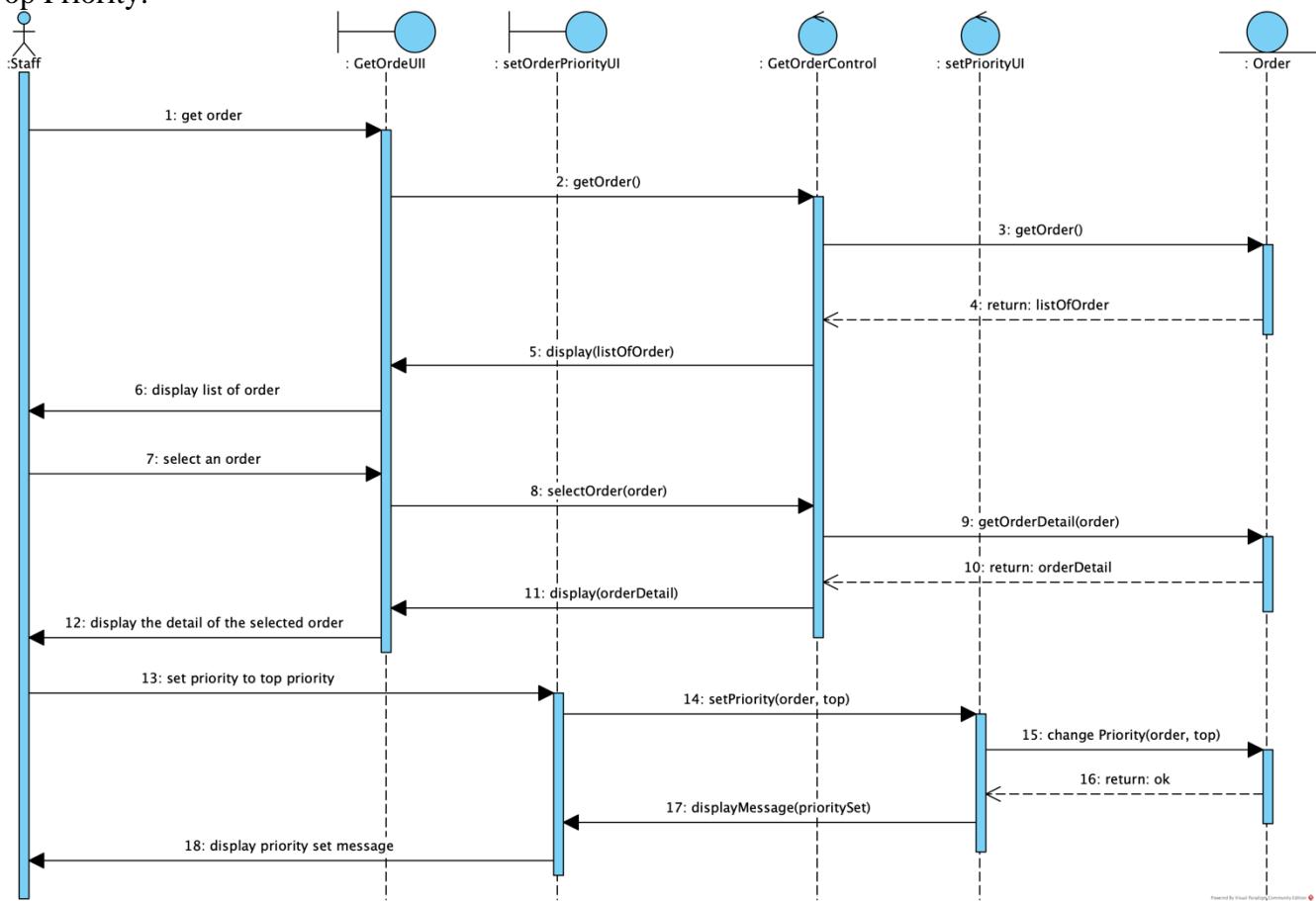


## 15.23 Reject Order

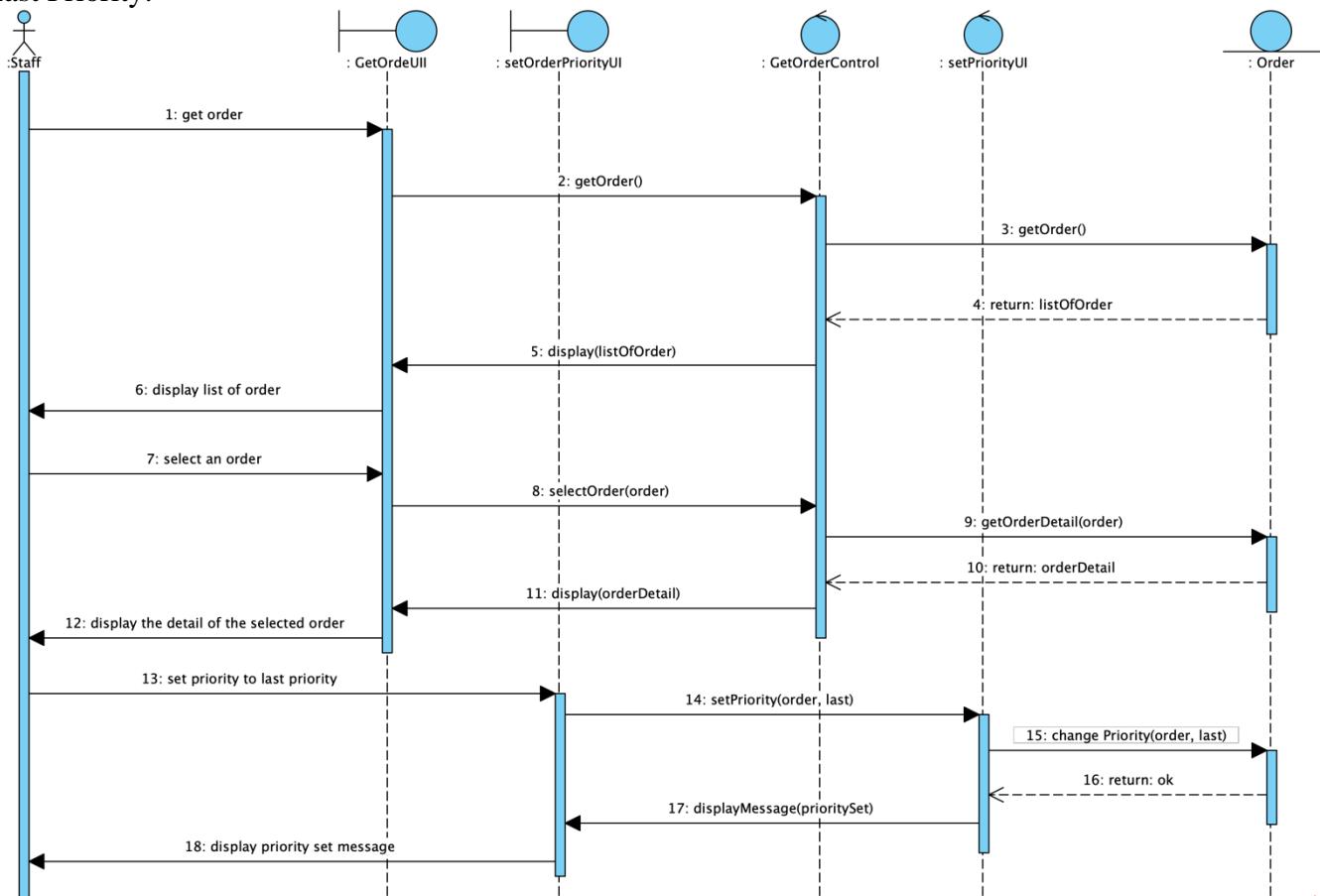


## 15.24 Set Order Priority

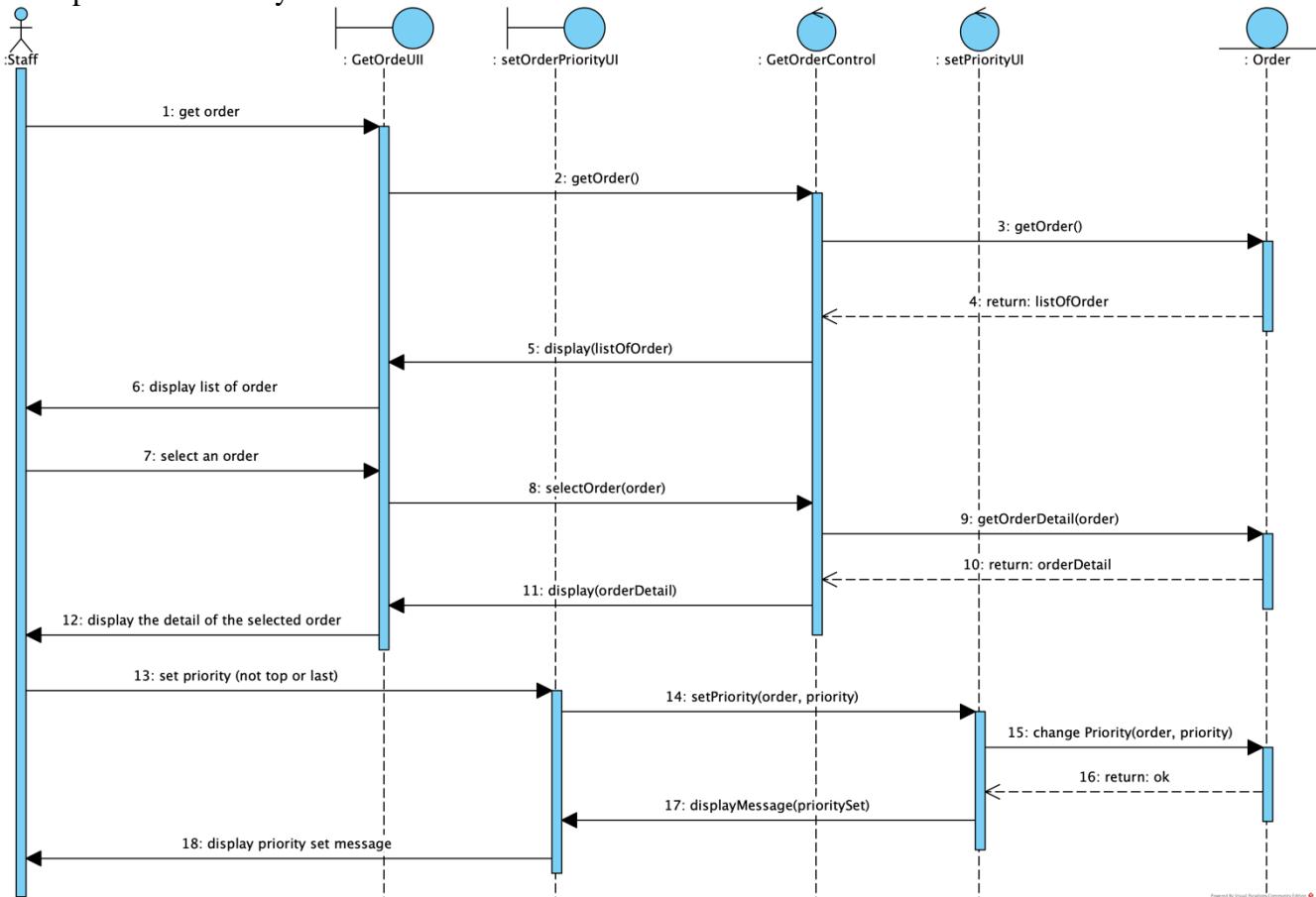
Top Priority:



Last Priority:

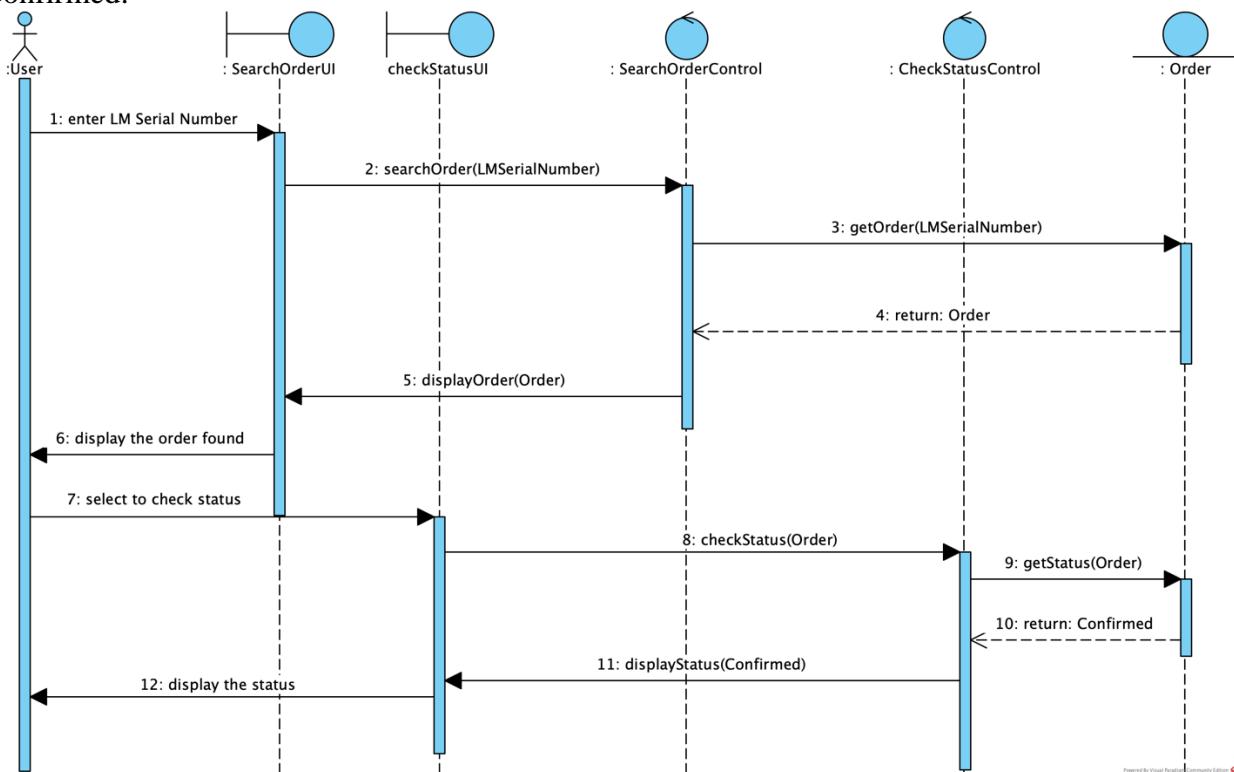


## Not Top or Last Priority:

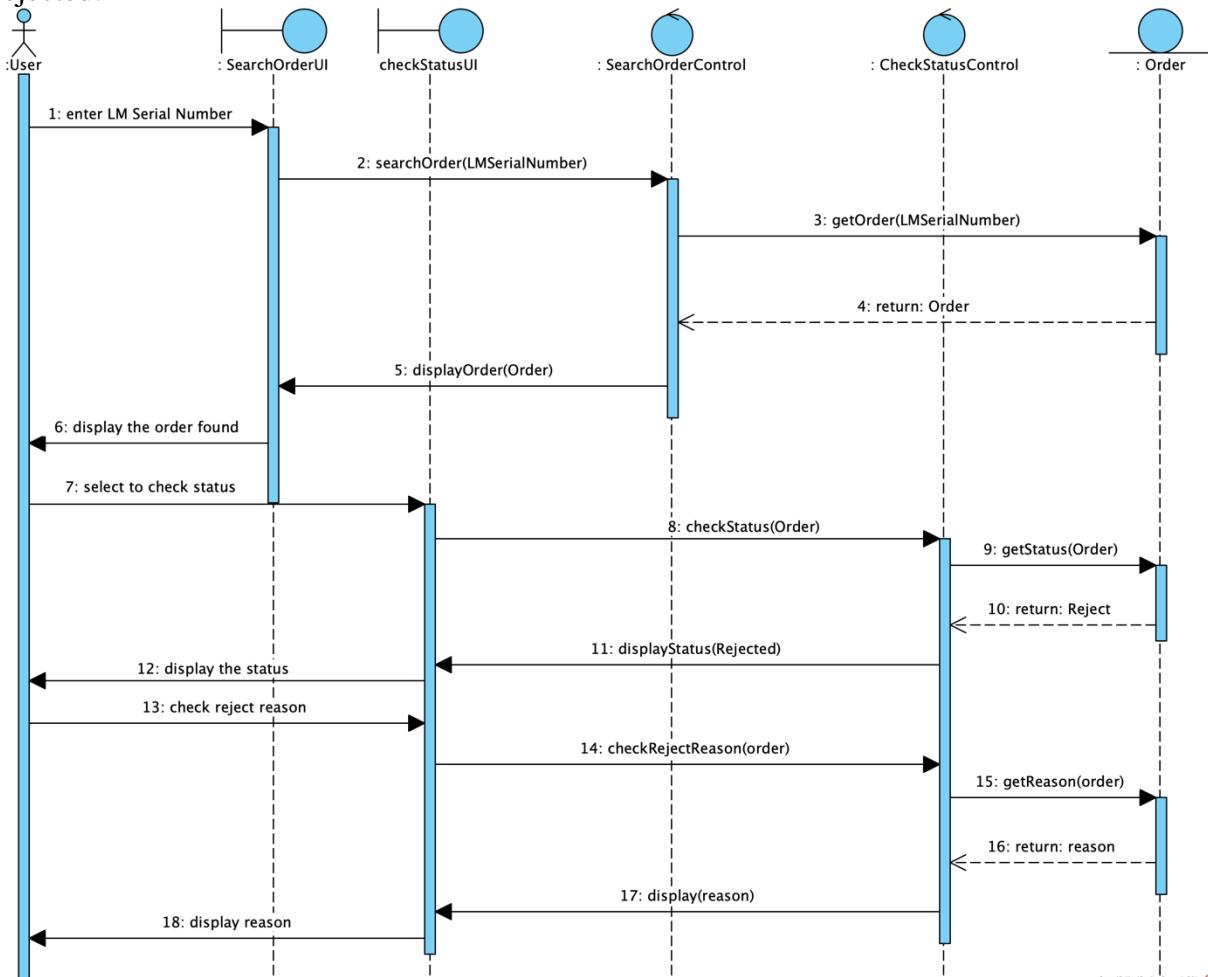


## 15.25 Check Status

Confirmed:

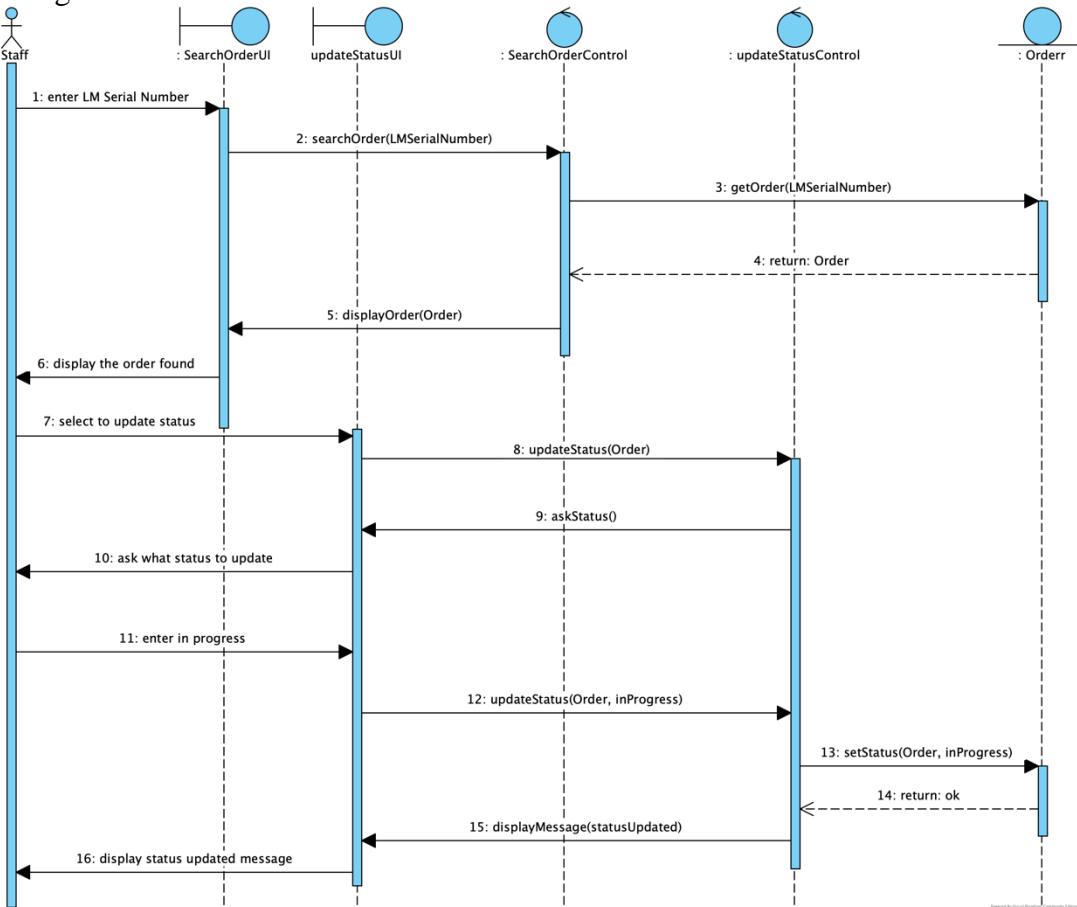


Rejected:

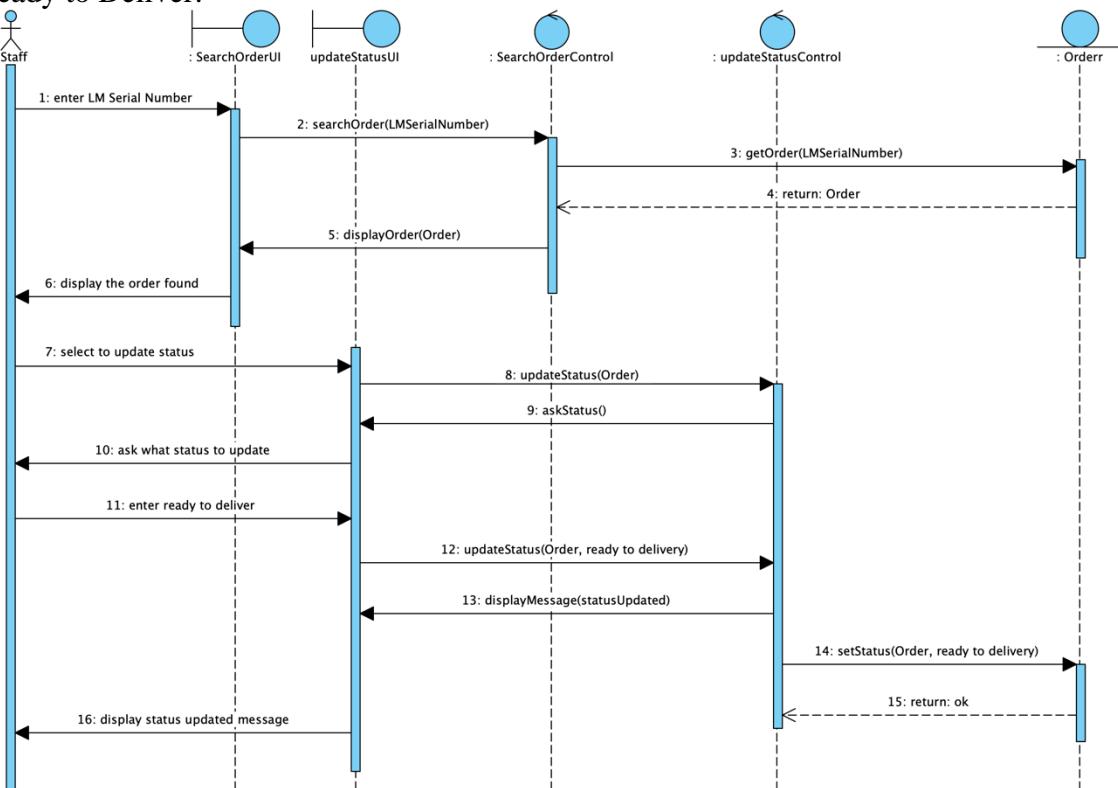


## 15.26 Staff Update Status

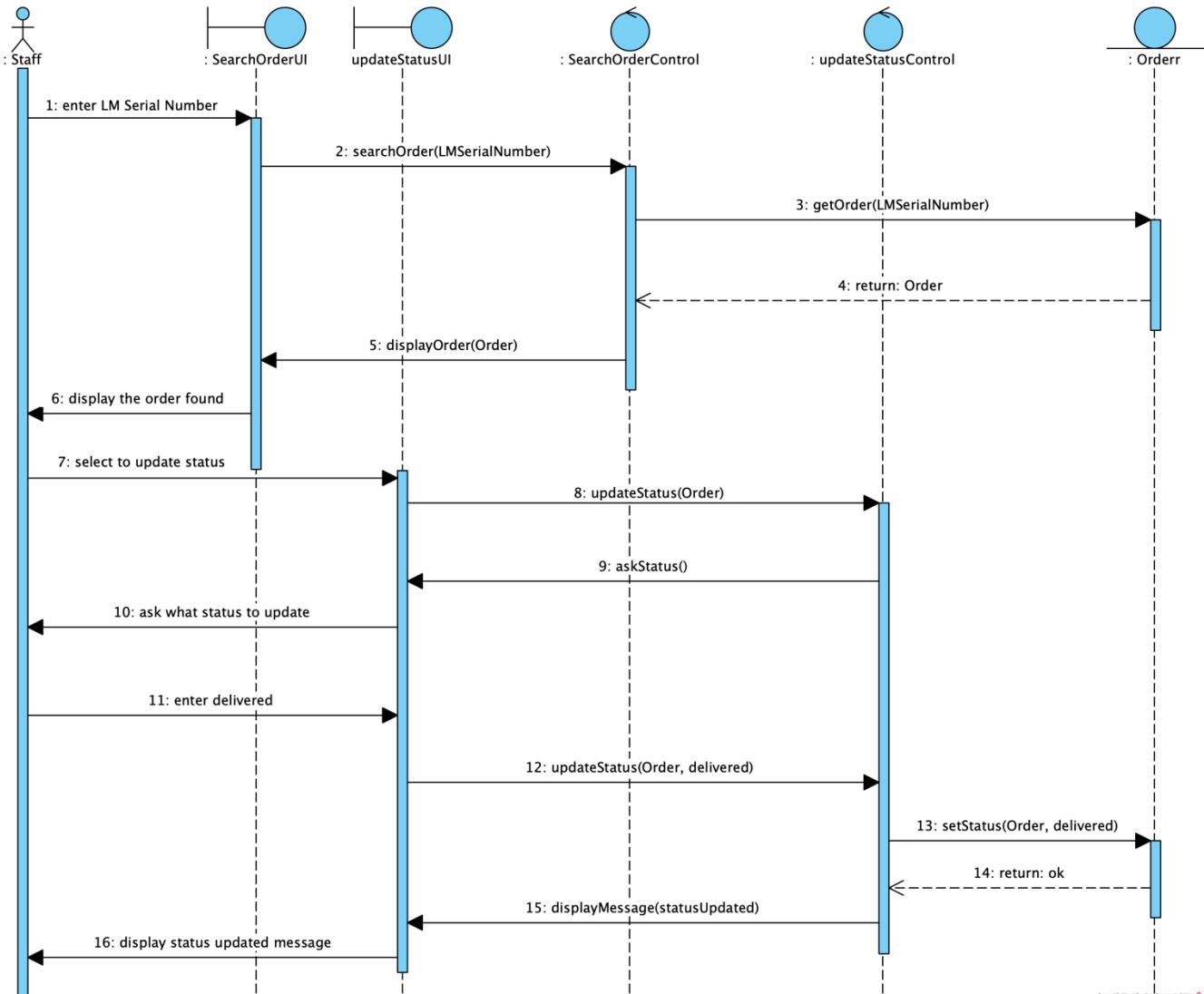
In Progress:



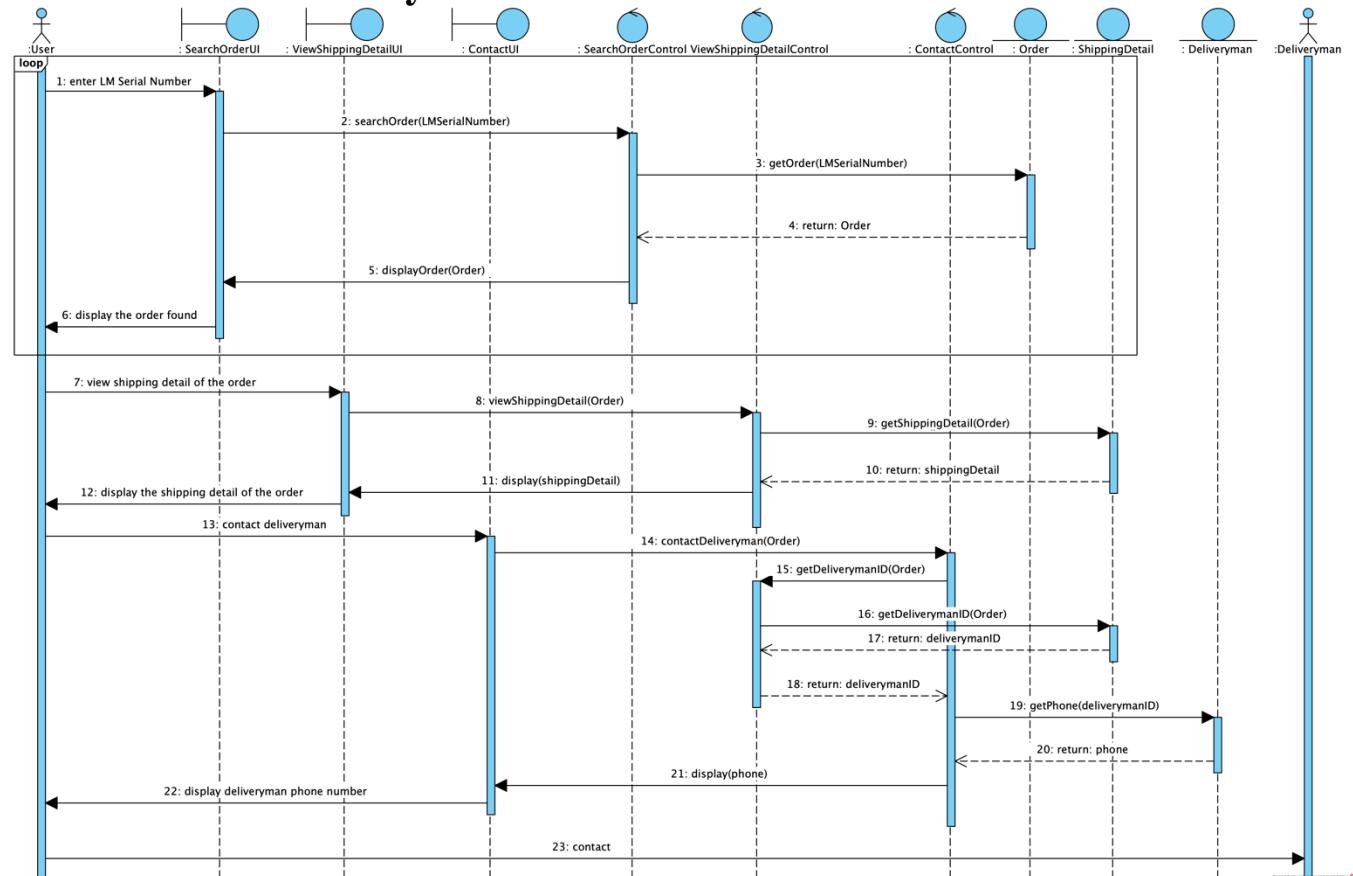
Ready to Deliver:



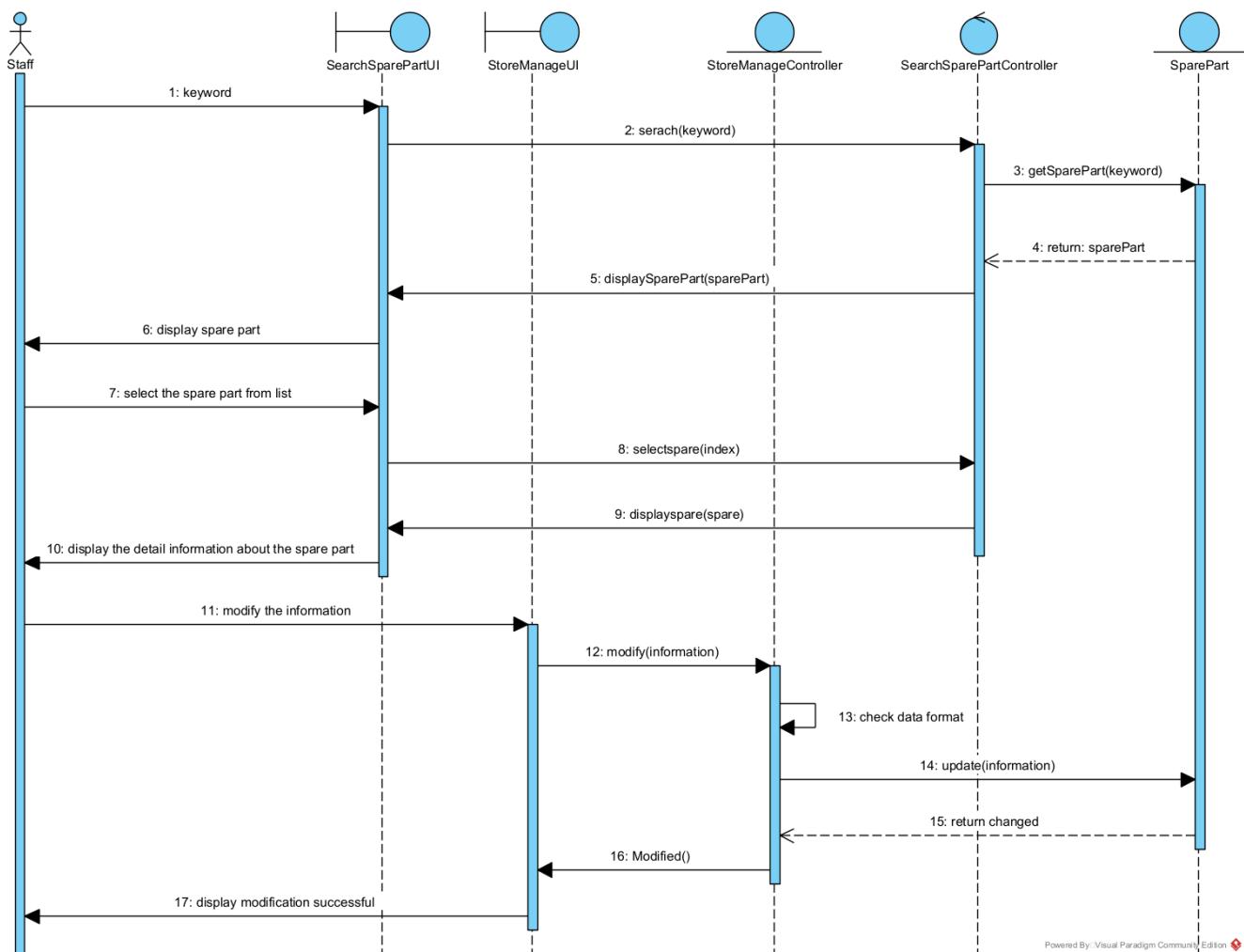
Delivered:



## 15.27 Contact Deliveryman

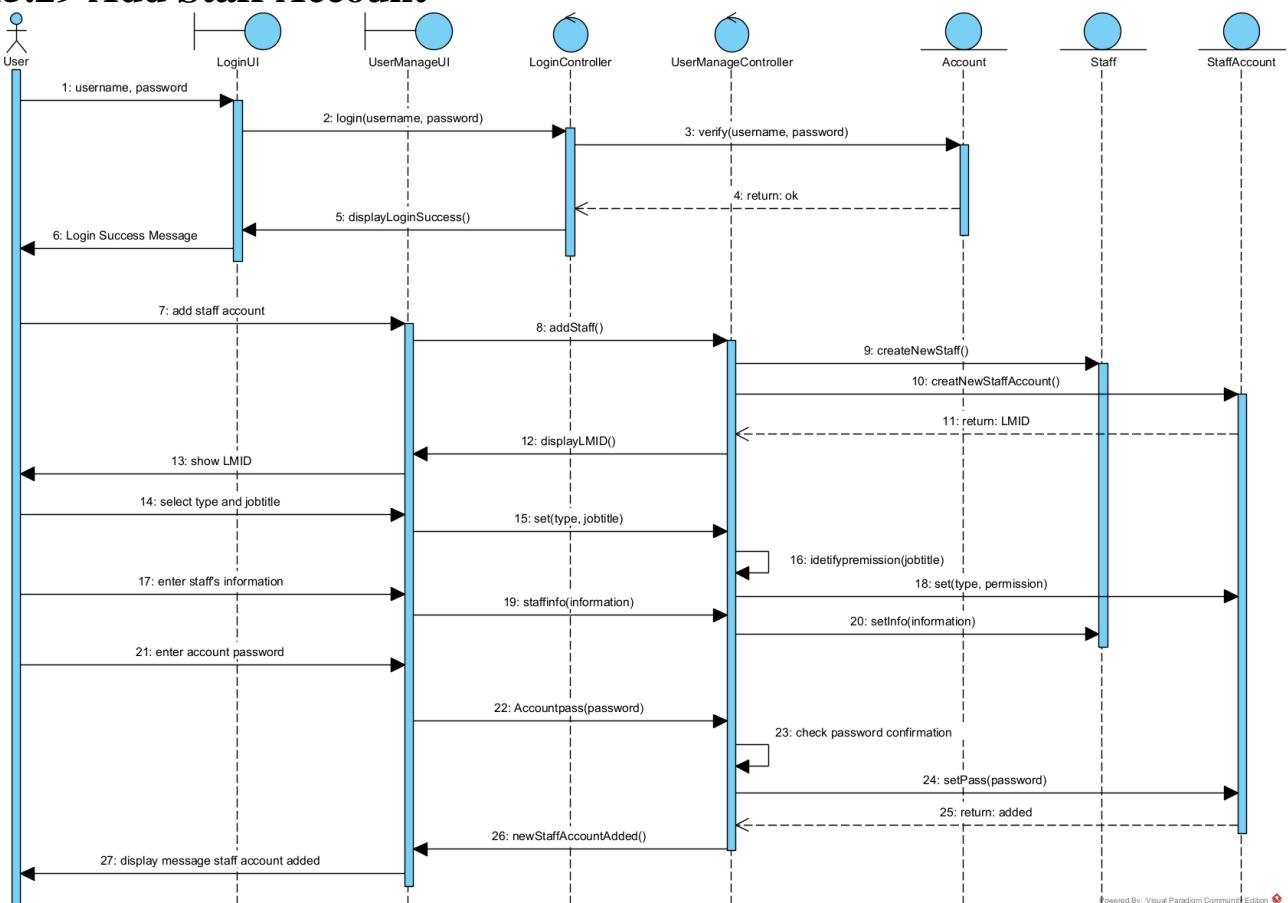


## 15.28 Modify Spare Parts

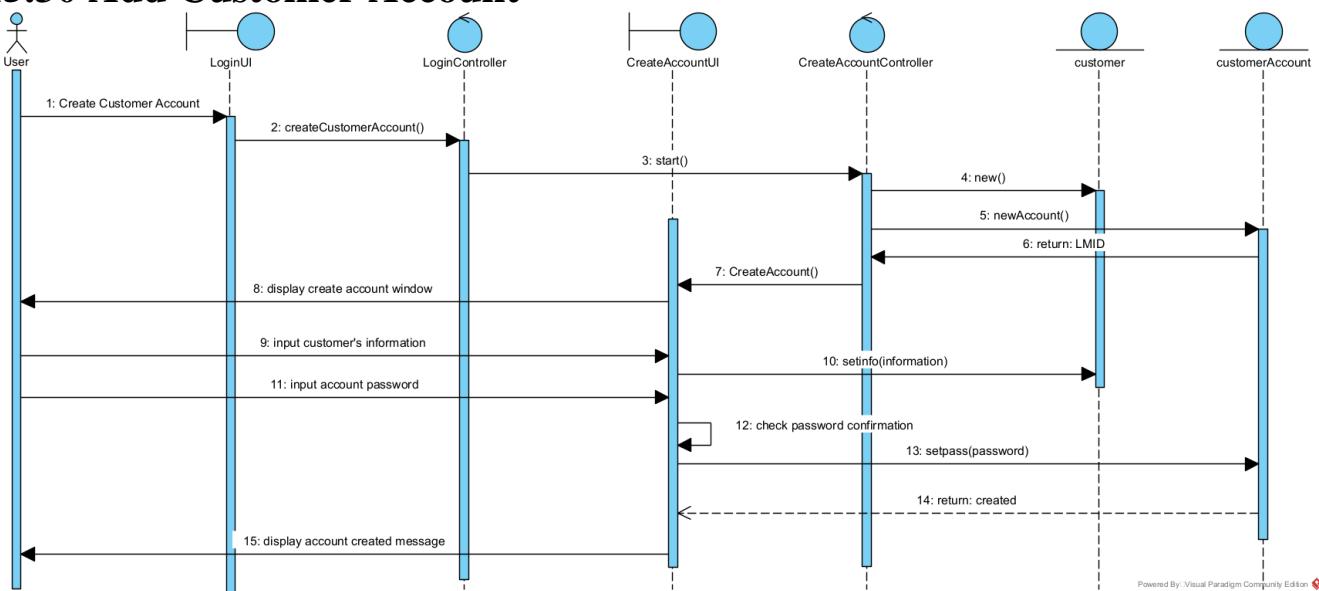


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## 15.29 Add Staff Account

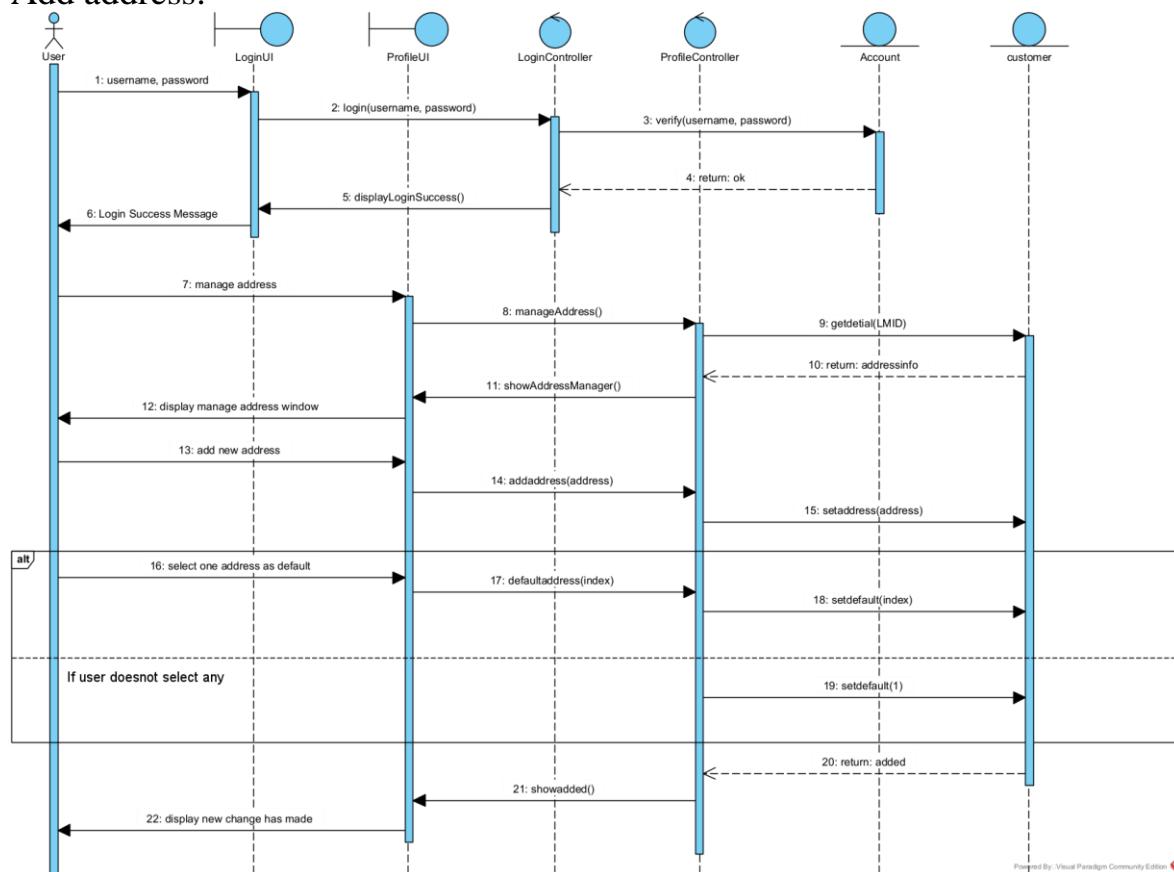


## 15.30 Add Customer Account

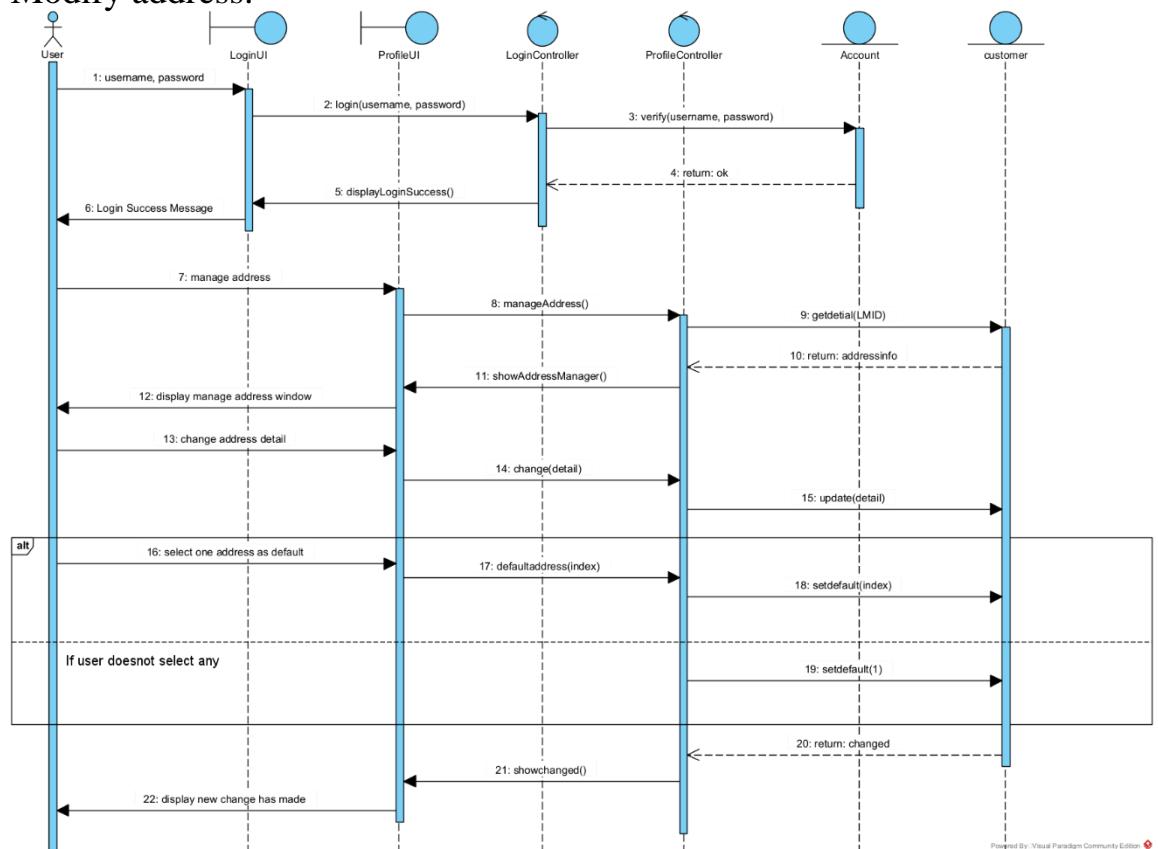


## 15.31 Modify and Add address

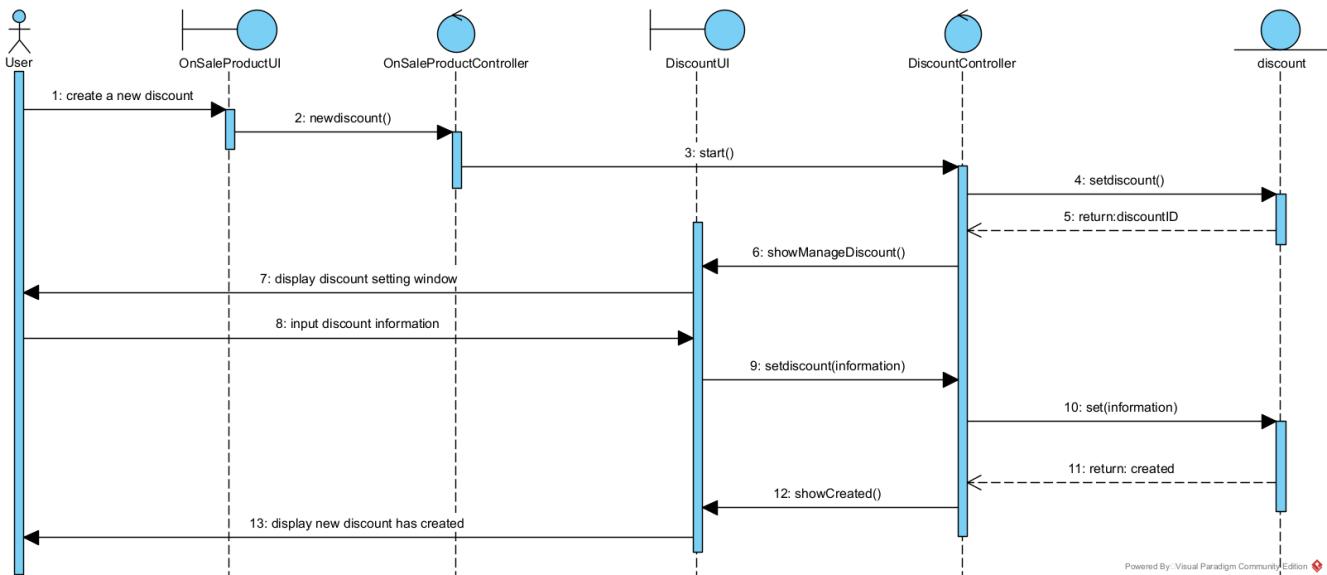
Add address:



Modify address:

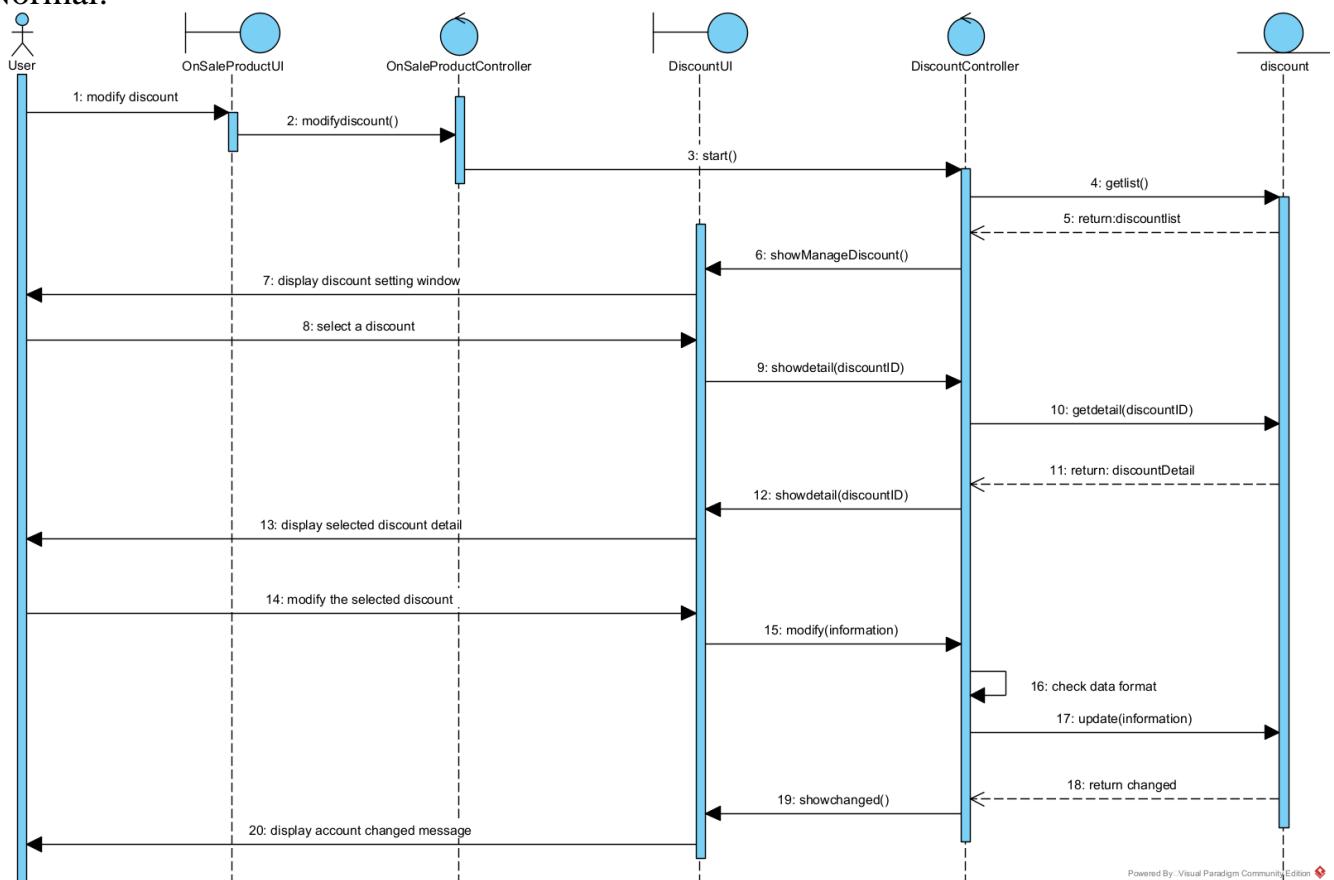


## 15.32 Add discount

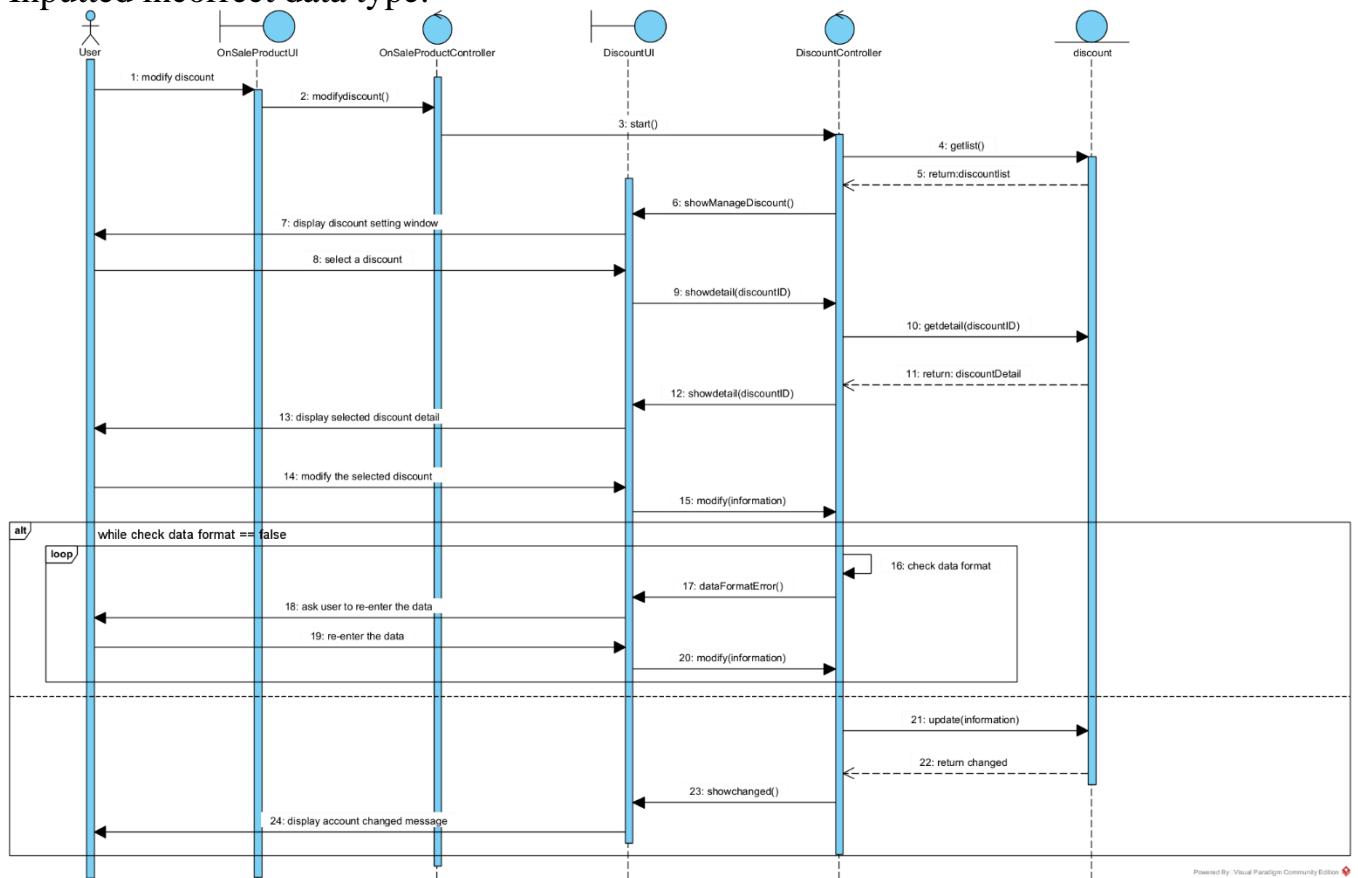


## 15.33 Modify discount

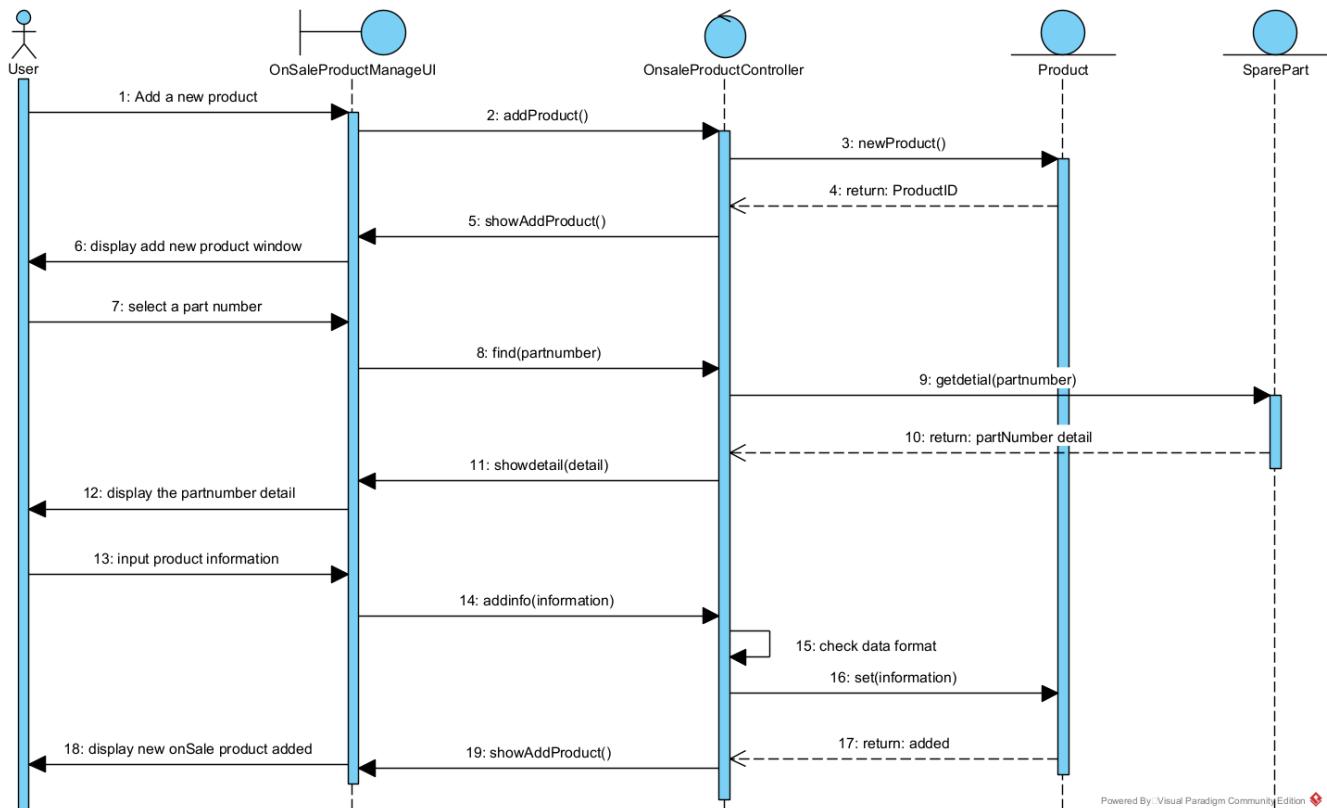
Normal:



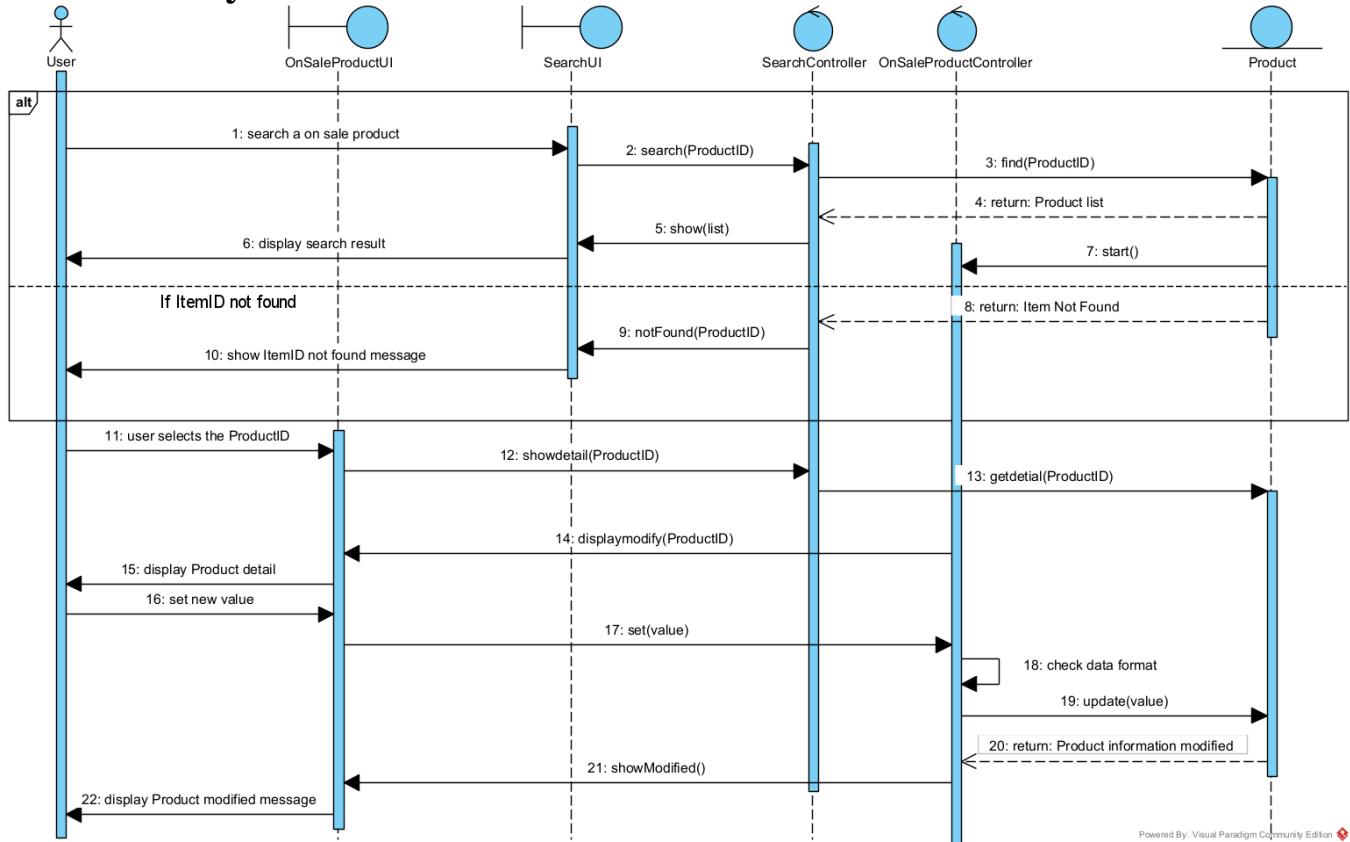
Inputted incorrect data type:



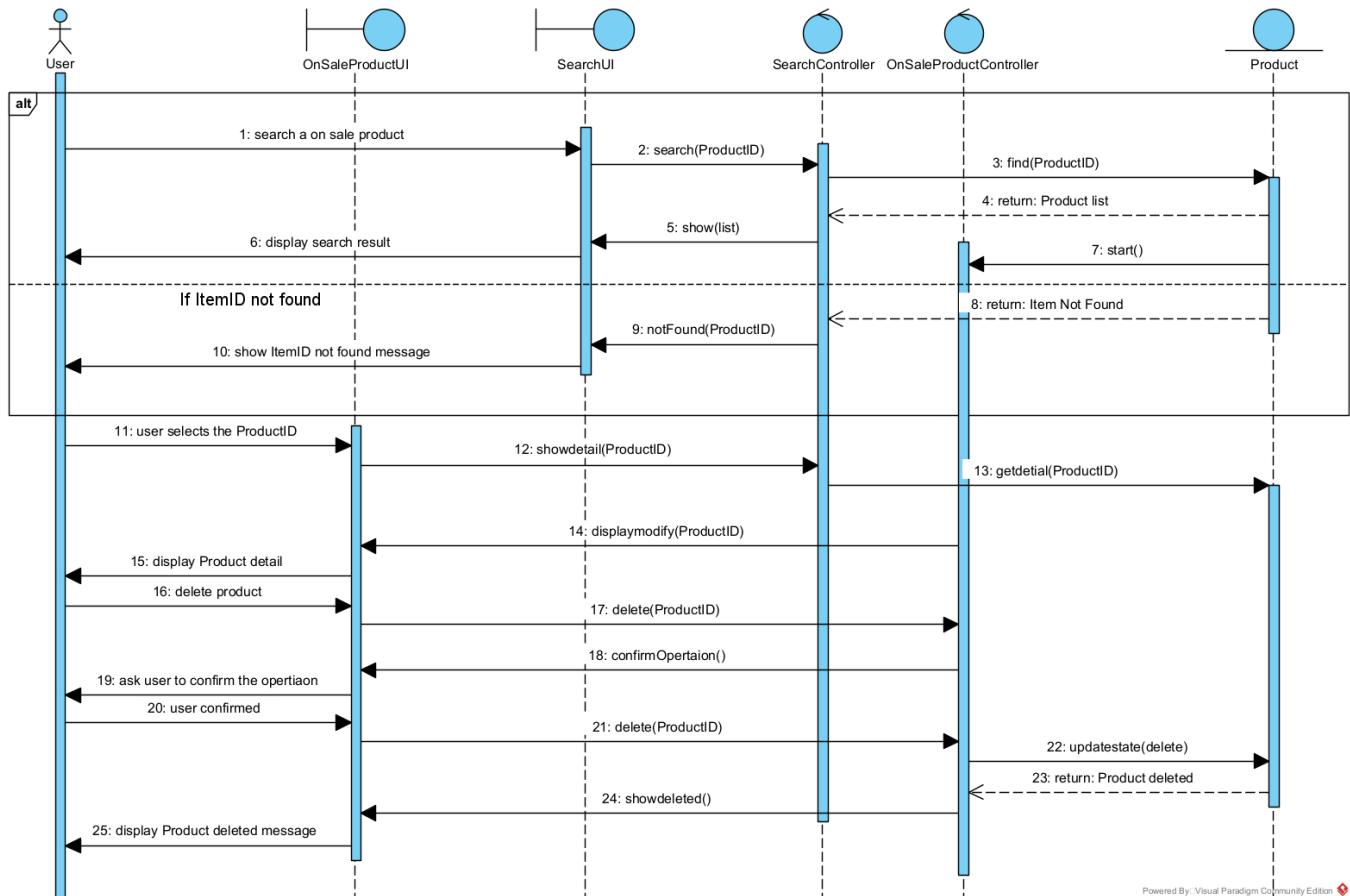
## 15.34 Add New on Sale Product



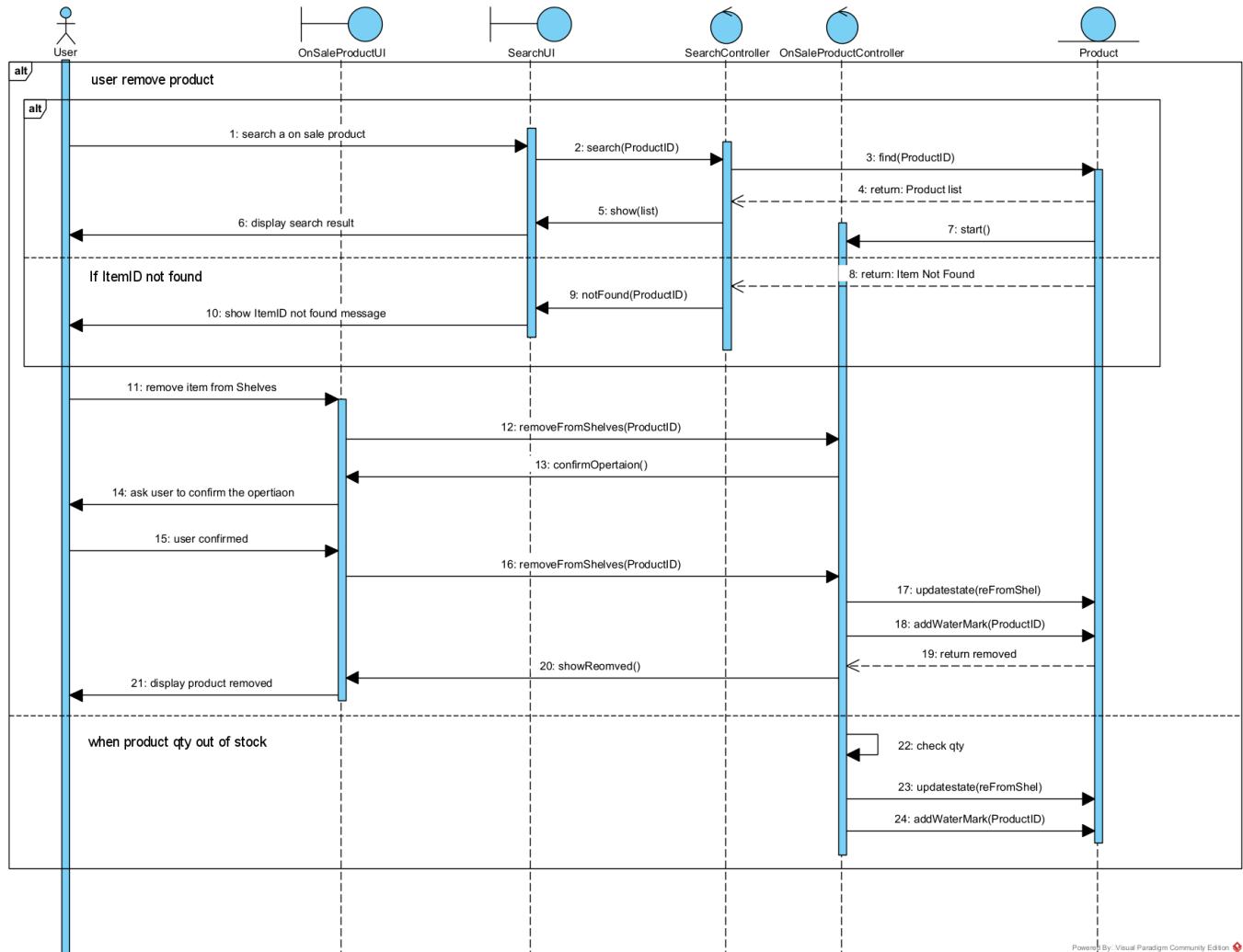
## 15.35 Modify on Sale Product



## Delete on Sale Product:

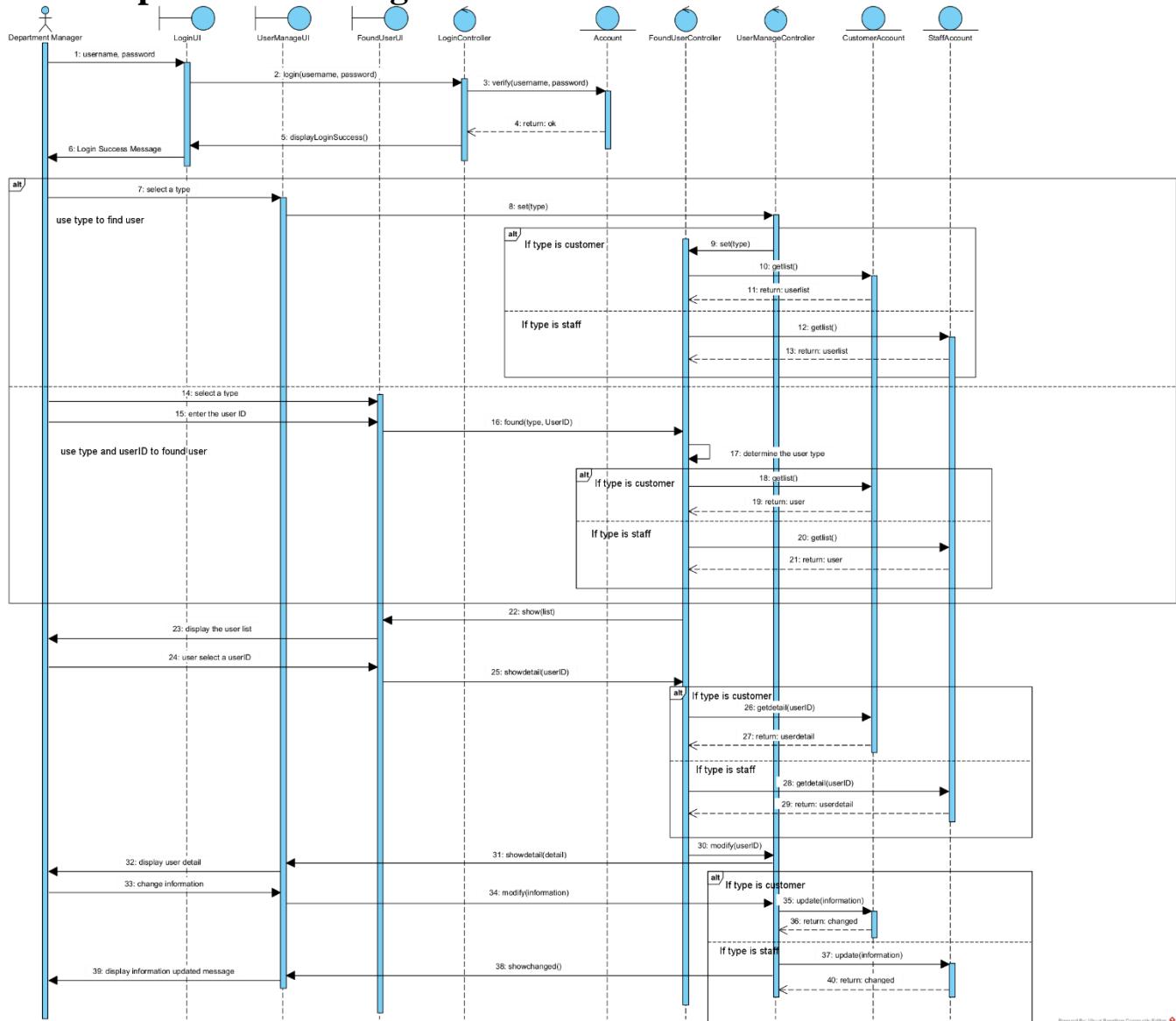


## 15.36 Remove on Sale Product from Shelves



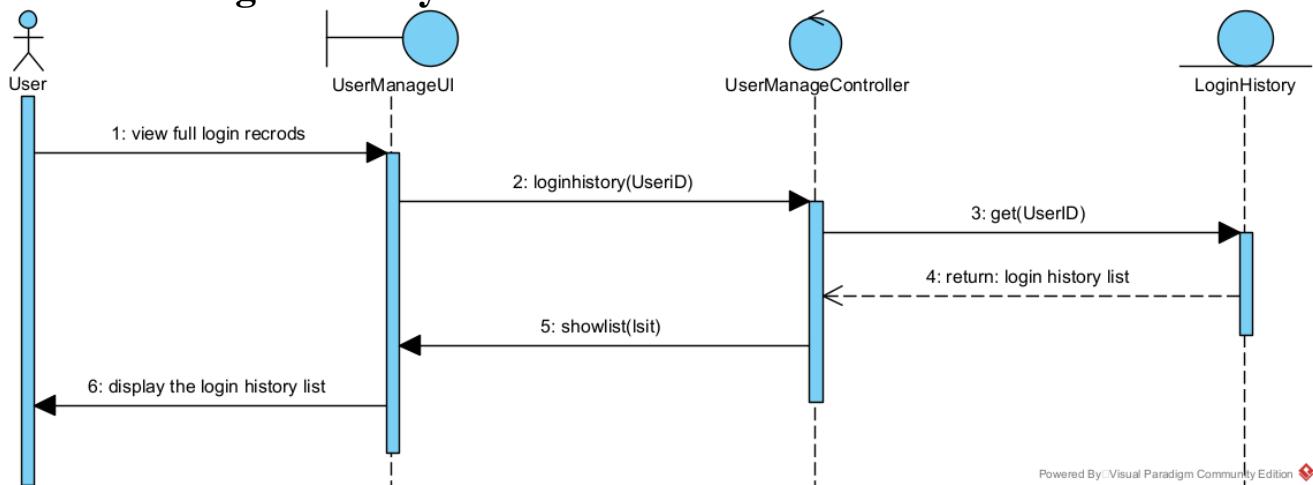
Powered By: Visual Paradigm Community Edition

## 15.37 Department Manager Edit User's Account



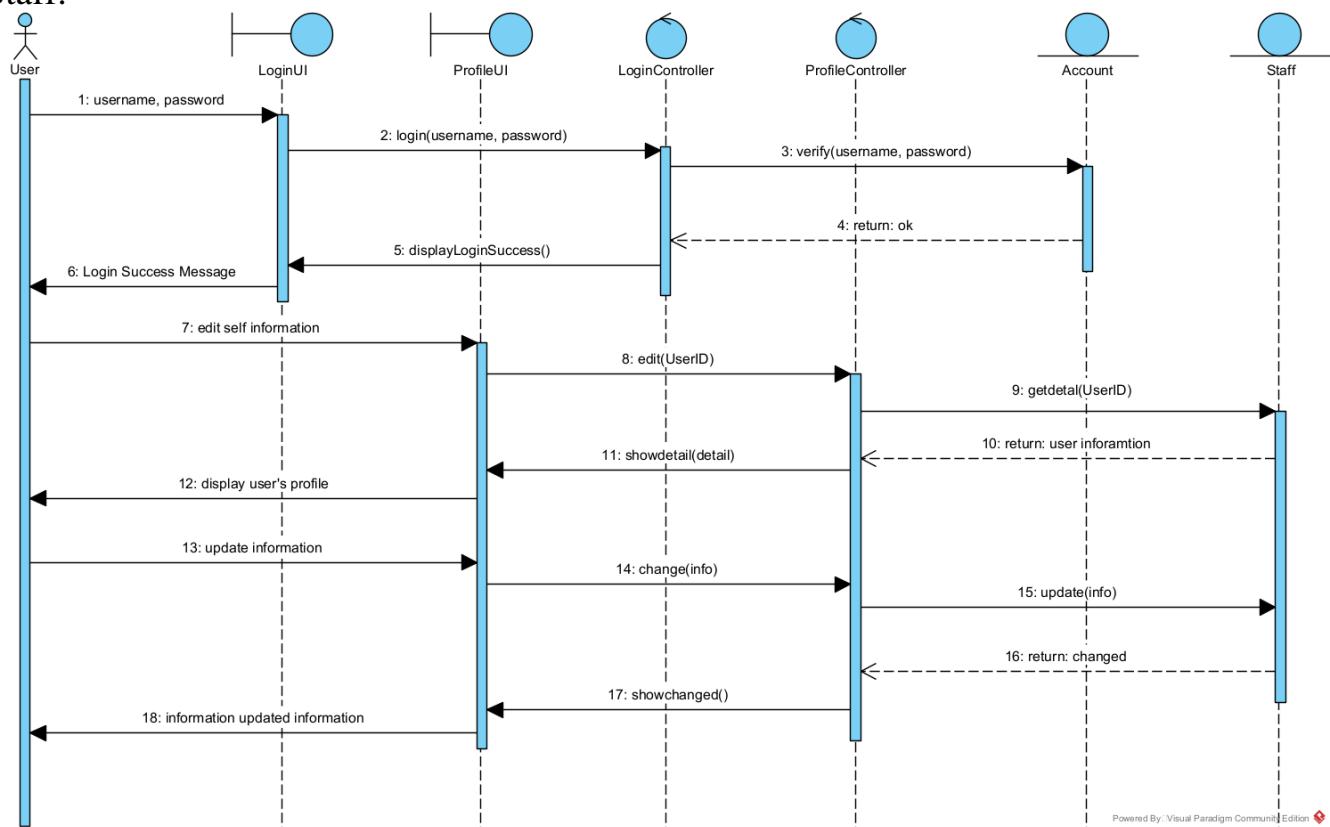
Powered By: Visual Paradigm Community Edition

## 15.38 View Login History

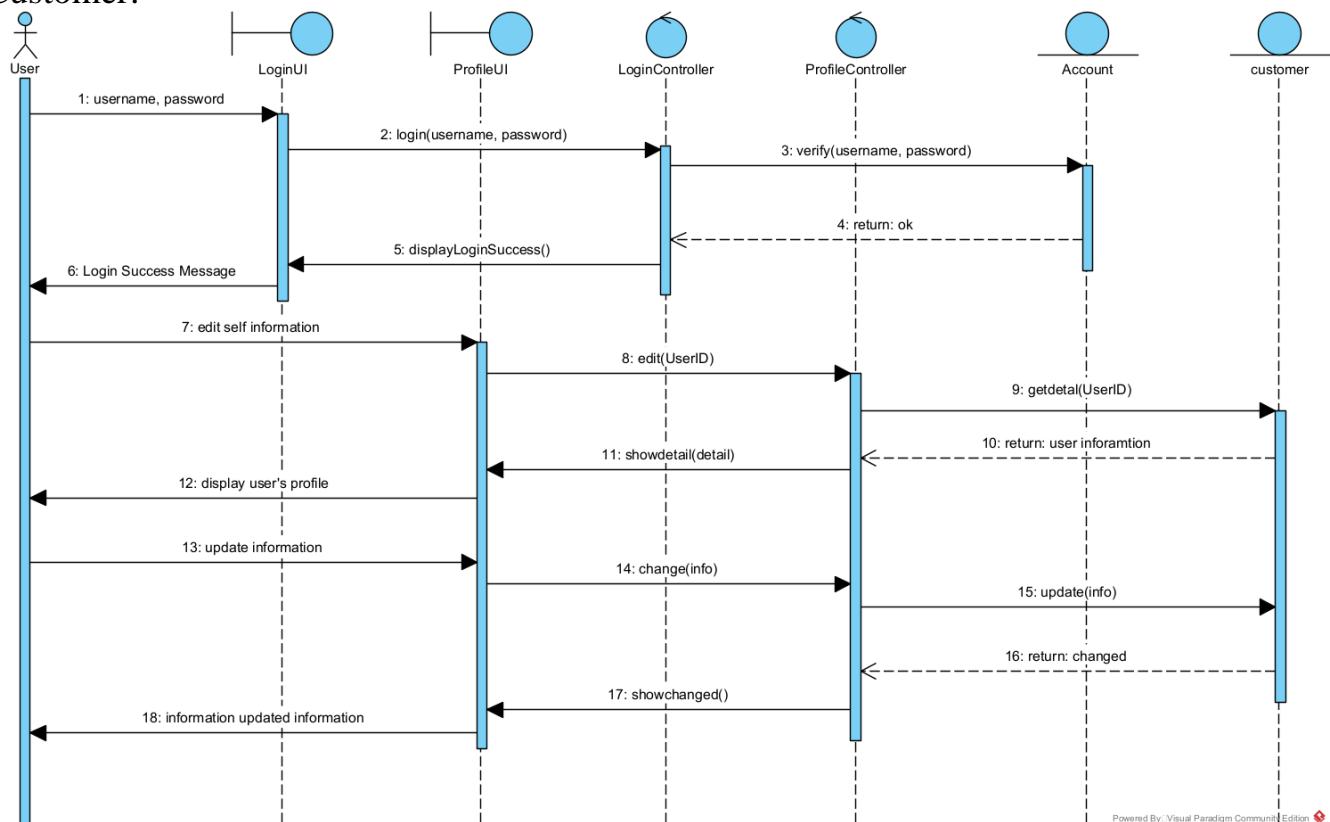


## 15.39 Edit Profile

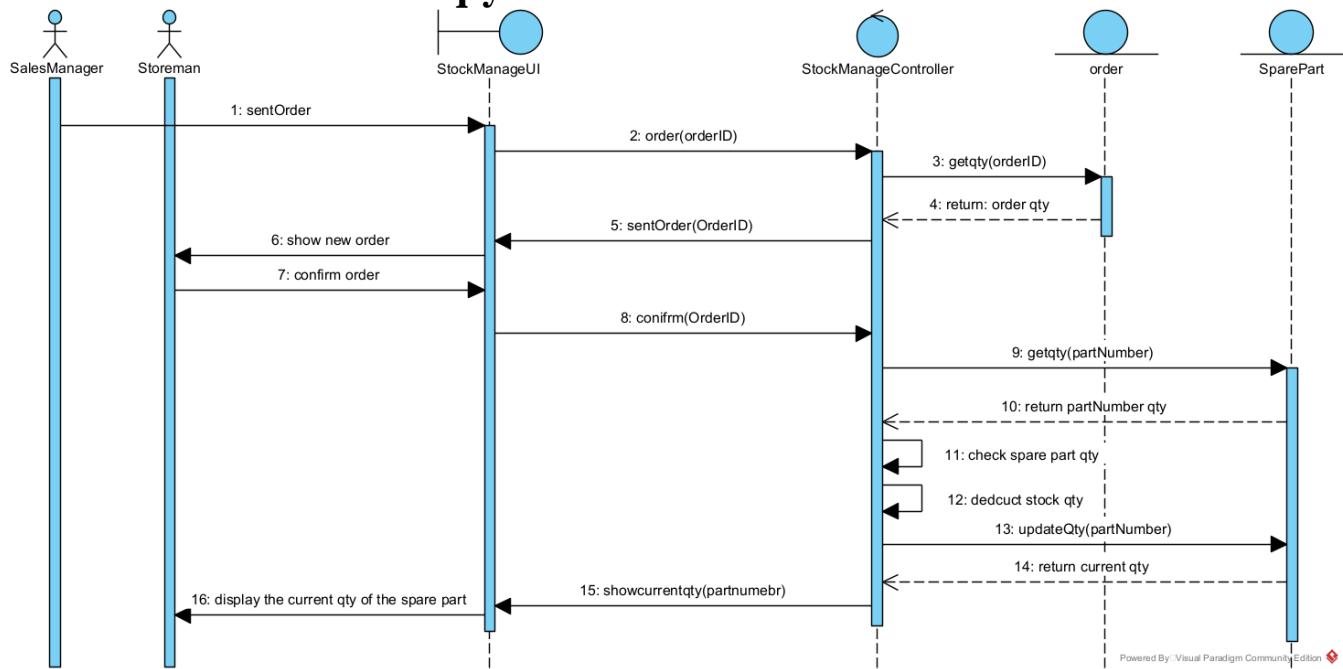
Staff:



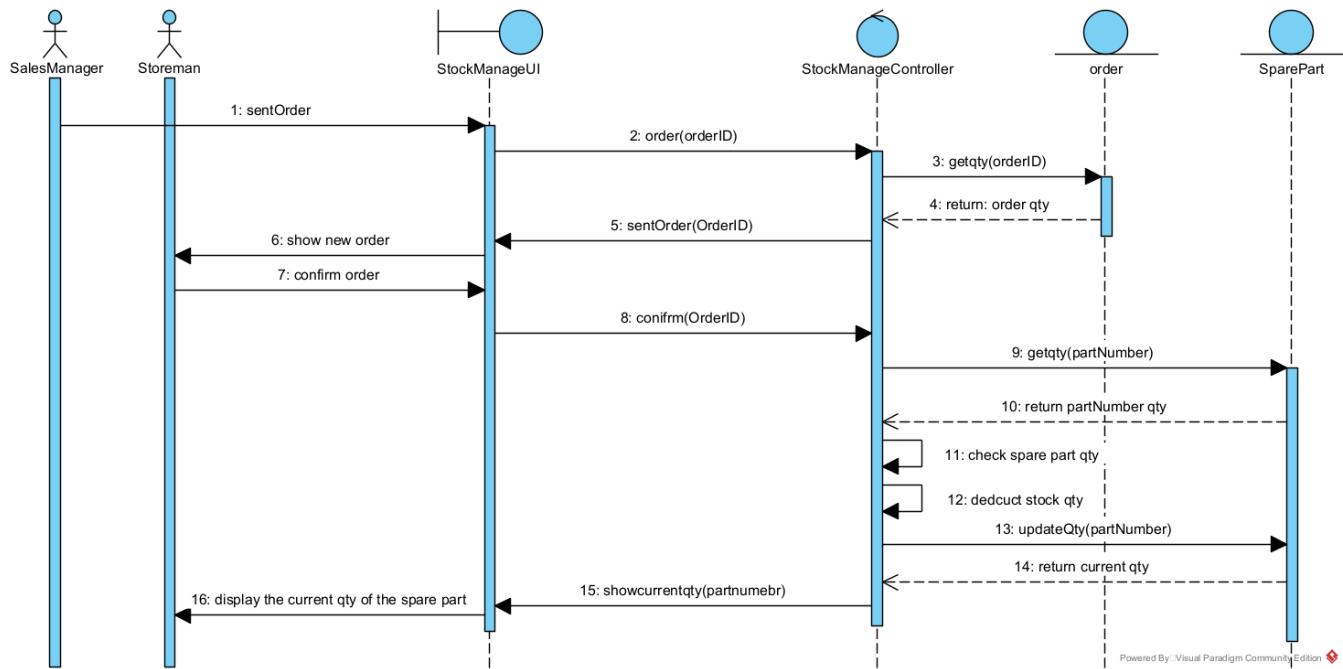
Customer:



## 15.40 Auto deduct stock qty when receive order

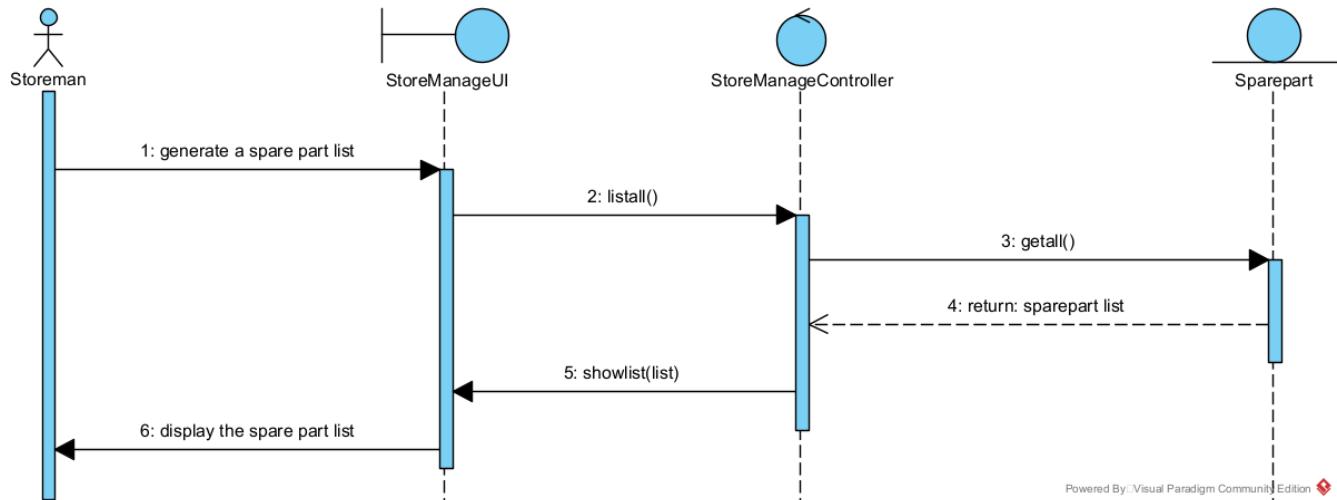


## 15.41 Send Restock



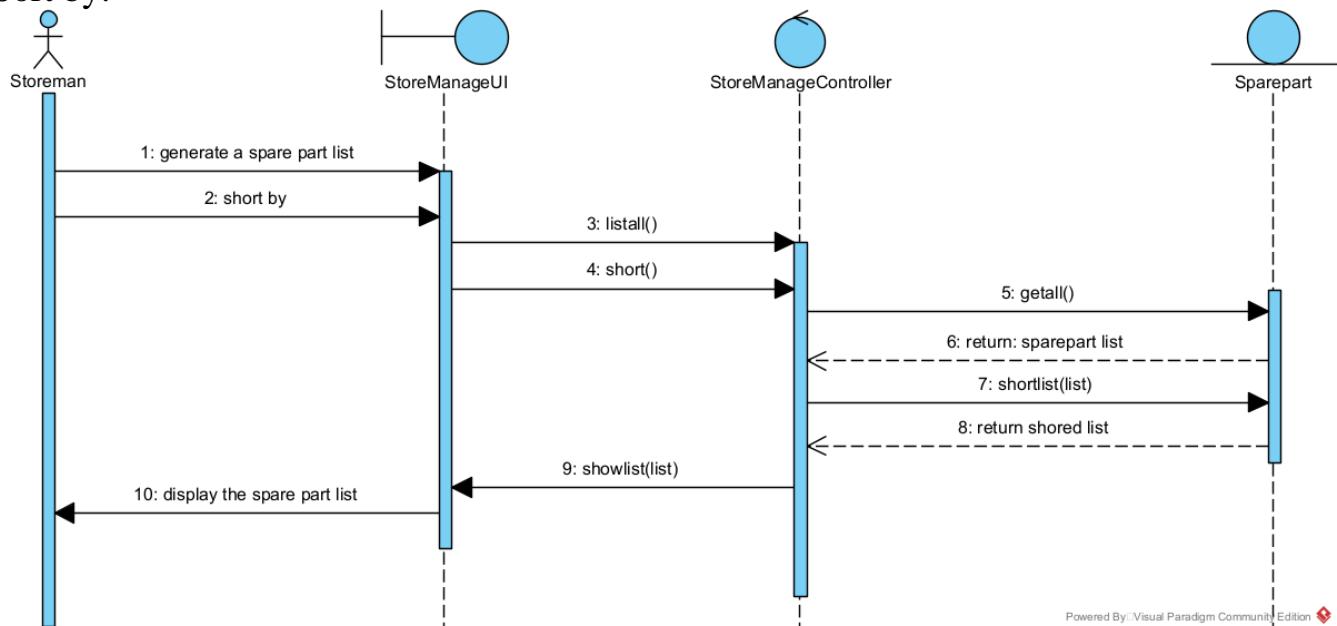
## 15.42 Generate Spare Part List

Generate list:



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Sort by:



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## 16. UI Design

## 17. Test Cases

# 18. Installation Guide

## 18.1 Installation Overview

This guide provides detailed instructions for setting up a WinForms application that uses a database and the Google Maps Static API. The setup process involves:

1. Configuring the application settings
2. Obtaining a Google Maps Static API key
3. Setting up a database (using either XAMPP or Docker)
4. Running the WinForms application

The database setup is a required step, and you must choose either Method 1 (XAMPP) or Method 2 (Docker) for this purpose.

The Database Cluster Setup is optional and can be implemented for more advanced configurations.

## 18.2 Prerequisites

- .NET Framework (version compatible with your WinForms application)
- Google Maps Static API Key
- Database setup (choose either XAMPP or Docker)

## 18.3 Setup

1. Clone the repository
2. Copy the App.config.example to App.config

### Customizing App.config

The App.config file contains important settings for your application. Here's how to customize it:

xml

```
<appSettings>
    <add key="DevMode" value="True"/>
    <add key="GoogleMapsApiKey" value="Enter your Google Maps Static API Key"/>
    <add key="ConnectionString1" value="server=localhost;port=3306;user id=root;
password=rootpassword;database=itp4915m_se1d_group4;charset=utf8;ConnectionTimeout=
30"/>
    <!-- Additional connection strings if needed -->
</appSettings>
```

## 18.4 Key Settings

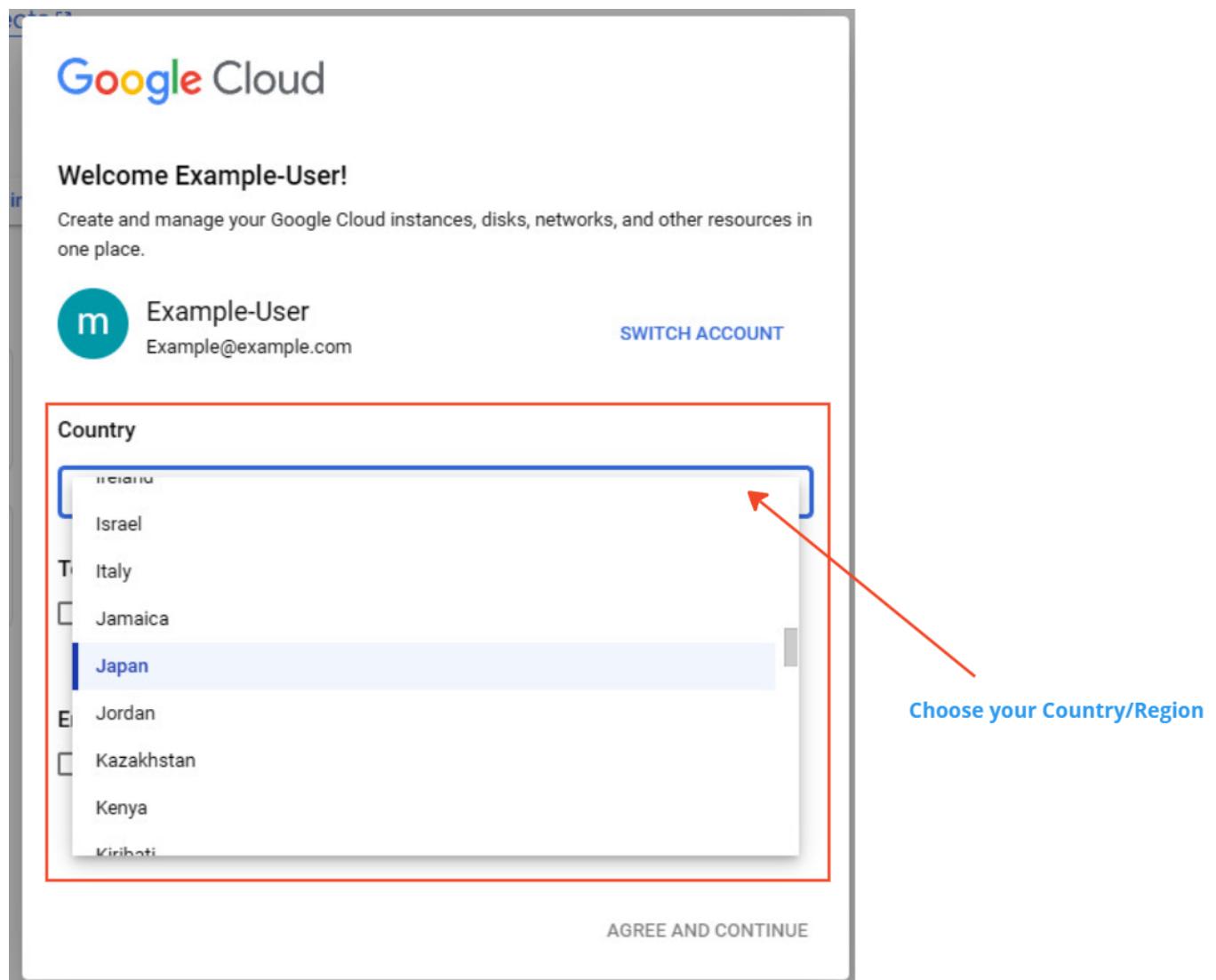
1. **DevMode:** Set to "True" for development, "False" for production
2. **GoogleMapsApiKey:** Replace with your actual Google Maps Static API Key
3. **ConnectionString1:** Customize based on your chosen database setup method

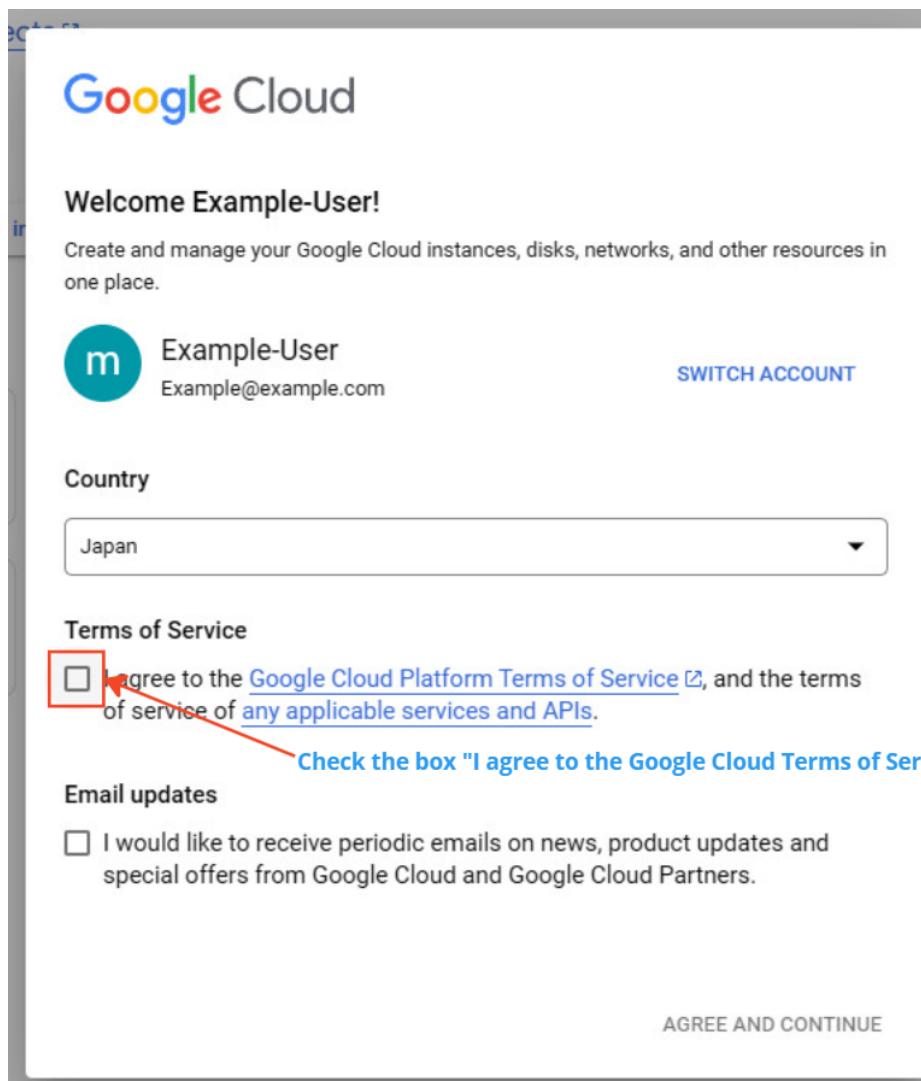
## 18.5 Obtaining Google Maps Static API Key

To use the Google Maps Static API in your application, you need to obtain an API key.

Follow these steps:

1. Go to the Google Cloud Console: <https://console.cloud.google.com/>





2. Create a new project or select an existing one.

The screenshot shows the Google Cloud Platform homepage. At the top, there is a banner for a free trial with \$300 in credit. Below the banner, the Google Cloud logo is followed by a dropdown menu labeled "Select a project". A red arrow points from this dropdown to a callout text: "Check the dropdown menu 'Select a project'". To the right of the dropdown is a search bar with the placeholder "Search (/) for resources, docs, products, and more" and a "Search" button.

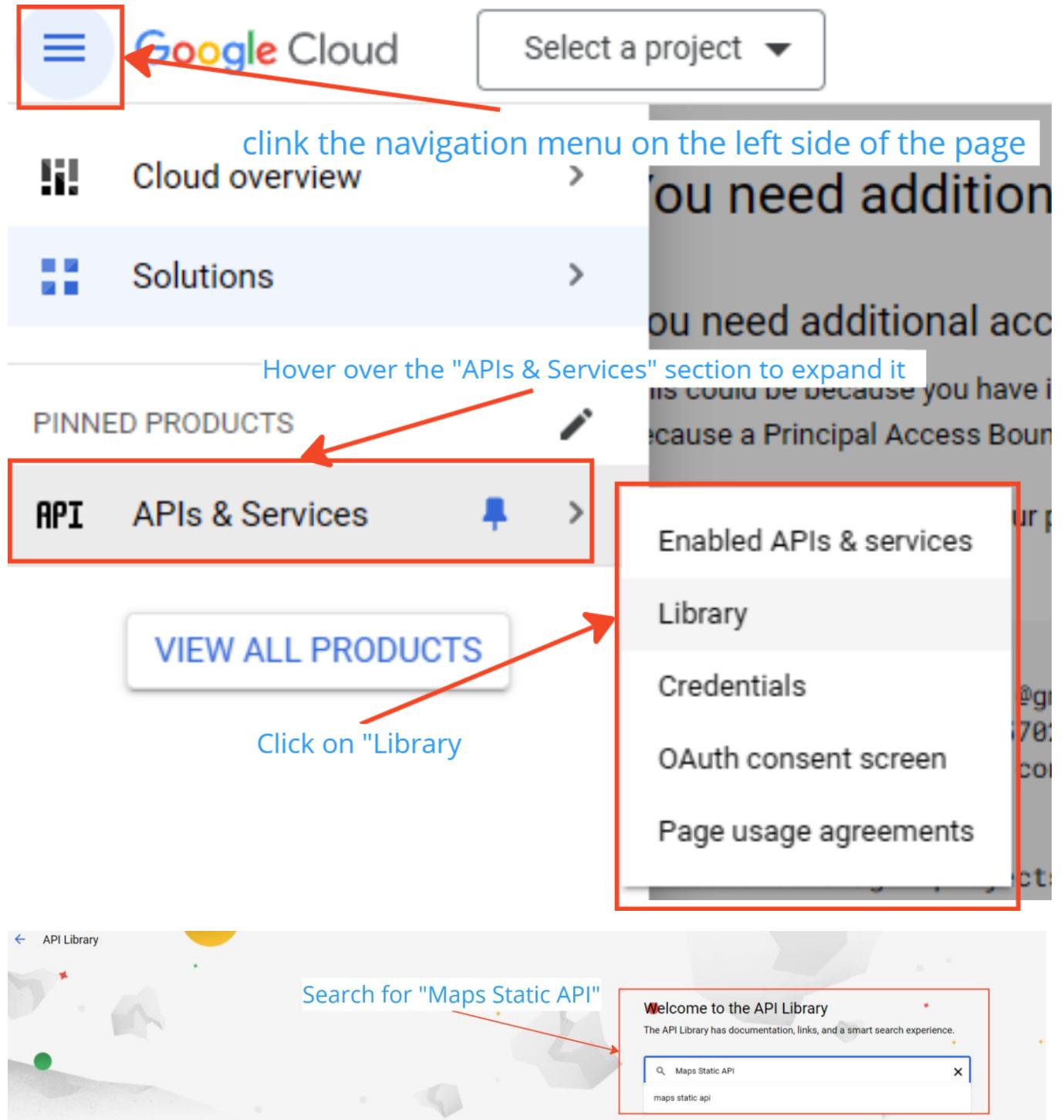
Below the header, a modal window titled "Select a project" is open. It contains a search bar with the placeholder "Search projects and folders" and a "NEW PROJECT" button with a gear icon. The "ALL" tab is selected under "RECENT STARRED ALL". There is also a section for "select your organization's project if you have one, or click 'New Project'" which shows "No organization" and an ID of "0".

At the bottom of the page, a "New Project" section is visible. It includes a warning about project quotas and a "MANAGE QUOTAS" link. The "Project name" field is highlighted with a red border and contains the text "exmaple-project". A question mark icon is next to the input field. Below it, the "Project ID" is listed as "exmaple-project-427613. It cannot be changed later." with an "EDIT" link. The "Location" field shows "No organization" and has a "BROWSE" button. The "Parent organization or folder" field is empty. At the bottom left is a blue "CREATE" button, and at the bottom right is a "CANCEL" button.

Annotations provide instructions: "Input your project name" points to the "Project name" field; "if you have organization please click the Browse button" points to the "BROWSE" button; and "click 'Create' on page 'Create a new project'" points to the "CREATE" button.

3. Enable the Google Maps Static API:

1. In the sidebar, click on "APIs & Services" > "Library"
2. Search for "Maps Static API"
3. Click on "Maps Static API" and then click "Enable"



Click on "Maps Static API"

2 results

**Maps Static API**  
Google Enterprise API 

Place a Google Maps image on your webpage without requiring JavaScript or any dynamic page loading with the Maps Static API. This service creates your map based on URL parameters sent through a standard HTTP request and returns the map as an image.

**Street View Static API**  
Google Enterprise API 

Embed a static (non-interactive) Street View panorama or thumbnail into your web page, without the use of JavaScript, using the Street View API. The viewport is defined with URL parameters sent through a standard HTTP request, and is returned as a static image.

← Product details

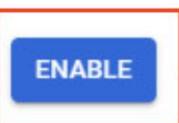


## Maps Static API

[Google Enterprise API](#)

Simple, embeddable map image with minimal code.

Click "Enable" button



[OVERVIEW](#)

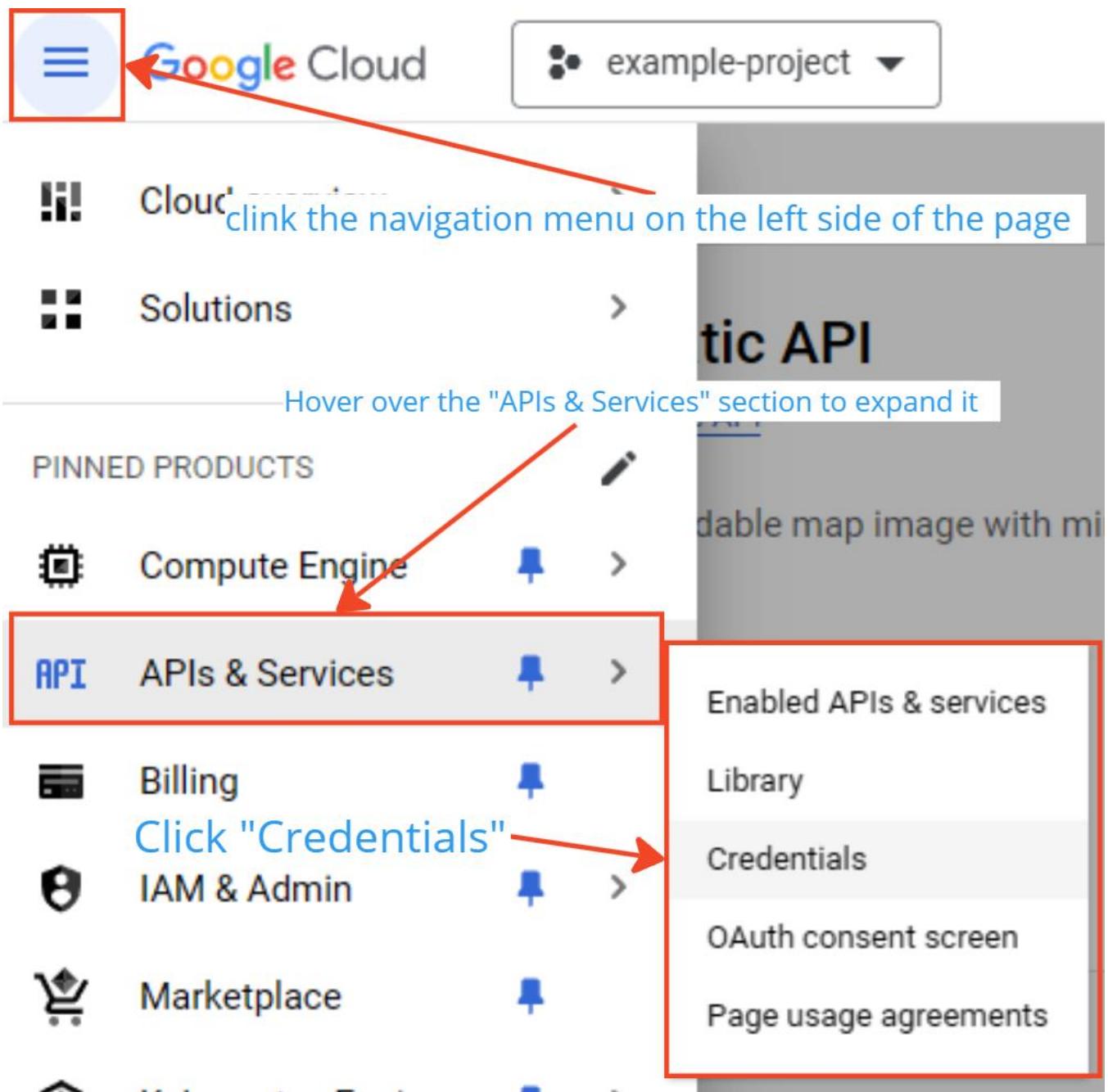
[DOCUMENTATION](#)

[SUPPORT](#)

[RELATED PRODUCTS](#)

4. Create credentials for the API:

1. In the sidebar, click on "APIs & Services" > "Credentials"
2. Click "Create Credentials" and select "API Key"



The screenshot shows the Google Cloud API & Services Credentials page. A blue arrow points from the text "It will expand the dropdown menu" to the "ENABLED APIs & services" dropdown. Another blue arrow points from the text "Click on \"API Key\" until" to the "CREATE CREDENTIALS" button. A red box highlights the "API key" section, which includes a sub-section for "OAuth client ID" and "Service account". A purple arrow points from the "API Keys" section to the "Help me choose" section.

The dialog box displays the message "API key created". It contains the text "Use this key in your application by passing it with the `key=API_KEY` parameter." Below this, there is a text input field containing the API key value: "AIzaSyAP-QGSVAM3ab5DVyRTKkKA-bUDIszBaAw". To the right of the input field is a "Copy" button, which is highlighted with a red box and an arrow pointing to it. A warning message at the bottom left states: "⚠ This key is unrestricted. To prevent unauthorized use, we recommend restricting where and for which APIs it can be used. [Edit API key](#) to add restrictions. [Learn more](#)". At the bottom right of the dialog is a "CLOSE" button.

5. Restrict the API key (recommended):

1. In the API key details page, click "Restrict Key"
2. Under "Application restrictions", choose "IP address" and add your organization's ASN IP
3. Under "API restrictions", select "Restrict key" and choose "Maps Static API"

6. Copy the API key and paste it into your `App.config` file:

`xml`

```
<add key="GoogleMapsApiKey" value="YOUR_API_KEY_HERE"/>
```

Remember to keep your API key secure and never share it publicly. For production use, consider using environment variables or secure key management systems.

## **18.6 Database Setup (Required)**

Choose one of the following methods to set up your database:

### **Method 1: XAMPP**

#### **Downloading and Installing XAMPP**

1. Visit the official XAMPP website: <https://www.apachefriends.org/>
2. Download and install XAMPP for your operating system
3. Start XAMPP Control Panel
4. Start Apache and MySQL services

#### **Configuring Database**

1. Access phpMyAdmin: <http://localhost/phpmyadmin>
2. Create a new database named "itp4915m\_se1d\_group4"
3. Import your SQL scripts to set up the database structure

### **Method 2: Docker**

#### **Downloading and Installing Docker**

1. Visit <https://www.docker.com/products/docker-desktop>
2. Download and install Docker Desktop for your operating system
3. Start Docker Desktop

## 18.6 Configuring Docker for Your Database

1. Create a `docker-compose.yml` file in your project root:

`yaml`

```
version: '3'
services:
  db:
    image: mariadb:10.5
    environment:
      MYSQL_ROOT_PASSWORD: rootpassword
      MYSQL_DATABASE: itp4915m_se1d_group4
    ports:
      - "3306:3306"
    volumes:
      - ./sql-scripts:/docker-entrypoint-initdb.d
  phpmyadmin:
    image: phpmyadmin/phpmyadmin
    ports:
      - "8080:80"
    environment:
      PMA_HOST: db
      PMA_USER: root
      PMA_PASSWORD: rootpassword
```

1. Place your SQL scripts in a folder named `sql-scripts` in your project docker directory
2. Open a terminal/command prompt in your project docker directory
3. Run `docker-compose up -d`
4. Access phpMyAdmin at <http://localhost:8080> to manage your database

## 18.7 Configuring Your Application

Update your App.config file with the appropriate connection string based on your chosen database setup method:

For XAMPP:

xml

```
<add key="ConnectionString1" value="server=localhost;port=3306;user id=root;  
password=;database=itp4915m_se1d_group4;charset=utf8;ConnectionTimeout=30"/>
```

For Docker:

xml

```
<add key="ConnectionString1" value="server=localhost;port=3306;user id=root;  
password=rootpassword;database=itp4915m_se1d_group4;charset=utf8;ConnectionTimeout=  
30"/>
```

## 18.8 Running Your WinForms Application

1. Ensure your chosen database environment (XAMPP or Docker) is running
2. Navigate to the TemplateV1 folder
3. Run LMCIS-1DG4.exe

## 18.9 Accessing Services

- **Main Application:** Run LMCIS-1DG4.exe
- **PHPMyAdmin (XAMPP):** <http://localhost/phpmyadmin>
- **PHPMyAdmin (Docker):** <http://localhost:8080>

## 18.10 Database Cluster Setup (Optional)

For a more robust setup, you can configure a database cluster:

1. Modify the docker-compose.yml to include multiple database instances
2. Set up a load balancer (e.g., HAProxy) to distribute requests
3. Update the connection strings in App.config to point to the load balancer

Example cluster setup in `docker-compose.yml`:

`yaml`

```
services:  
  db-master:  
    image: mariadb:10.5  
    environment:  
      MYSQL_ROOT_PASSWORD: rootpassword  
      MYSQL_DATABASE: itp4915m_se1d_group4  
    ports:  
      - "3306:3306"  
    volumes:  
      - ./sql-scripts:/docker-entrypoint-initdb.d  
  
  db-slave1:  
    image: mariadb:10.5  
    environment:  
      MYSQL_ROOT_PASSWORD: rootpassword  
    ports:  
      - "3307:3306"  
  
  db-slave2:  
    image: mariadb:10.5  
    environment:  
      MYSQL_ROOT_PASSWORD: rootpassword  
    ports:  
      - "3308:3306"  
  
  haproxy:  
    image: haproxy:latest  
    ports:  
      - "3309:3306"  
    volumes:  
      - ./haproxy.cfg:/usr/local/etc/haproxy/haproxy.cfg  
    depends_on:  
      - db-master  
      - db-slave1  
      - db-slave2
```

## **18.11 Stopping the Application**

1. Close the WinForms application
2. Open a terminal/command prompt in your project docker directory
3. For Docker: Open a terminal/command prompt  
Run `docker-compose down`
4. For XAMPP: Stop Apache and MySQL services in XAMPP Control Panel

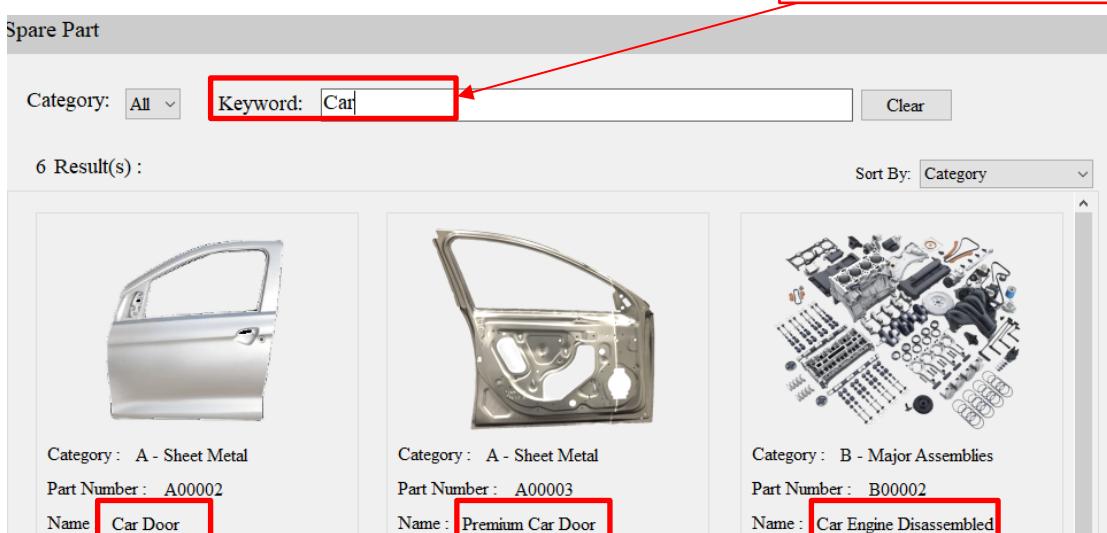
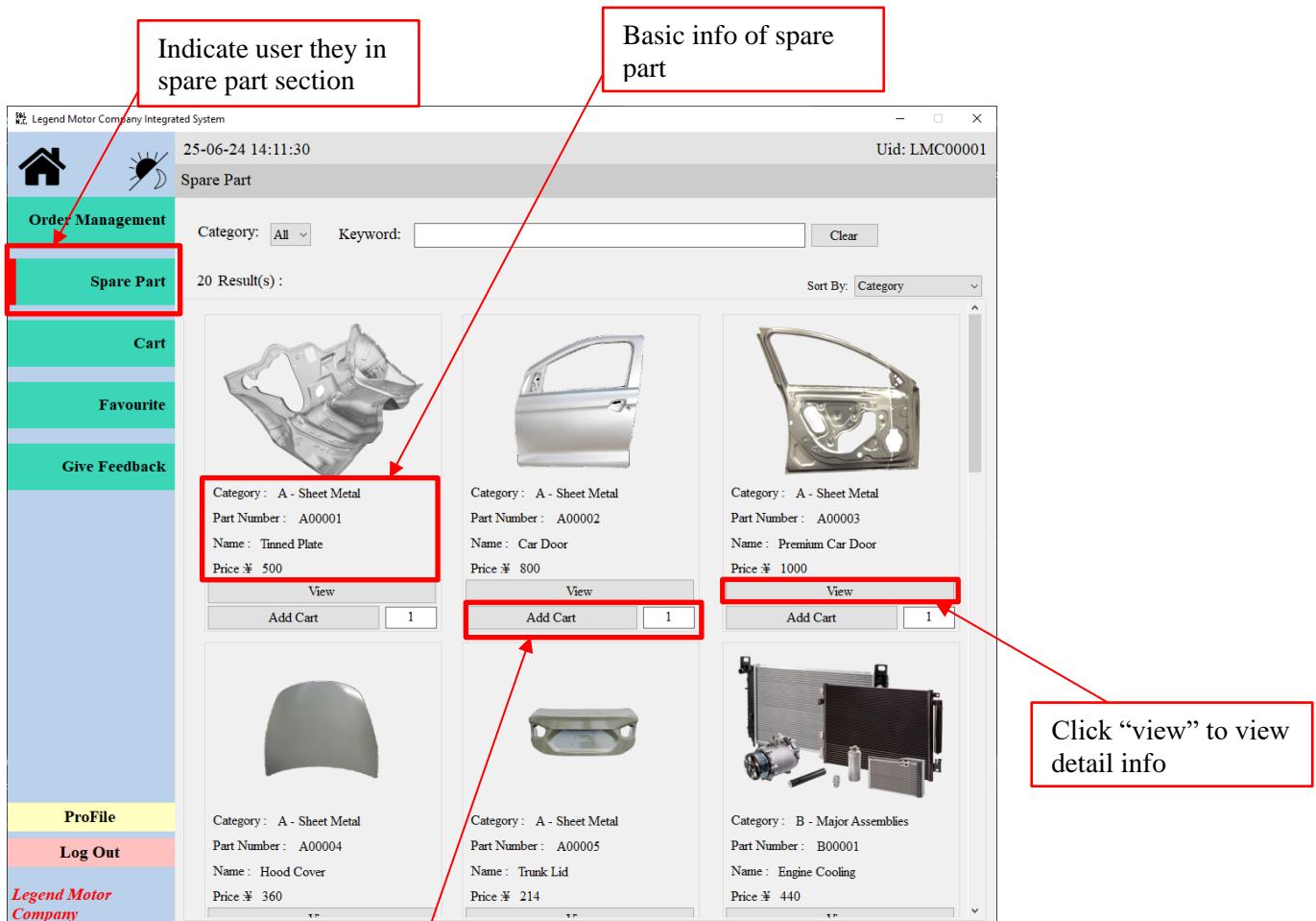
## **18.12 Troubleshooting**

- Verify database connection settings in `App.config`
- Ensure the database service is running (XAMPP or Docker)
- Check that port 3306 is not being used by another application
- Validate your Google Maps API key

Remember to keep sensitive information like API keys and passwords secure, especially in production environments.

# 19. User Guide

## 19.1 Browse Spare Part



After clicking the “View” button, it will go to the page that contain detail info of the selected spare part

The screenshot shows a web-based application interface for 'Legend Motor Company Integrated System'. The top navigation bar includes icons for Home, Logout, and Profile, along with the system name and date (25-06-24 14:47:12). The main content area displays a 3D model of a car part (Tinned Plate) and its details. A sidebar on the left lists 'Order Management', 'Spare Part' (which is highlighted in red), 'Cart', 'Favourite', 'Give Feedback', 'Profile', 'Log Out', and 'Legend Motor Company' (in red).

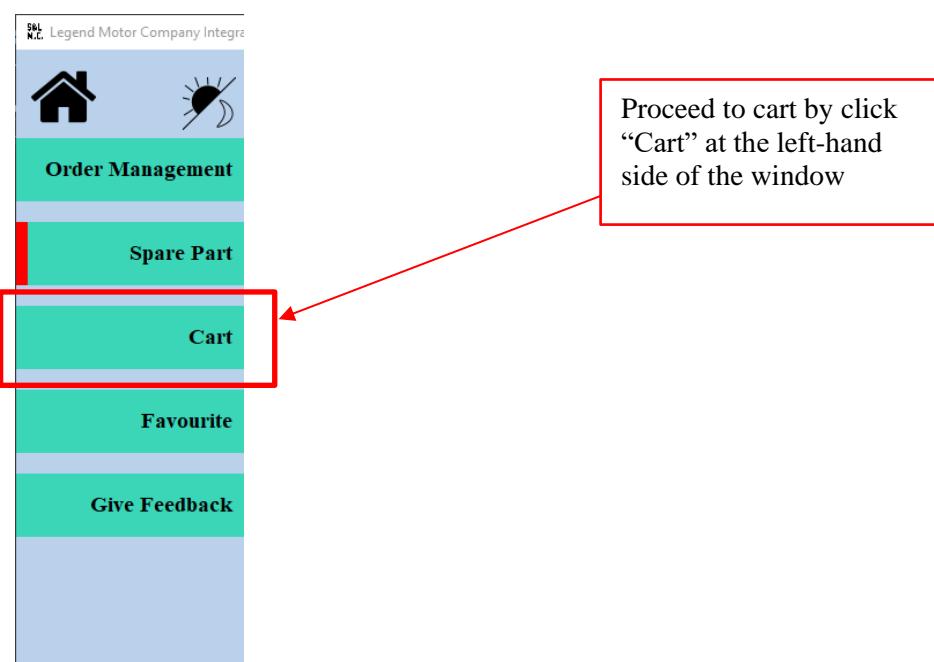
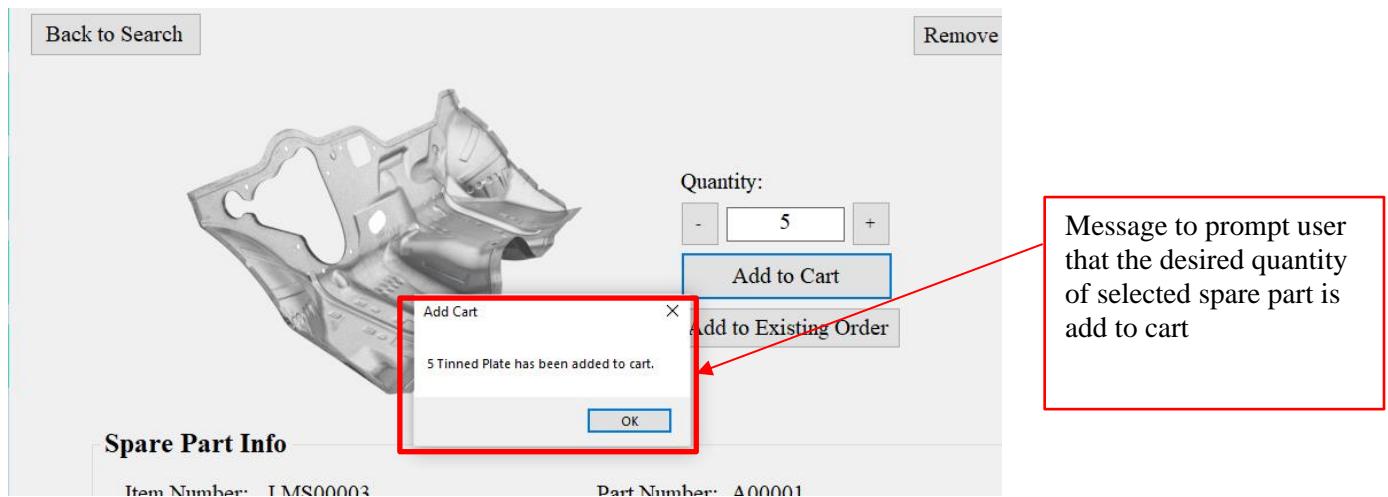
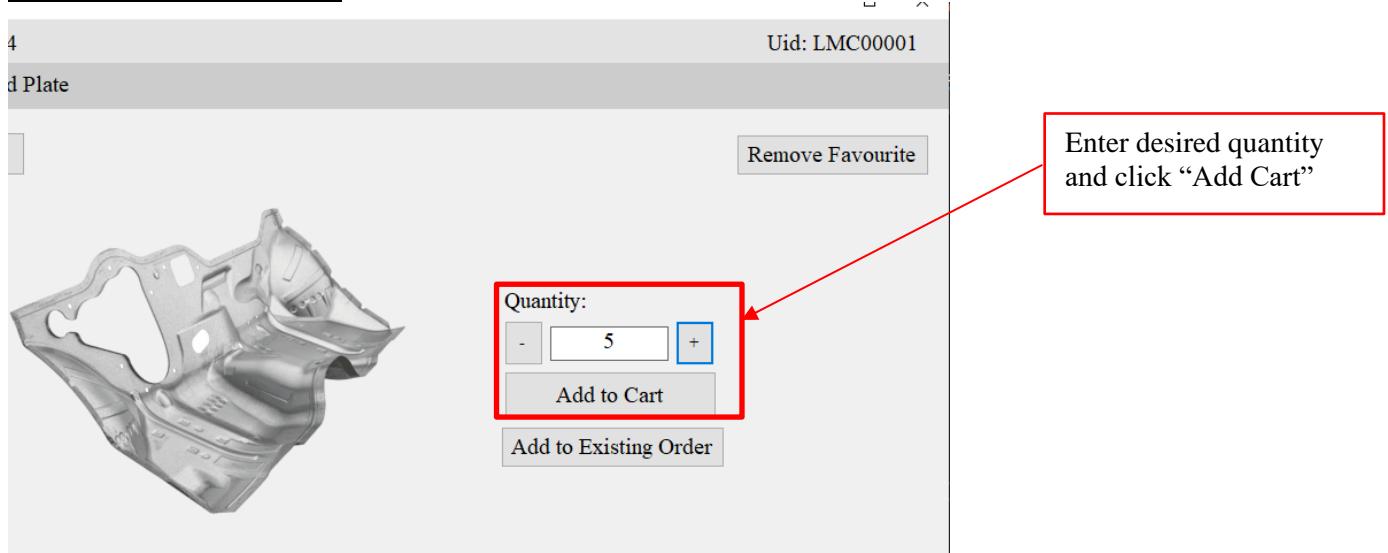
**Spare Part Info:**

- Item Number: LMS00003
- Category: A
- Supplier: Tata Auto Components
- Price: ₹ 500
- Part Number: A00001
- Name: Tinned Plate
- Country of Origin: India
- On Sales Qty: 25

Description: Elevate the appearance of your car with our premium tinned plate cover. Crafted from high-quality metals, this cover adds a touch of elegance and a polished, reflective finish to your vehicle exterior. Designed for a seamless fit, it enhances the overall aesthetics while protecting your car surface from minor scratches and weathering.

A callout box with a red border and arrow points to the 'Add to Cart' button in the sidebar, containing the text: "Click ‘Add Cart’ to add spare part with desired quantity to shopping cart". Another callout box with a red border and arrow points to the 'Detail info of spare part' section in the main content area, containing the text: "Detail info of spare part".

## 19.2 Create Order



We can see that the spare part added is in the cart

Legend Motor Company Integrated System

25-06-24 14:48:21

Uid: LMC00001

Cart

\*All items in cart is reserved

**Order Management**

**Spare Part**

**Cart**

**Favourite**

**Give Feedback**

**Profile**

**Log Out**

**Legend Motor Company**

Search Spare Part

<input type="checkbox"/>	Category	Part Number	Part Name	Quantity	Unit Price	Total
<input type="checkbox"/>	A	A00001	Tinned Plate	5	¥500	¥2500

**Remove Item(s)**

**Remove All**

**Edit Quantity**

**Total: ¥2500**

**Shipping Detail**

Select a shipping date:

June 2024

Sun Mon Tue Wed Thu Fri Sat

30 1 2 3 4 5 6

Today: 6/25/2024

Shipping address:

123 Main Street

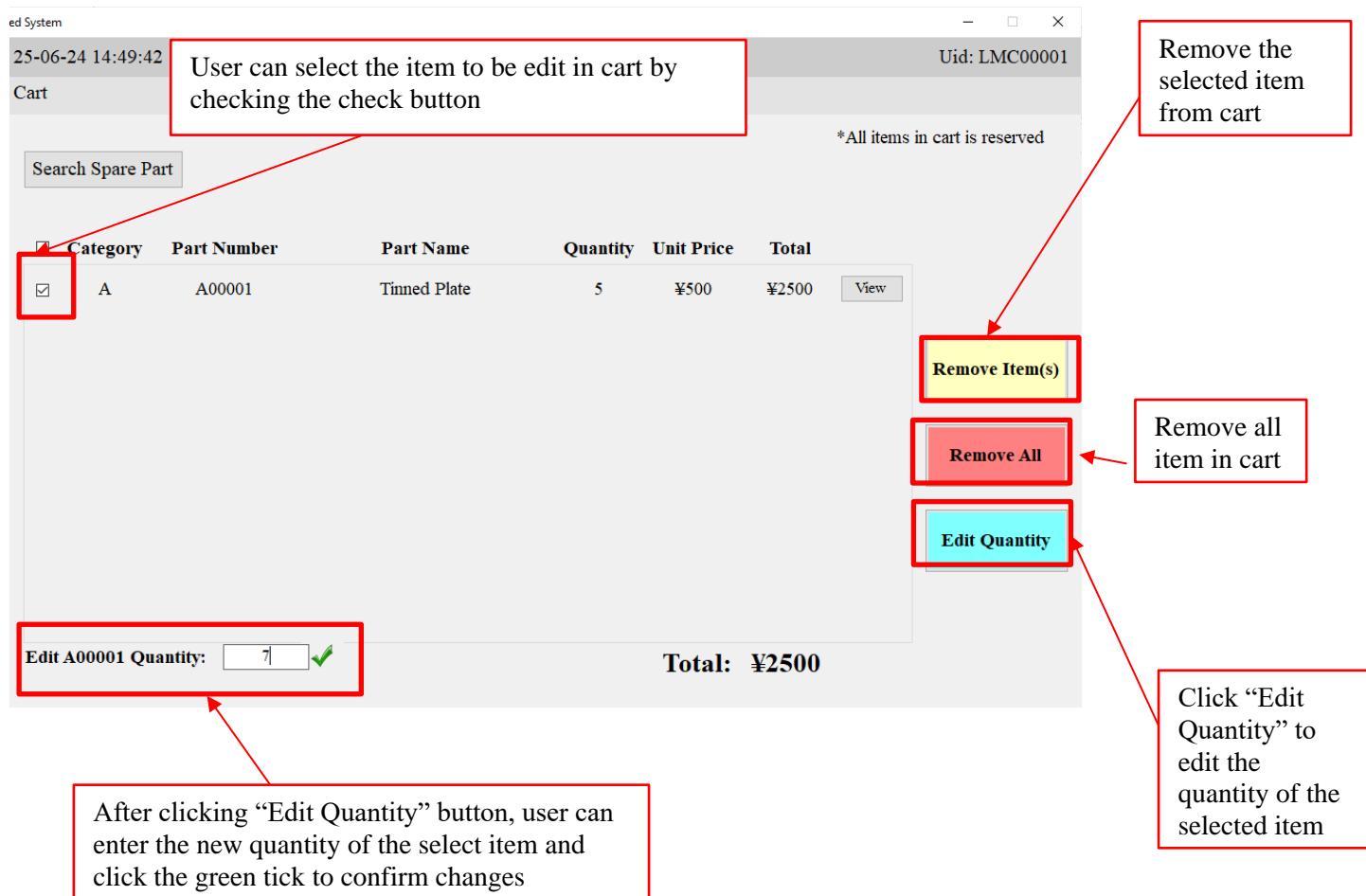
Province: Gansu

City: Jinchang

**Create Order**

Info of the spare part in cart is show here, also with the quantity in cart and subtotal of each item

Total of all item in cart also shown here



Legend Motor Company Integrated System

25-06-24 14:48:21

Cart

\*All items in cart is reserved

Order Management

Spare Part

Cart

Favourite

Give Feedback

Profile

Log Out

Legend Motor Company

Search Spare Part

Category	Part Number	Part Name	Quantity	Unit Price	Total
A	A00001	Tinned Plate	5	¥500	¥2500

**Total: ¥2500**

**Remove Item(s)**

**Remove All**

**Edit Quantity**

Shipping Detail

Select a shipping date:

June 2024

Sun Mon Tue Wed Thu Fri Sat

30 1 2 3 4 5 6 Today: 6/25/2024

Shipping address:

123 Main Street

Province: Gansu

City: Jinchang

**Create Order**

**Select shipping date**

This part show the shipping detail that can be edit before creation of order

Click this little pen to edit the shipping address.  
The shipping show by default is the address entered when the dealer create their account

Shipping Detail

Select a shipping date:

June 2024

Sun Mon Tue Wed Thu Fri Sat

30 1 2 3 4 5 6 Today: 6/25/2024

Shipping address:

567 Main Street

Province: Gansu

City: Jinchang

**Create Order**

Address is edited after clicking the pencil

Click “Create Order” Button to create the order

Search Spare Part

Category	Part Number	Part Name	Quantity	Unit Price	Total
A	A00001	Tinned Plate	7	¥500	¥3500
View					

Create Order

Confirm the following detail:  
Shipping Date: 2024-06-30  
Shipping Address: 123 Main Street, Gansu, Jinchang

Total: ¥3500

After clicking the “Create Order” button, the system ask the user to double confirm the shipping date and shipping address is correct, if user click “Yes”, order is created, otherwise, it will remain in the cart to edit the shipping detail

Click “Order Management” on the left-hand side of the window to view all order

Legend Motor Company Integrated System

25-06-24 14:51:02 Uid: LMC00001

Order Management -> Order List

Search by OrderID:  Clear

Order ID	Order Date	Staff Incharge	Staff Contact	Status	Status:	All
OD24020001	2/11/2024	Lily Li	09876543211	Shipped		<input type="button" value="View Order"/>
OD24050002	5/15/2024	Lily Li	09876543211	Shipped		<input type="button" value="View Order"/>
OD24060001	6/1/2024	Lily Li	09876543211	Ready to Ship		<input type="button" value="View Order"/>
OD24060002	6/5/2024	Lily Li	09876543211	Ready to Ship		<input type="button" value="View Order"/>
OD24060003	6/6/2024	Lily Li	09876543211	Processing		<input type="button" value="View Order"/>
OD24060004	6/12/2024	Lily Li	09876543211	Processing		<input type="button" value="View Order"/>
OD24060005	6/12/2024	Lily Li	09876543211	Pending		<input type="button" value="View Order"/>
OD24060006	6/25/2024	Michael Wu	09876543213	Pending		<input type="button" value="View Order"/>
OD24060007	6/25/2024	Mei Chan	09876543210	Pending		<input type="button" value="View Order"/>

Profile

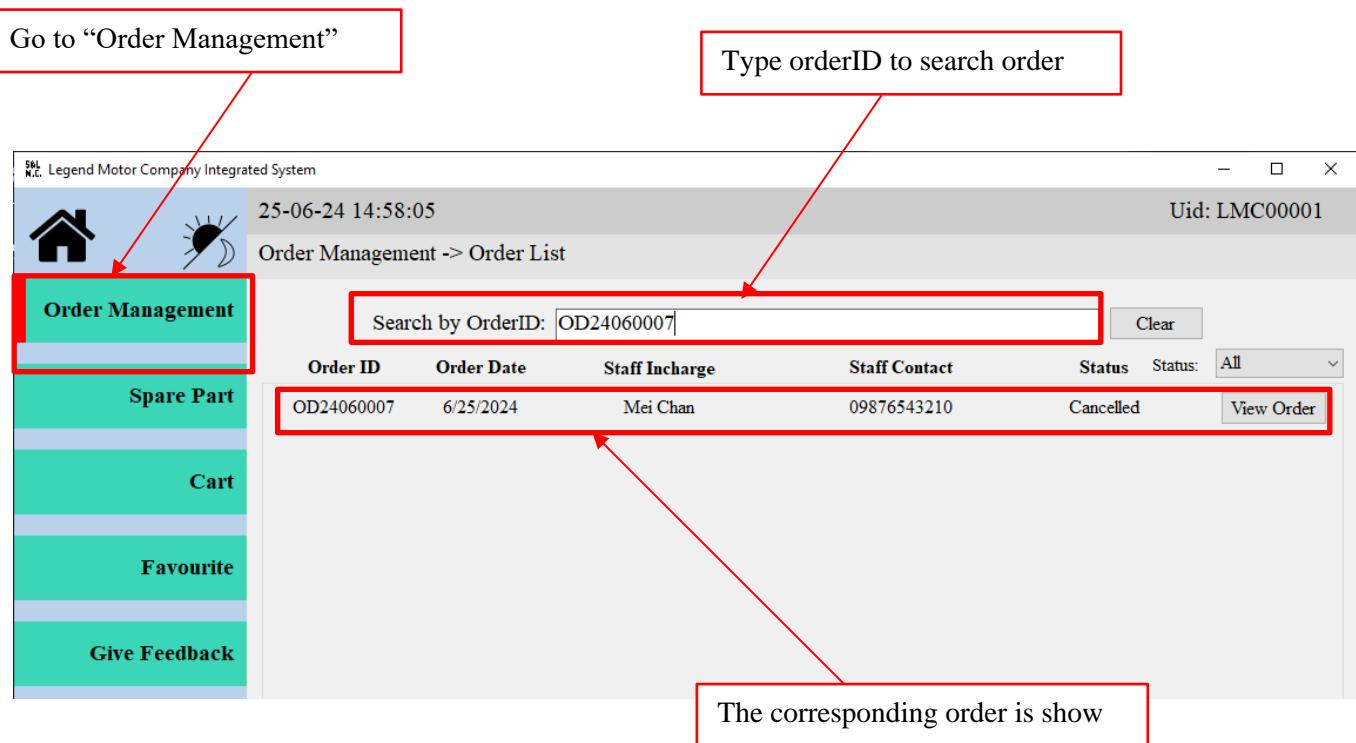
Log Out

Legend Motor Company

Order(s) Shown: 9

A new order is created

## 19.3 Search Order



## 19.4 View Order

ed System

25-06-24 14:51:02 Uid: LMC00001

Order Management -> Order List

Search by OrderID:  Clear

Status: All

Order ID	Order Date	Staff Incharge	Staff Contact	Status	Action
OD24020001	2/11/2024	Lily Li	09876543211	Shipped	<button>View Order</button>
OD24050002	5/15/2024	Lily Li	09876543211	Shipped	<button>View Order</button>
OD24060001	6/1/2024	Lily Li	09876543211	Ready to Ship	<button>View Order</button>
OD24060002	6/5/2024	Lily Li	09876543211	Ready to Ship	<button>View Order</button>
OD24060003	6/6/2024	Lily Li	09876543211	Processing	<button>View Order</button>
OD24060004	6/12/2024	Lily Li	09876543211	Processing	<button>View Order</button>
OD24060005	6/12/2024	Lily Li	09876543211	Pending	<button>View Order</button>
OD24060006	6/25/2024	Michael Wu	09876543213	Pending	<button>View Order</button>
OD24060007	6/25/2024	Mei Chan	09876543210	Pending	<button>View Order</button>

After clicking “View Order” of a specific order, user will be directed to the order’s page.

Legend Motor Company Integrated System

25-06-24 14:51:32 Uid: LMC00001

Order Management -> Order List -> Order OD24060007

Order ID : OD24060007 Deliverman ID : LMD002  
 Order Serial Number : SN24060007 Deliverman Name : Mei Wang  
 Order Date : 6/25/2024 Deliverman Contact : 15987654321  
 Staff Incharge : Mei Chan Shipping Date : Scheduled on 6/30/2024  
 StaffID : LMS00002 Days Until Shipping : 5 day(s) until shipping  
 Staff Contact : 09876543210 Express Number :  
 Status : Pending Shipping Address : 123 Main Street, Gansu, Jinchang

Item No. Part No. Name Quantity Unit Price Total Price  
 1. LMP0001 A0001 Tinned Plate 7 ¥500 ¥3500

Sort By: None Total Price : ¥ 3500

Re-order Cancel Order View Invoice Edit Order

User can sort the spare part with different options

Different actions for user to perform

## 19.5 Cancel Order

Sort By: None Total Price : ¥ 3500

Return Re-order Cancel Order View Invoice Edit Order

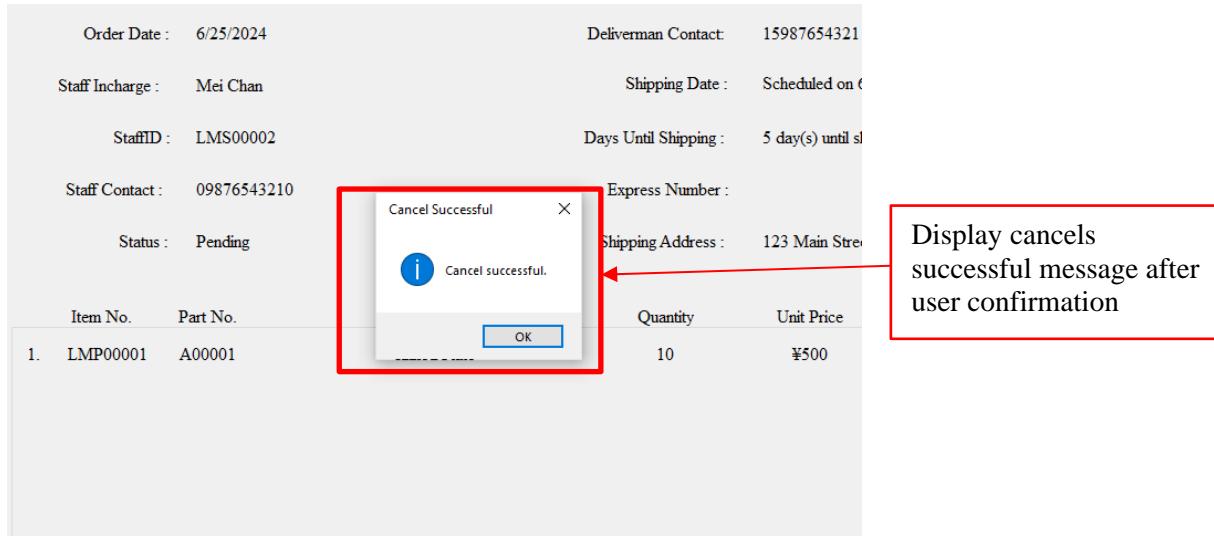
Order ID : OD24060007 Deliverman ID : LMD002  
 Order Serial Number : SN24060007 Deliverman Name : Mei Wang  
 Order Date : 6/25/2024 Deliverman Contact: 15987654321  
 Staff Incharge : Mei Chan Shipping Date : Scheduled on 6/30/2024  
 StaffID : LMS00002 Days Until Shipping : 5 day(s) until shipping  
 Staff Contact : 0987654 Confirmation Number :  
 Status : Pending Address : 123 Main Street, Gansu, China

Item No.	Part No.	Name	Quantity	Unit Price	Total Price
1. LMP00001	A00001	Tinned Plate	7	¥500	¥3500

Confirmation

Are you sure you want to cancel order OD24060007 ? Your action cannot be revoked after confirming it.

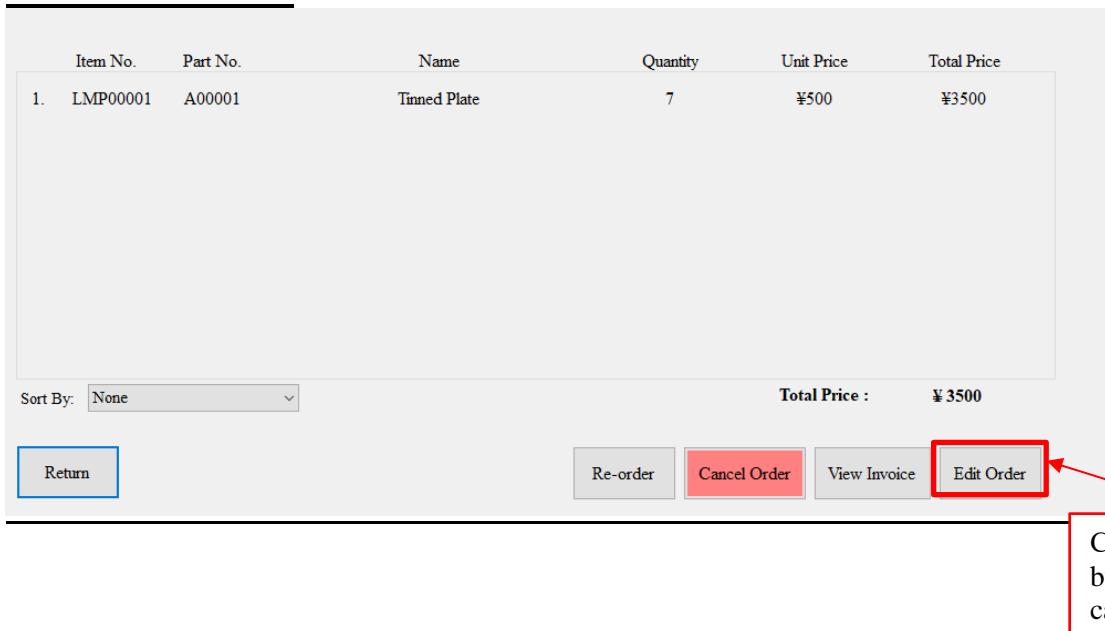
Yes No



Order ID	Order Date	Staff	Express Number	Status	Action
OD24060004	6/12/2024	Lily Li	09876543211	Processing	<button>View Order</button>
OD24060005	6/12/2024	Lily Li	09876543211	Pending	<button>View Order</button>
OD24060006	6/25/2024	Michael Wu	09876543213	Pending	<button>View Order</button>
OD24060007	6/25/2024	Mei Chan	09876543210	Cancelled	<button>View Order</button>

The status become cancelled

## 19.6 Edit Order

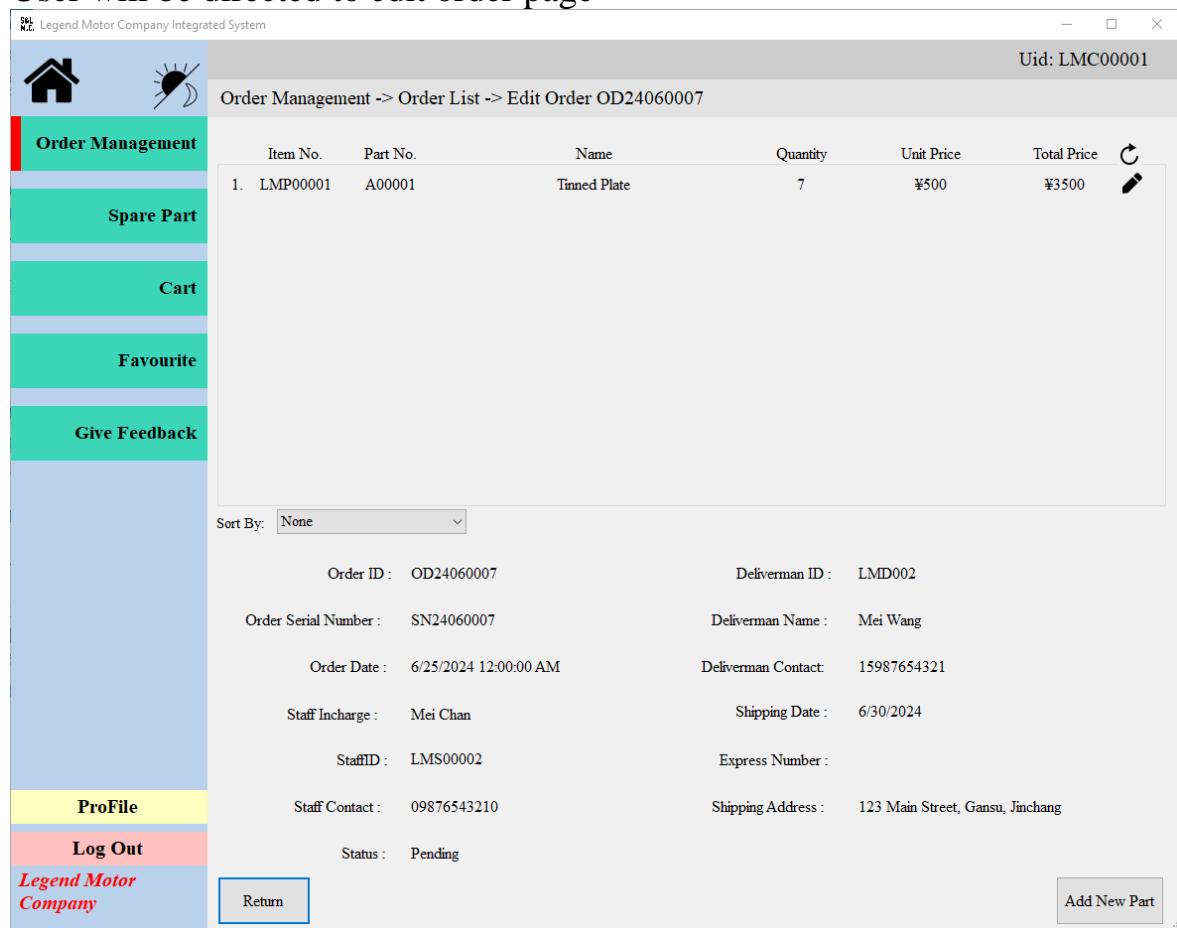


The screenshot shows a table with one row of data:

Item No.	Part No.	Name	Quantity	Unit Price	Total Price
1. LMP00001	A00001	Tinned Plate	7	¥500	¥3500

Below the table, there is a "Sort By:" dropdown set to "None". To the right, it displays "Total Price : ¥3500". At the bottom, there are four buttons: "Return", "Re-order", "Cancel Order" (which is highlighted with a red box), and "View Invoice". A red arrow points from a callout box to the "Edit Order" button, which is also highlighted with a red box. The callout box contains the text: "Click 'Edit Order' button in order page to cancel the order".

User will be directed to edit order page



The screenshot shows the "Edit Order OD24060007" page. On the left is a vertical navigation menu with buttons for Home, Order Management (highlighted with a red box), Spare Part, Cart, Favourite, Give Feedback, Profile, Log Out, and Legend Motor Company. The main content area displays the following details:

Item No.	Part No.	Name	Quantity	Unit Price	Total Price	Action
1. LMP00001	A00001	Tinned Plate	7	¥500	¥3500	

Below the table, there is a "Sort By:" dropdown set to "None". Further down, detailed order information is listed:

- Order ID : OD24060007
- Deliverman ID : LMD002
- Order Serial Number : SN24060007
- Deliverman Name : Mei Wang
- Order Date : 6/25/2024 12:00:00 AM
- Deliverman Contact: 15987654321
- Staff Incharge : Mei Chan
- Shipping Date : 6/30/2024
- StaffID : LMS00002
- Express Number :
- Staff Contact : 09876543210
- Shipping Address : 123 Main Street, Gansu, Jinchang
- Status : Pending

At the bottom, there are "Return" and "Add New Part" buttons.

Order Management -> Order List -> Edit Order OD24060007						
Item No.	Part No.	Name	Quantity	Unit Price	Total Price	C
1. LMP00001	A00001	Tinned Plate	7	¥500	¥3500	

Click the pen to edit the quantity of the corresponding spare part

After clicking the pen, a textbox and a rubbish bin image is shown

Item No.	Part No.	Name	Quantity	Unit Price	Total Price	C
1. LMP00001	A00001	Tinned Plate	7	¥500	¥3500	

Edit A00001 quantity :

Click the pencil to edit the quantity of the corresponding spare part

Item No.	Part No.	Name	Quantity	Unit Price	Total Price	C
1. LMP00001	A00001	Tinned Plate	7	¥500	¥3500	

Edit Successful

Edit successful.

OK

Edit A00001 quantity :

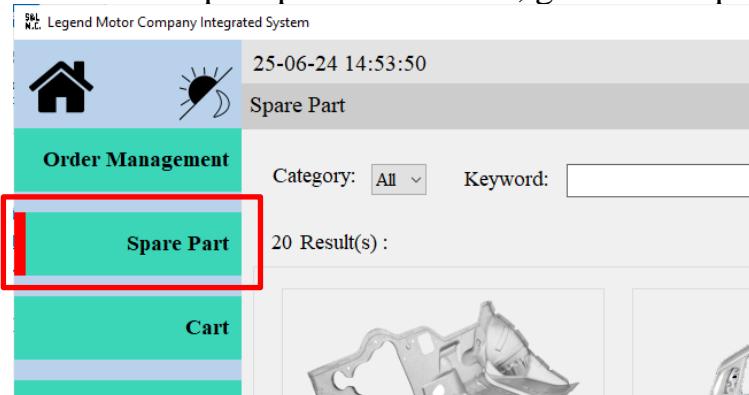
Display edit successful message after clicking the green tick

Enter new quantity desired and click the green tick

Item No.	Part No.	Name	Quantity	Unit Price	Total Price	
1. LMP00001	A00001	Tinned Plate	10	¥500	¥5000	

Quantity is updated

To add new spare part to the order, go back to spare part list



Go into the spare part's detail info page

The screenshot shows a detailed view of a USB Car Charger. The sidebar includes 'Back to Search' and 'Add to Favourite' buttons. The main content area shows the part image, a quantity selector (set to 1), and an 'Add to Cart' button. A red box highlights the 'Add to Existing Order' button. To the right, a callout box says: 'Click "Add to Existing Order" button to add this spare part to an existing order'.

Item Number:	LMS00003	Part Number:	D00002
Category:	D	Name:	USB Car Charger
Supplier:	Guangzhou Jincheng Auto Group	Country of Origin:	China
Price:	¥ 800	On Sales Qty:	499

Description: Charge your devices on-the-go with our versatile USB car charger cover. Designed to seamlessly integrate with your vehicle power outlet, this cover protects the charger from dust and damage while providing multiple USB ports for simultaneous charging. Keep your devices powered up and your car interior looking sleek and organized.

After clicking the “Add to Existing Order” Button, user will be directed to a new page

Legend Motor Company Integrated System

25-06-24 14:54:23 Uid: LMC00001

**Order Management**

Add USB Car Charger to Order

**Spare Part**

Part Number: D00002

**Cart**

Part Name: USB Car Charger

**Favourite**

Category: D - Accessories

Supplier: Guangzhou Jincheng Auto Group

**Give Feedback**

Country of Origin: China

Price: ¥ 800

On Sale Qty: 499

Select an Order:

Quantity to Add:  1

**Profile**

Shipping Date:

Days Until Shipping:

Order Status:

\*only pending or processing order can add new spare part(s)

**Add to Order**



Category: D - Accessories

Supplier: Guangzhou Jincheng Auto Group

Country of Origin: China

Price: ¥ 800

On Sale Qty: 499

Select an Order:

Quantity to Add:  1

Shipping Date: 7/31/2024

Days Until Shipping: 36 day(s) until shipping.

Order Status: Processing

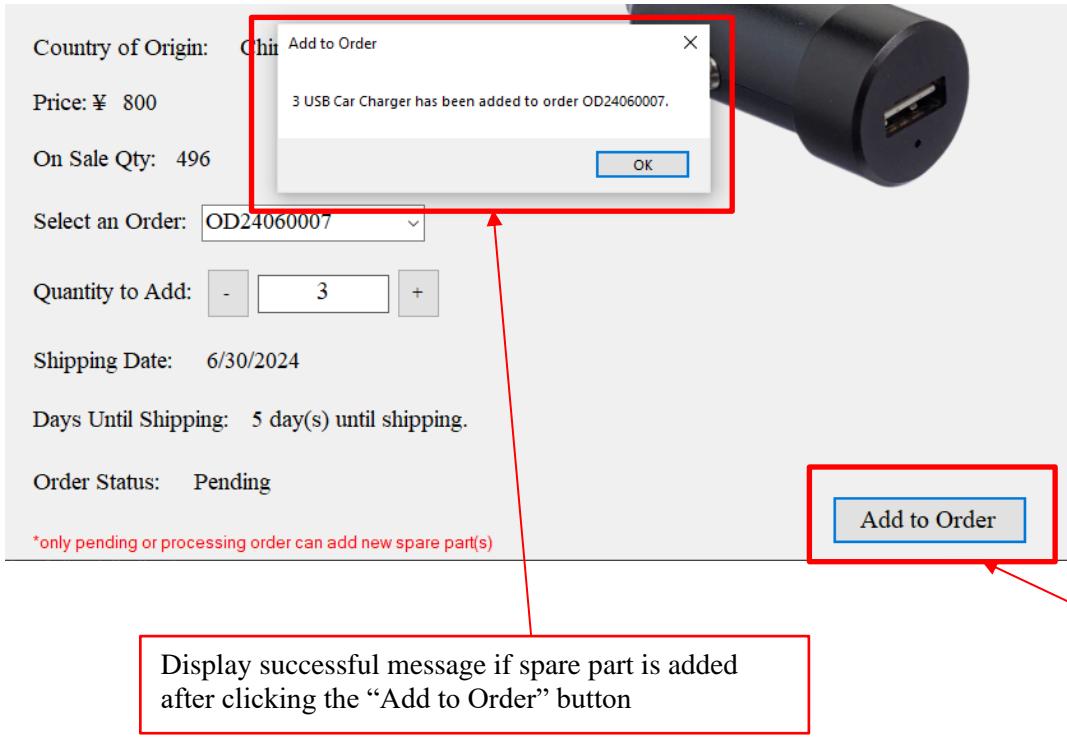
\*only pending or processing order can add new spare part(s)

**Add to Order**



User can select which order to add this spare part with desired quantity

Only pending order or processing order can add new spare part. The combo box only show these order for user to select



Go back to the order's page

Order ID : OD24060007		Deliverman ID : LMD002	
Order Serial Number : SN24060007		Deliverman Name : Mei Wang	
Order Date : 6/25/2024		Deliverman Contact: 15987654321	
Staff Incharge :	Mei Chan	Shipping Date :	Scheduled on 6/30/2024
StaffID :	LMS00002	Days Until Shipping :	5 day(s) until shipping
Staff Contact :	09876543210	Express Number :	
Status :	Pending	Shipping Address :	123 Main Street, Gansu, Jinchang
Item No.	Part No.	Name	Quantity
1. LMP00001	A00001	Tinned Plate	10
2. LMP00017	D00002	USB Car Charger	3

Total Price : ¥ 7400

Sort By: None

Buttons at the bottom: Return, Re-order, Cancel Order (highlighted in red), View Invoice, Edit Order.

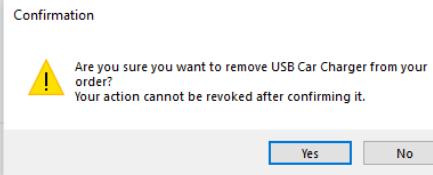
The spare part is added to the order

To delete spare part in the order, click the red rubbish bin after clicking the pen

Item No.	Part No.	Name	Quantity	Unit Price	Total Price	↻	✎	trash
1. LMP00001	A00001	Tinned Plate	10	¥500	¥5000			
2. LMP00017	D00002	USB Car Charger	3	¥800	¥2400			

Click to delete specific spare part in the order

Sort By:	None	Order ID :	OD24060007	Deliverman ID :	LMD002



The system will warn the user before deletion of spare part and confirm it

Sort By:	None	Edit D

After user confirmation, success message is shown

Item No.	Part No.	Name	Quantity	Unit Price	Total Price	↻	✎
1. LMP00001	A00001	Tinned Plate	10	¥500	¥5000		

The deleted spare part is no longer exist in the order

## 19.7 Re-Order

Go to a specific order's page first

Legend Motor Company Integrated System

25-06-24 14:56:20 Uid: LMC00001

Order Management -> Order List -> Order OD24060007

Order Management	Order ID : OD24060007	Deliverman ID : LMD002
Spare Part	Order Serial Number : SN24060007	Deliverman Name : Mei Wang
Cart	Order Date : 6/25/2024	Deliverman Contact: 15987654321
Favourite	Staff Incharge : Mei Chan	Shipping Date : Scheduled on 6/30/2024
Give Feedback	StaffID : LMS00002	Days Until Shipping : 5 day(s) until shipping
	Staff Contact : 09876543210	Express Number :
	Status : Pending	Shipping Address : 123 Main Street, Gansu, Jinchang

Item No. Part No. Name Quantity Unit Price Total Price

1. LMP00001 A00001	Tinned Plate	10	¥500	¥5000
--------------------	--------------	----	------	-------

Sort By: None Total Price : ¥ 5000

Return Re-order Cancel Order View Invoice Edit Order

Click the “Re-order” button to re-order this order

Staff Contact : 09876543210 Express Number :

Status : Pending

Item No. Part No.

1. LMP00001 A00001	Address : 123 Main Street, Gansu, Jinchang
--------------------	--

All available item in this order added to cart.  
Proceed to cart to create order?

Re-order Yes No

Unit Price Total Price

¥500 ¥5000

Sort By: None Total Price : ¥ 5000

Return Re-order Cancel Order View Invoice Edit Order

Prompt the user that all spare part in this order is added to cart if they are available

Proceed to cart to see spare part in that order is add to cart

Legend Motor Company Integrated System

25-06-24 14:56:49 Uid: LMC00001

Cart

\*All items in cart is reserved

Order Management

Spare Part

**Cart**

Favourite

Give Feedback

Profile

Log Out

Legend Motor Company

Search Spare Part

Category	Part Number	Part Name	Quantity	Unit Price	Total
A	A00001	Tinned Plate	10	¥500	¥5000

Total: ¥5000

Remove Item(s)

Remove All

Edit Quantity

Shipping Detail

Select a shipping date:

Shipping address:

Province: Gansu

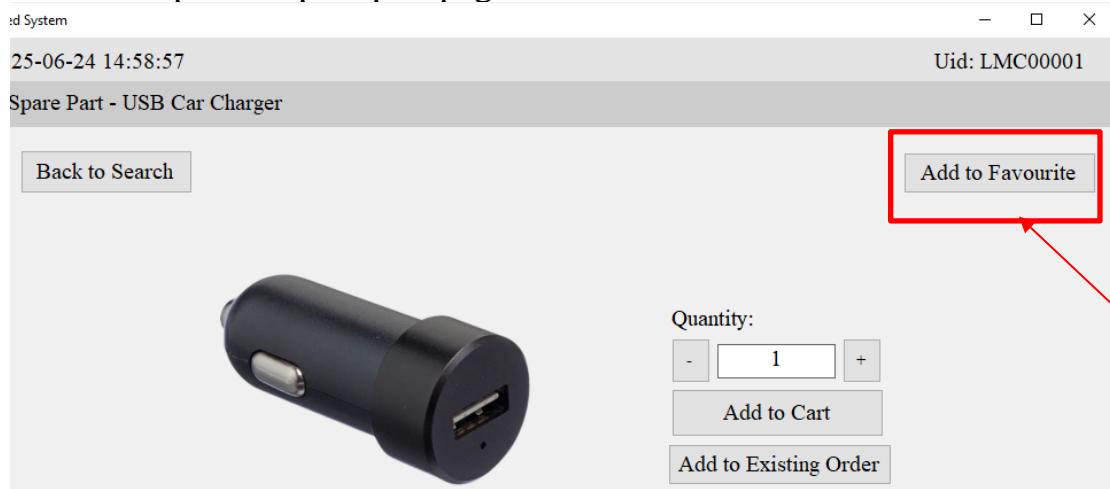
City: Jinchang

Create Order

Click "Create Order" to complete re-order process, same as create order

## 19.8 Add to Favourite

Go to the specific spare part page first



**Spare Part Info**

Item Number: LMS00003	Part Number: D00002
-----------------------	---------------------

Legend Motor Company Integral

Order Management

Spare Part

Cart

**Favourite**

Give Feedback

Profile

Log Out

Legend Motor Company

Proceed to favourite section by clicking “Favourite” button at the left-hand side of the window

S.M.C. Legend Motor Company Integrated System

25-06-24 14:59:21

Favourite

Uid: LMC00001

**Order Management**

**Spare Part**

**Cart**

**Favourite**

**Give Feedback**

**Profile**

**Log Out**

**Legend Motor Company**

Category: All Keyword:

Sort By: Category

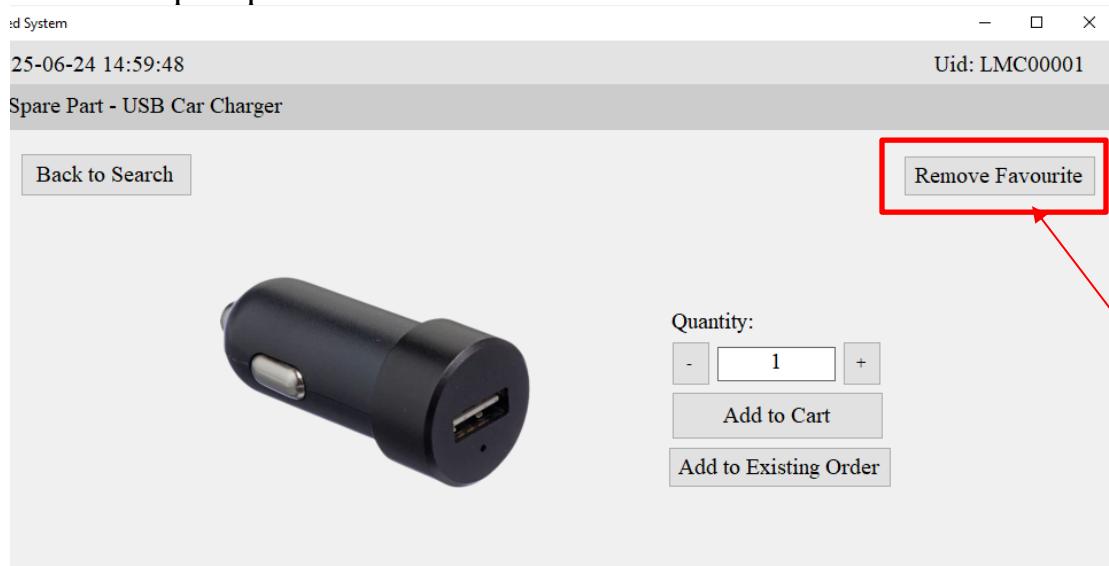
8 Result :

 <p>Category : B - Major Assemblies            Part Number : B00005            Name : Air Suspension Compressor            Price ¥ 145</p> <p><a href="#">View</a>  <a href="#">Remove from favourite</a></p>	 <p>Category : C - Light Components            Part Number : C00003            Name : Headlight            Price ¥ 200</p> <p><a href="#">View</a>  <a href="#">Remove from favourite</a></p>	 <p>Category : C - Light Components            Part Number : C00005            Name : Front Headlight            Price ¥ 100</p> <p><a href="#">View</a>  <a href="#">Remove from favourite</a></p>
 <p>Category : D - Accessories            Part Number : D00001            Name : Tire Pressure Monitor            Price ¥ 340</p> <p><a href="#">View</a>  <a href="#">Remove from favourite</a></p>	 <p>Category : D - Accessories            Part Number : D00002            Name : USB Car Charger            Price ¥ 800</p> <p><a href="#">View</a>  <a href="#">Remove from favourite</a></p>	

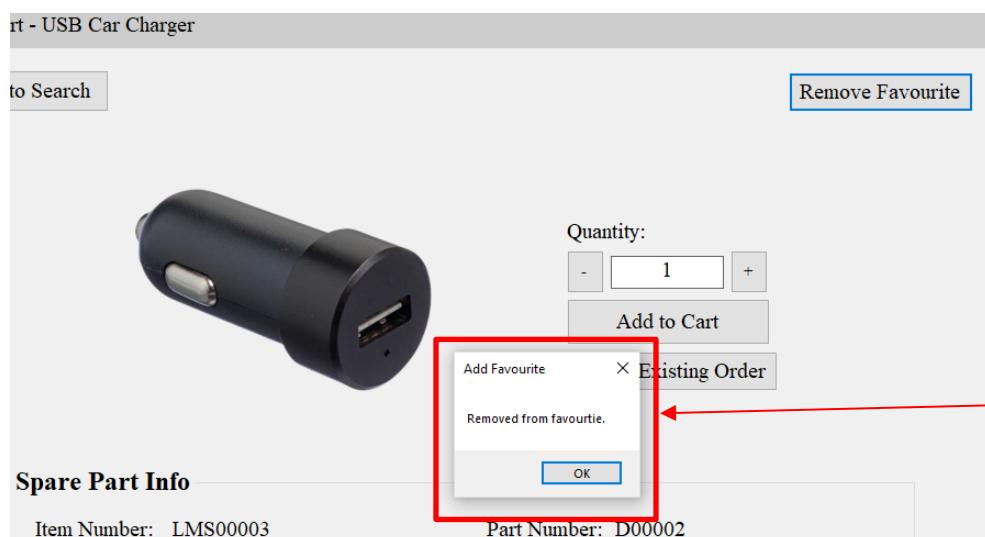
All the favourite spare part is shown here

## 19.9 Remove from Favourite

Go to the spare part that is favourite



Click “Remove Favourite” button to remove this spare part from favourite



The system prompt the user that this spare part is removed form favourite

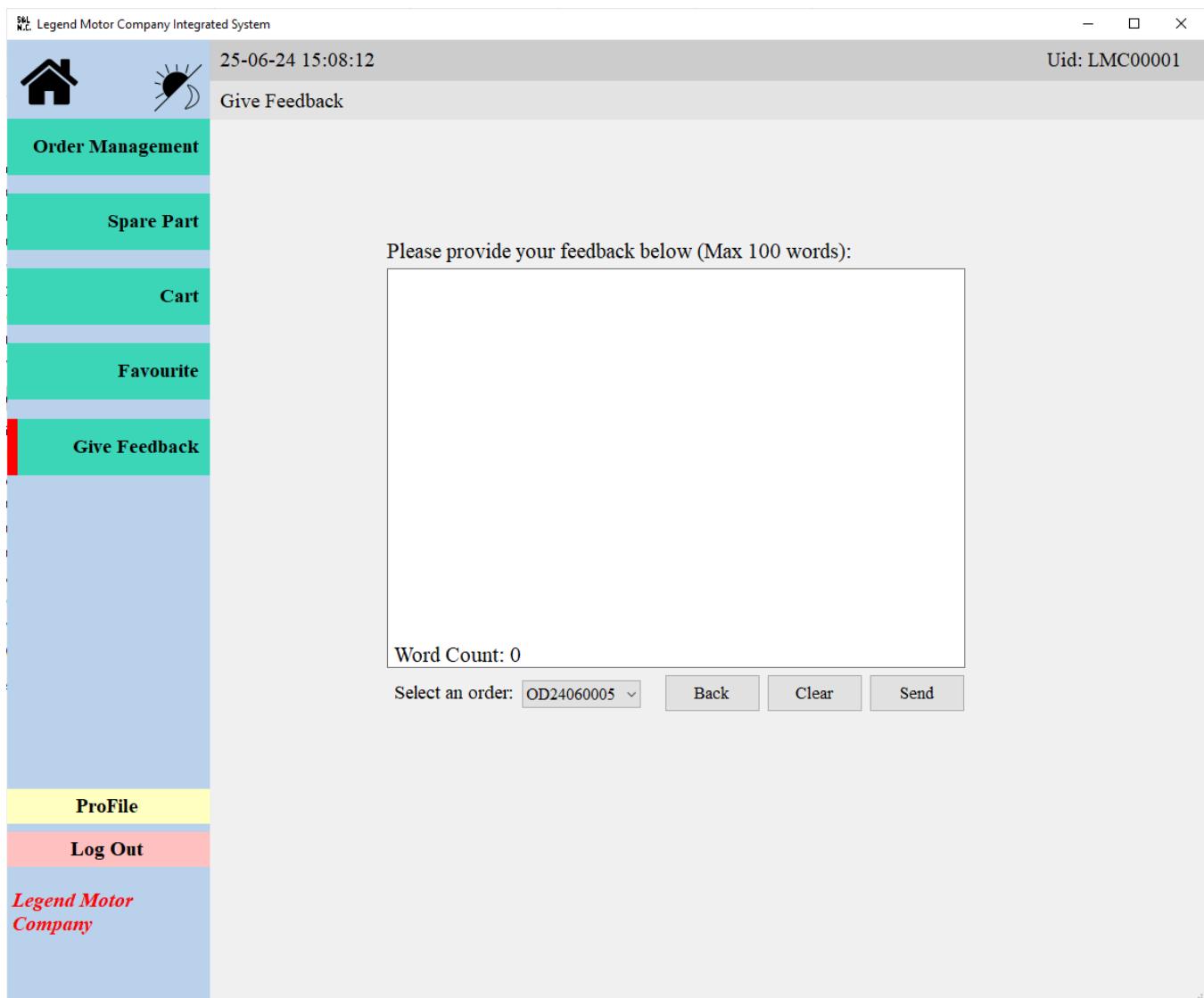
Alternatively, user can go to favorite section to remove spare part from favorite

The screenshot shows the Legend Motor Company Integrated System interface. On the left is a vertical navigation bar with icons for Home, Order Management, Spare Part, Cart, Favourite (which is highlighted with a red border), and Give Feedback. The main area displays a timestamp (25-06-24 15:00:08) and a 'Favourite' section header. It includes search filters for Category (All) and Keyword, and a results count of 7. Below this is a grid of spare parts. One row is fully visible, showing an Air Suspension Compressor (Category: B - Major Assemblies, Part Number: B00005, Name: Air Suspension Compressor, Price: ¥ 145). A red box highlights the 'Remove from favourite' button in the row's footer. To the right of this row, another part is partially visible. A callout box with a red border and arrow points to the 'Remove from favourite' button, containing the text: 'Click "Remove from favourite" to remove spare part from favourite'.

## **19.10 Give Feedback**

Go to give feedback section through left hand side button on the window





# 20. Schedule

## 20.1 Planned Schedule

		Name	Duration	Start	Finish	Predecessors	Resource Names
1		Understand the Case	7 days	1/15/24 8:00 AM	1/23/24 5:00 PM		
2		Project Planning	3 days	1/24/24 8:00 AM	1/26/24 5:00 PM	1	
3		Problem Finding	5 days	1/29/24 8:00 AM	2/2/24 5:00 PM	2	
4		Functional Requirement	7 days	2/5/24 8:00 AM	2/13/24 5:00 PM	3	
5		Non-Functional Requirement	5 days	2/5/24 8:00 AM	2/9/24 5:00 PM	3	
6		Driven Question	1 day	2/5/24 8:00 AM	2/5/24 5:00 PM	3	
7		Conclusion	1 day	2/5/24 8:00 AM	2/5/24 5:00 PM	3	
8		Make Up Requirement Specification	5 days	2/6/24 8:00 AM	2/12/24 5:00 PM	7	
9		System Architecture	2 days	3/4/24 8:00 AM	3/5/24 5:00 PM	8	
10		Hardware and Software	2 days	3/4/24 8:00 AM	3/5/24 5:00 PM	8	
11		Constraints and Limitation	2 days	3/6/24 8:00 AM	3/7/24 5:00 PM	10	
12		Staffing	2 days	3/6/24 8:00 AM	3/7/24 5:00 PM	10	
13		Actor Description	2 days	3/8/24 8:00 AM	3/11/24 5:00 PM	12	
14		Use Case Diagram	4 days	3/12/24 8:00 AM	3/15/24 5:00 PM	13	
15		Use Case Description	4 days	3/12/24 8:00 AM	3/15/24 5:00 PM	13	
16		Class Diagram	4 days	3/18/24 8:00 AM	3/21/24 5:00 PM	15	
17		Database Design	2 days	3/22/24 8:00 AM	3/25/24 5:00 PM	16	
18		ER Diagram	2 days	3/26/24 8:00 AM	3/27/24 5:00 PM	17	
19		Sequence Diagram	3 days	3/28/24 8:00 AM	4/1/24 5:00 PM	18	
20		UI Design	3 days	4/2/24 8:00 AM	4/4/24 5:00 PM	19	
21		Gantt Chart	1 day	4/5/24 8:00 AM	4/5/24 5:00 PM	20	
22		Project Log	1 day	4/5/24 8:00 AM	4/5/24 5:00 PM	20	
23		Make Up Design Specification	1 day	4/5/24 8:00 AM	4/5/24 5:00 PM	20	
24		Test Plan	10 days	4/8/24 8:00 AM	4/19/24 5:00 PM	23	
25		Report Presentation	2 days	4/22/24 8:00 AM	4/23/24 5:00 PM	24	
26		Software Development (Prototype 1)	12 days	4/24/24 8:00 AM	5/9/24 5:00 PM	25	
27		User Guide	2 days	5/10/24 8:00 AM	5/13/24 5:00 PM	26	
28		Testing	7 days	5/14/24 8:00 AM	5/22/24 5:00 PM	27	
29		Software Development (Prototype 2)	12 days	5/23/24 8:00 AM	6/7/24 5:00 PM	28	
30		New User Guide	2 days	6/10/24 8:00 AM	6/11/24 5:00 PM	29	
31		Testing	7 days	6/12/24 8:00 AM	6/20/24 5:00 PM	30	
32		Installation Guide	2 days	6/21/24 8:00 AM	6/24/24 5:00 PM	31	
33		Final Report	5 days	6/25/24 8:00 AM	7/1/24 5:00 PM	32	
34		Final Report Presentation	1 day	7/2/24 8:00 AM	7/2/24 5:00 PM	33	

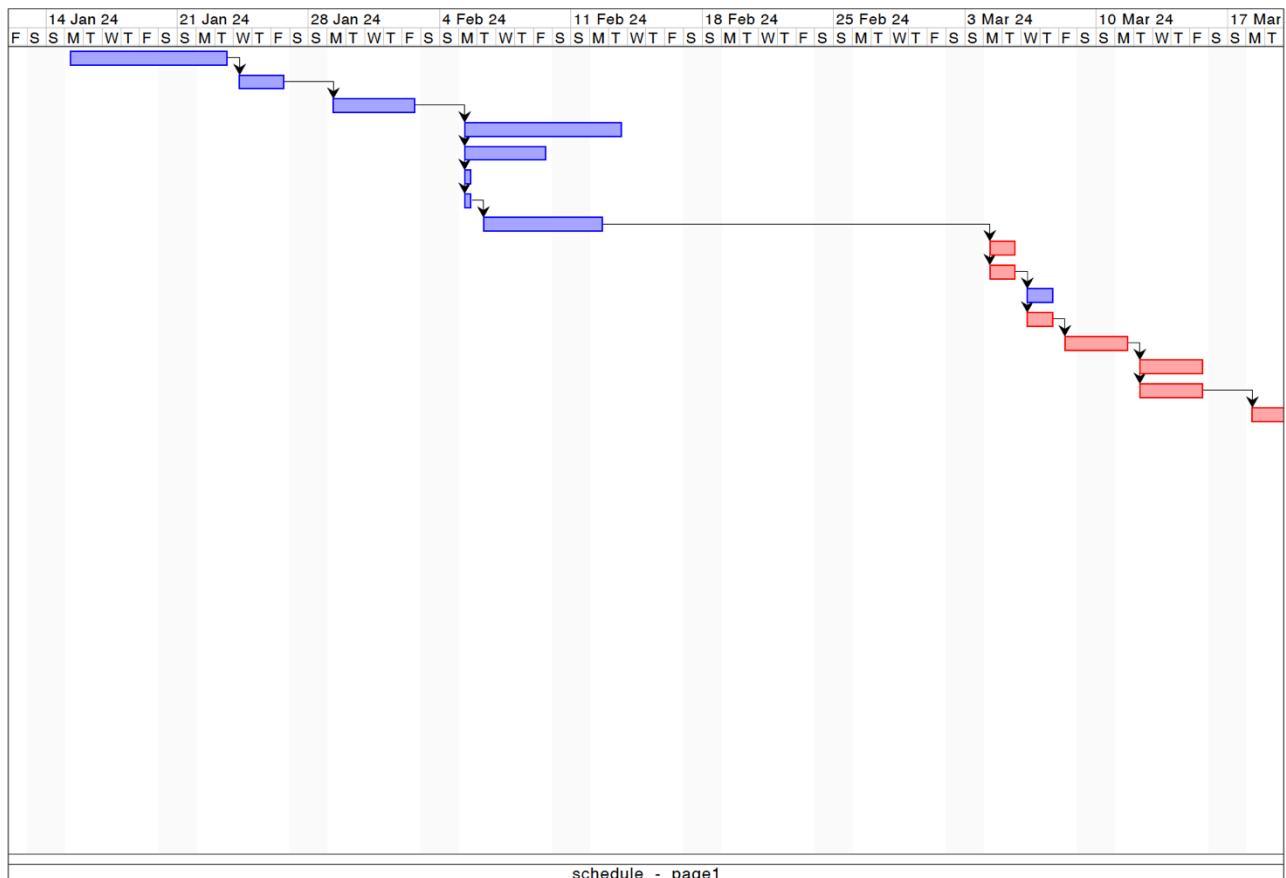
schedule

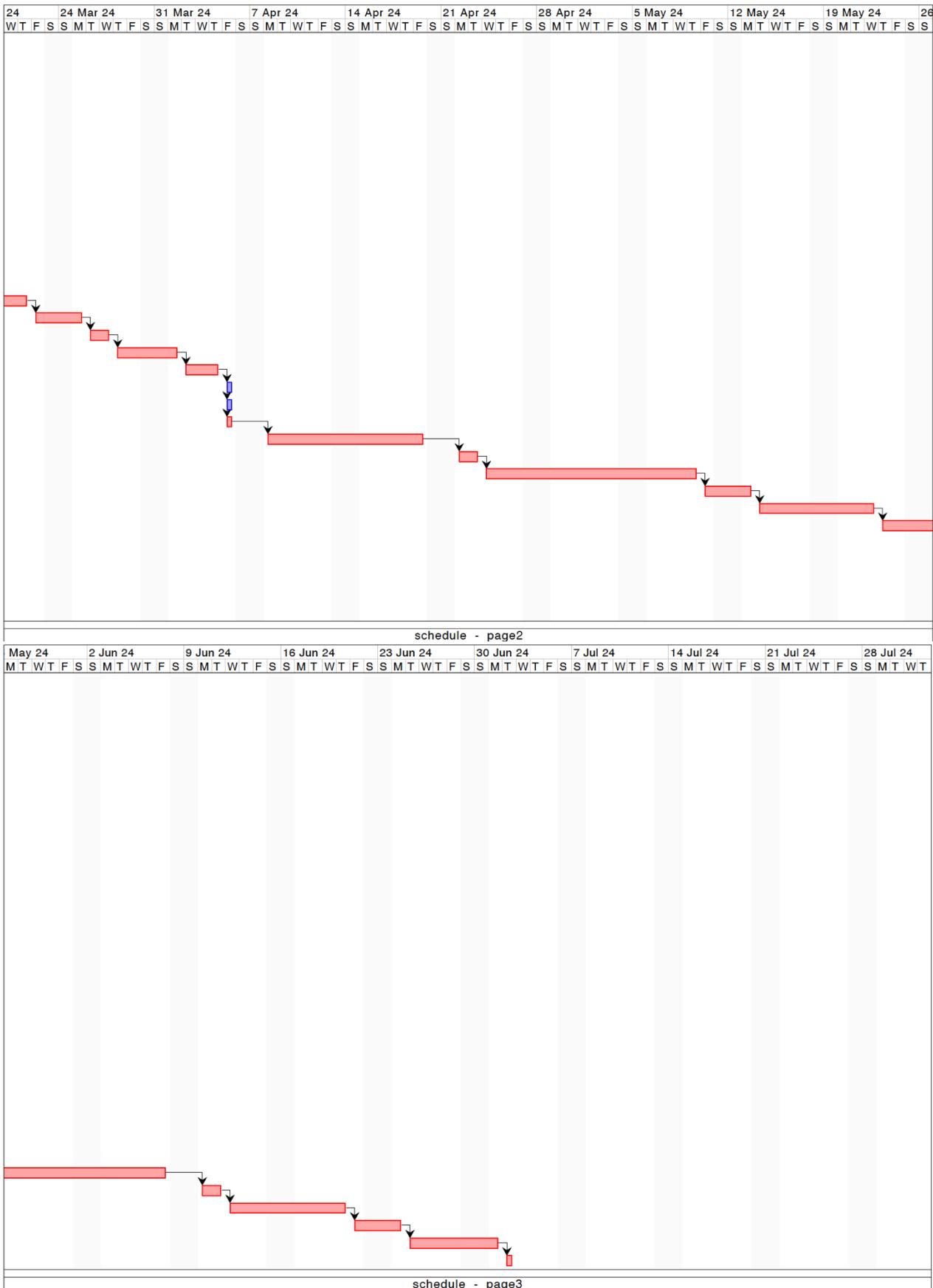
## **20.2 Actual Schedule**

		Name	Duration	Start	Finish	Predecessors	Resource Names
1		Understand the Case	7 days	1/15/24 8:00 AM	1/23/24 5:00 PM		
2		Project Planning	3 days	1/24/24 8:00 AM	1/26/24 5:00 PM	1	
3		Problem Finding	5 days	1/29/24 8:00 AM	2/2/24 5:00 PM	2	
4		Functional Requirement	7 days	2/5/24 8:00 AM	2/13/24 5:00 PM	3	
5		Non-Functional Requirement	5 days	2/5/24 8:00 AM	2/9/24 5:00 PM	3	
6		Driven Question	1 day	2/5/24 8:00 AM	2/5/24 5:00 PM	3	
7		Conclusion	1 day	2/5/24 8:00 AM	2/5/24 5:00 PM	3	
8		Make Up Requirement Specification	5 days	2/6/24 8:00 AM	2/12/24 5:00 PM	7	
9		System Architecture	2 days	3/4/24 8:00 AM	3/5/24 5:00 PM	8	
10		Hardware and Software	2 days	3/4/24 8:00 AM	3/5/24 5:00 PM	8	
11		Constraints and Limitation	2 days	3/6/24 8:00 AM	3/7/24 5:00 PM	10	
12		Staffing	2 days	3/6/24 8:00 AM	3/7/24 5:00 PM	10	
13		Actor Description	2 days	3/8/24 8:00 AM	3/11/24 5:00 PM	12	
14		Use Case Diagram	4 days	3/12/24 8:00 AM	3/15/24 5:00 PM	13	
15		Use Case Description	4 days	3/12/24 8:00 AM	3/15/24 5:00 PM	13	
16		Class Diagram	4 days	3/18/24 8:00 AM	3/21/24 5:00 PM	15	
17		Database Design	2 days	3/22/24 8:00 AM	3/25/24 5:00 PM	16	
18		ER Diagram	2 days	3/26/24 8:00 AM	3/27/24 5:00 PM	17	
19		Sequence Diagram	3 days	3/28/24 8:00 AM	4/1/24 5:00 PM	18	
20		UI Design	3 days	4/2/24 8:00 AM	4/4/24 5:00 PM	19	
21		Planned Gantt Chart	1 day	4/5/24 8:00 AM	4/5/24 5:00 PM	20	
22		Project Log	1 day	4/5/24 8:00 AM	4/5/24 5:00 PM	20	
23		Make Up Design Specification	1 day	4/5/24 8:00 AM	4/5/24 5:00 PM	20	
24		Test Plan	10 days	4/8/24 8:00 AM	4/19/24 5:00 PM	23	
25		Report Presentation	2 days	4/22/24 8:00 AM	4/23/24 5:00 PM	24	
26		Software Development (Prototype 1)	17 days	5/15/24 8:00 AM	6/6/24 5:00 PM	25	
27		Software Development (Prototype 2)	7 days	6/7/24 8:00 AM	6/17/24 5:00 PM	26	
28		Test Plan	6 days	6/19/24 8:00 AM	6/26/24 5:00 PM	27	
29		User Guide	6 days	6/19/24 8:00 AM	6/26/24 5:00 PM	27	
30		Actual Gantt Chart	1 day	6/19/24 8:00 AM	6/19/24 5:00 PM	27	
31		Final Report	8 days	6/18/24 8:00 AM	6/27/24 5:00 PM	27	
32		Final Presentation	1 day	7/2/24 8:00 AM	7/2/24 5:00 PM	31	

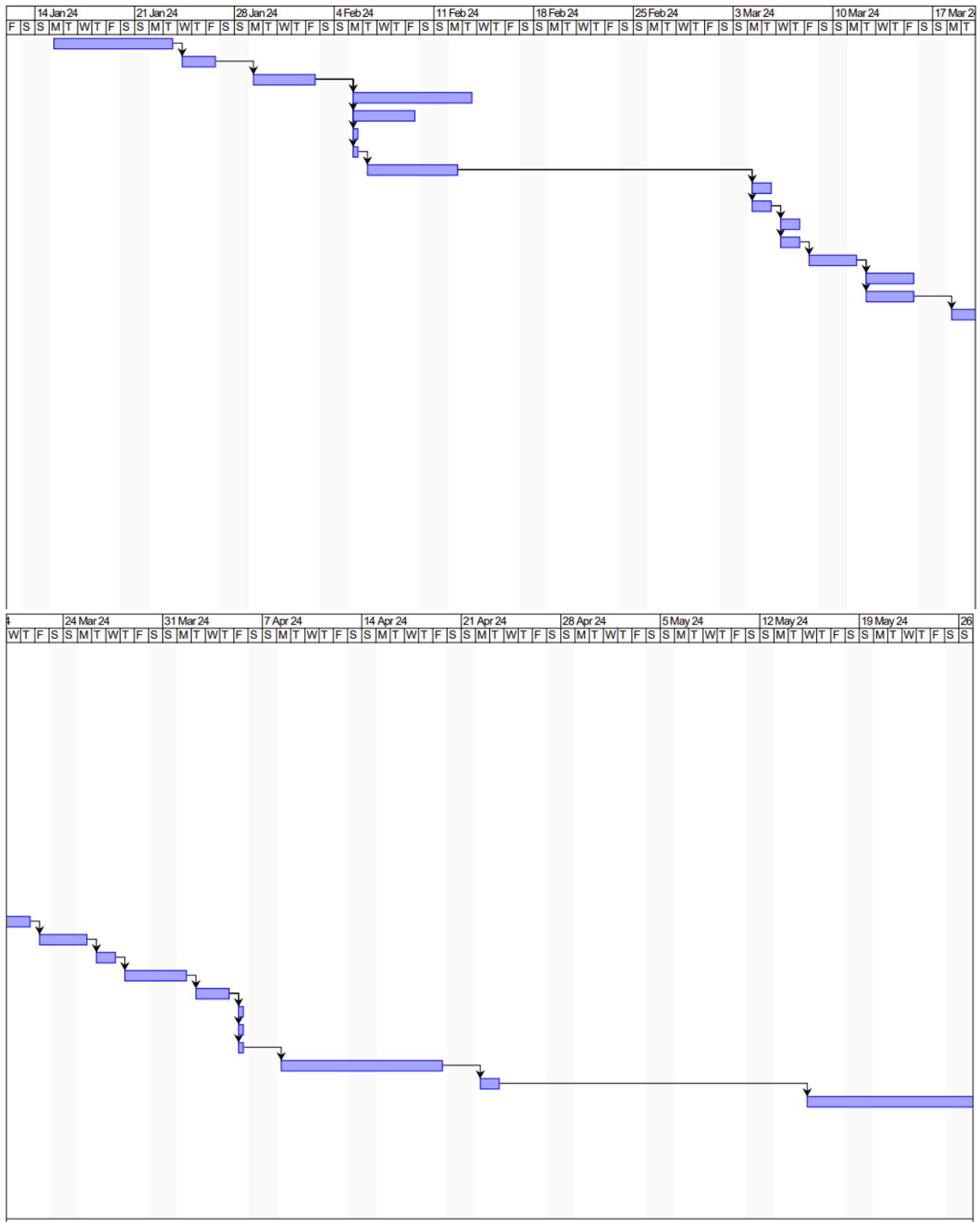
# 21. Gantt Chart

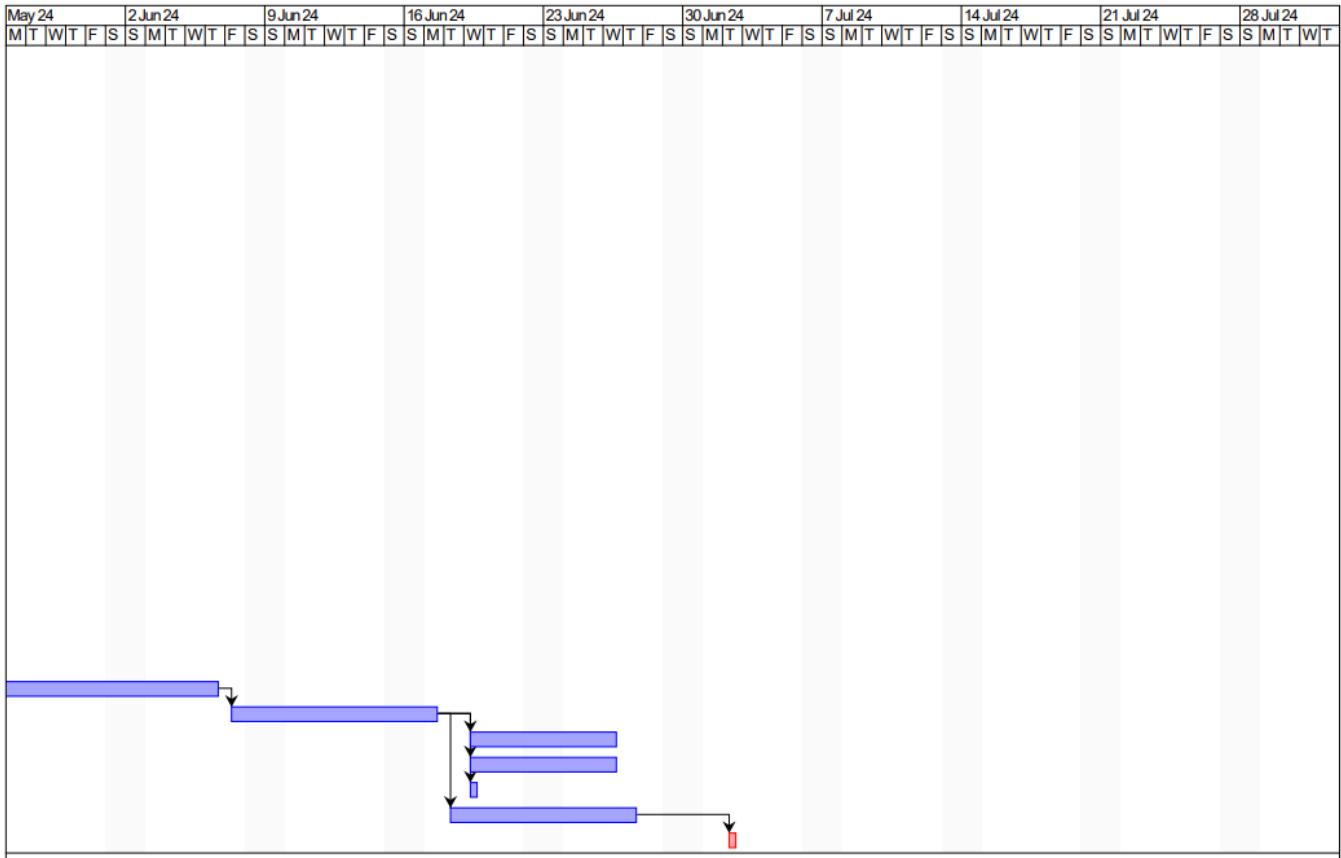
## 21.1 Planned Schedule





## 21.2 Actual Schedule





## 22. CONCLUSION

In conclusion, there are some problems in the current workflow of the company such as too much paperwork and relying on manual processes. The system is easy to operate as it simulates and automates the current processes. Besides, it can tackle current problems and bring various new features, For instance, the online ordering platform for self-service, a more humanized operation environment, centralized database with auto synchronization. Makes the whole process more systematic and rules based as the ordering and stock management operate as a whole.

Using the new system not only benefits the company but also both staff and customers. The system reduces the staff's workload and gives better experiences for customers to let them know we care about what they need, leaving a positive image and thus increasing the market share.

## 23. Project Log

Fung Wai Lim	<p><b>Report:</b></p> <ul style="list-style-type: none"> <li>System Architecture</li> <li>Use Case Diagram</li> <li>Use Case Description</li> <li>Actor Description</li> <li>Class Diagram</li> <li>Sequence Diagram</li> <li>Entity Relation Diagram</li> <li>Database Design</li> <li>Gantt Chart</li> </ul> <p><b>System Construction:</b></p> <ul style="list-style-type: none"> <li>Dealer's Sales Order Creation, Deletion, Edition</li> <li>Ordering Process (spare part list, cart, favourite)</li> <li>Staff Order Management (Deletion, Edition)</li> <li>Browse Spare Part</li> <li>Despatch Note Generation</li> <li>Invoice Generation</li> </ul> <p>Test Cases User Guide</p>
Hong Wing Hang	<p><b>Report:</b></p> <ul style="list-style-type: none"> <li>System Architecture</li> <li>Use Case Diagram</li> <li>Use Case Description</li> <li>Actor Description</li> <li>Class Diagram</li> <li>Sequence Diagram</li> <li>Entity Relation Diagram</li> <li>Database Design</li> <li>UI Design</li> <li>Gantt Chart</li> </ul> <p><b>System Construction:</b></p> <ul style="list-style-type: none"> <li>Stock Management</li> <li>On-Sale Product Management</li> <li>User Management</li> <li>Despatch Process</li> <li>Good inward process</li> </ul> <p>Test Cases User Guide</p>
Li Ning	<p><b>Report:</b></p> <ul style="list-style-type: none"> <li>System Architecture</li> <li>Use Case Diagram</li> <li>Use Case Description</li> <li>Actor Description</li> <li>Class Diagram</li> <li>Sequence Diagram</li> </ul>

	<p>Entity Relation Diagram Database Design Gantt Chart</p> <p><b>System Construction:</b> Database Connection Delivery Relay (Google Map) Code Quality Assurance</p> <p>Test Cases User Guide</p>
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<b>Sections</b>	<b>Start Date</b>	<b>Finish Date</b>	<b>Duration</b>	<b>Group Member</b>
System Architecture	4 Mar	5 Mar	2 days	Fung Wai Lim Hong Wing Hang Li Ning
Hardware and Software				
Constraints and Limitation	6 Mar	7 Mar	2 day	Fung Wai Lim Hong Wing Hang Li Ning
Actor description	8 Mar	11 Mar	2 days	Fung Wai Lim Hong Wing Hang Li Ning
Use case diagram and description	12 Mar	15 Mar	4 days	Fung Wai Lim Hong Wing Hang Li Ning
Class diagram	18 Mar	21 Mar	4 days	Fung Wai Lim Hong Wing Hang Li Ning
Database design	22 Mar	25 Mar	2 days	Fung Wai Lim Hong Wing Hang Li Ning
Entity Relation Diagram	26 Mar	27 Mar	2 days	Fung Wai Lim Hong Wing Hang Li Ning
Sequence Diagram	28 Mar	1 Apr	3 days	Fung Wai Lim Hong Wing Hang Li Ning
UI Design	2 Apr	4 Apr	3 days	Fung Wai Lim Hong Wing Hang Li Ning
Gantt Chart	5 Apr	5 Apr	1 day	Fung Wai Lim Hong Wing Hang Li Ning
System Construction	8 Apr	18 June	49 days	Fung Wai Lim Hong Wing Hang Li Ning
Test Cases	19 June	27 June	7 days	Fung Wai Lim Hong Wing Hang Li Ning
User Guide				
Project Log	28 June	28 June	1 day	Fung Wai Lim Hong Wing Hang Li Ning

End day: 28 June 2024

Deadline: 28 June 2024

## 24. REFERENCE

1. System Analysis and Design 6<sup>th</sup> Edition by Alan Dennis, Barbara Haley Wixom, Roberta M. Roth, from Moodle