HuXi Express

Software Requirement Specification

2016.4.13

Catalogue

1. Introduction

"Logistics is that part of the supply chain process that plans, implements, and controls the efficient, effective flow and storage of goods, services, and related information from the point of origin to the point of consumption in order to meet customers' requirements."   ----council of logistics management

With B2C business increasing rapidly, logistics business has been greatly prompted. For a logistics company, the core competitiveness is the efficiency of field personnel and customer satisfaction. How to make courier faster and how to make custom pleased have become the biggest challenge logistics companies have to face.

Just under such a background, our project has been carried out. Our project accurately targets at how to wipe out the biggest obstacle which blocks most logistics companies. The aim of our project is to provide a platform offering customers an efficient way to get the package's information as well as making the company's management more convenient.

In our project, there are three main actors: postman, the logistics company and the customers of the corresponding logistics company. Postman will devote to meet customers' demand and take orders from the company. Logistics company is just the "background", it accepts customers' request, send messages to customers and sends instructions to service persons. Customers are people using the platform to receive packages and they can obtain corresponding service.
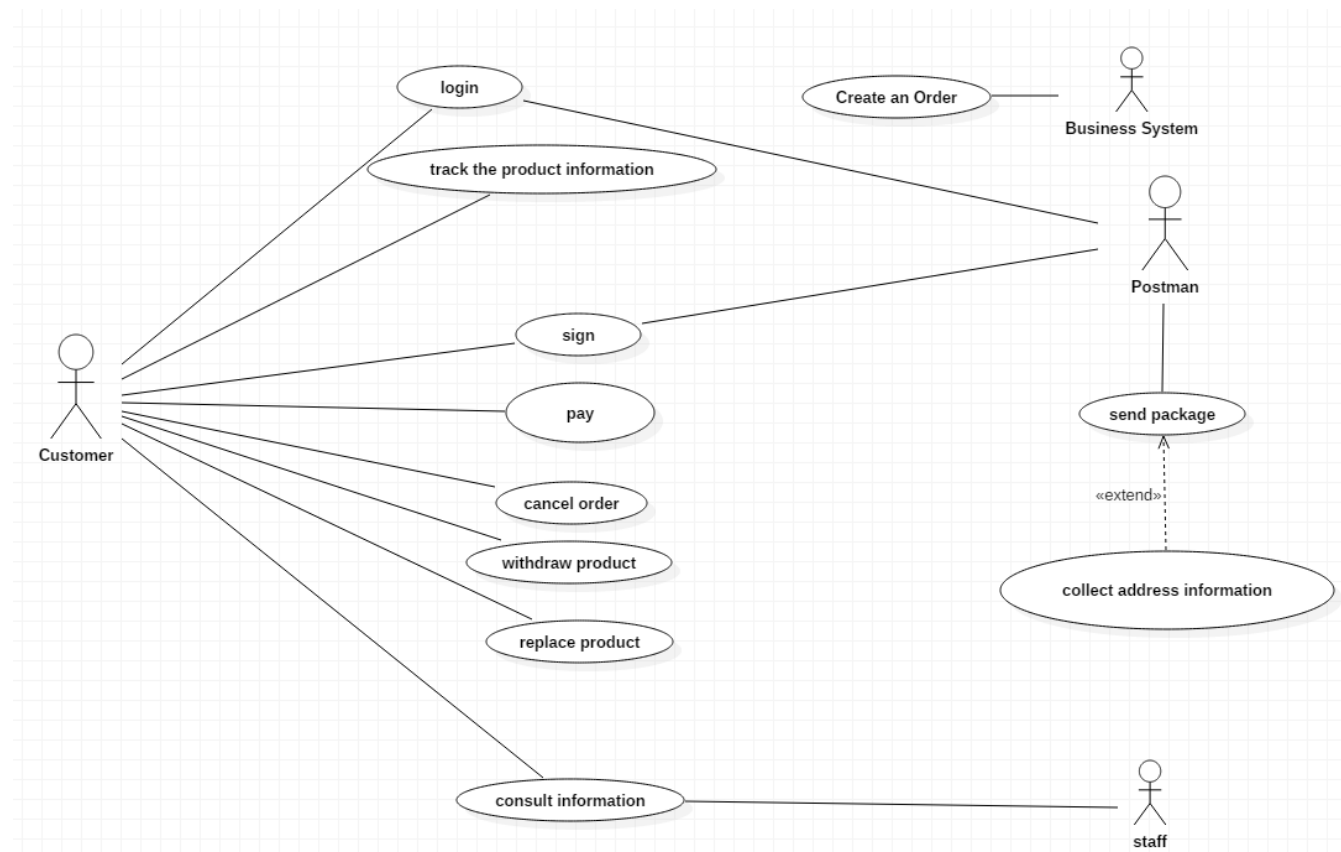
In detail, on our platform, customers can track the product information, sign product via Internet, cancel order, withdraw product and so on. We consider for customers wholeheartedly and try our best to satisfy customers. Postman will send package to customers. In the process, customers may change their mind (for example, cancel the order), postman will adjust themselves correspondingly (for example, send goods back). Logistics company will "balance" between customers and service persons as well as provide online consultant.

The meaning of the project is remarkable. Customers will find it is much more convenient to get the product's information and manipulate on the product, logistics company can lift their delivery efficiency, therefore increase income. And postman are able to get more accurate instructions, getting rid of meaningless toil.

Our project has covered eight scenarios mentioned in the document completely and put up several advices on security and performance. To illustrate our project, a global use case diagram summarizing the system and several subordinate use case diagrams have been drawn up. Details are shown below.

2. Use Case Modeling

2.1 Global Use Case

2.2 Sub Use Cases

2.2.1. Postman Use Case

Send package

Use case: send package
ID: UC01

Actor: Postman
Preconditions: 1.The postman has some packages to be sent..
Basic flow: 1. The use case starts when there are packages to be sent. 2. The postman selects one of the packages to send. 3. The postman asks for address from database. 4. The postman gets the customer's address and plan a path. Include::track the product information 5. The postman gets to the destination following the plan and track address information. 6. The postman contacts the receiver to sign the product.
Postconditions： The packaged has been sent to the customer without damage or lost and the customer is ready to sign.
Alternative flow： 4a. If the postman arrived the address with the package damaged or lost. 4a.1. The postman records the information of the product in the system. 4a.2. The system sends a email explaining the situation and making apologies to the customer. 4a.3. The customer chooses another time to receive product or cancel the order. 6a. if the postman cannot contact the receiver. 6a.1. The postman records the information of the product in the system. 6a.2.System will send a message to customer to choose another time to receiver the product. 6a.3 If customer has no response to the message after a week, system will cancel the order.
Postconditions：The product will be sent back to the warehouse and be rescheduled depends on the customer's choice.
Extensions: 3.1 There is no GPS location of the customer's address. 3.2 The postman goes to the address of the customer and collect the GPS location for the customer's address. 3.3 The postman inserts the GPS of the address in the database.

Brief description: The postman sends package to the customer.
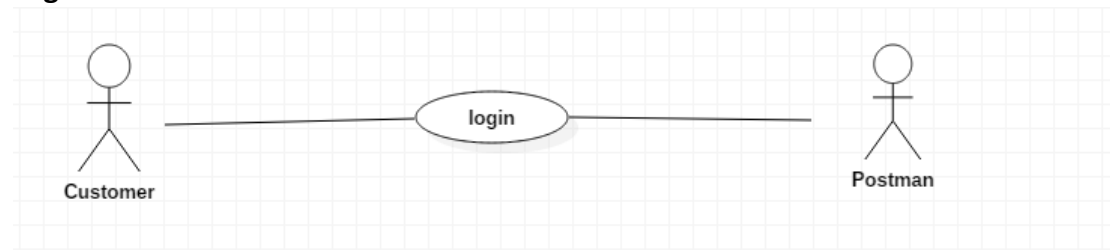
Brief desription of other use cases:
1.Collect address information : When there is no GPS location of the customer's address, the postman collects address information and stores in the system with a scanner.

2.Print receipt and invoice : If the customer asks for the invoice or receipt after signature.The postman will print receipt or invoice with a printer.

2.2.2. Customer Use Case
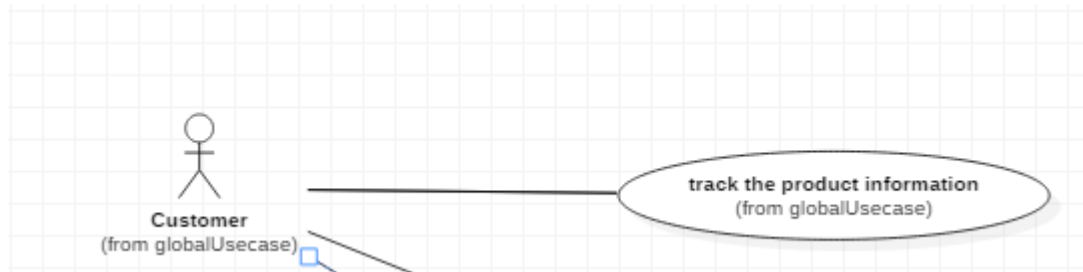
2.2.2.1Function login

Login Use Case

Use case : Login
ID:UC02
Actor : Customer & Postman
Precondition: Customer or postman open our app or website.
Basic flow : 1. The use case starts when the user opens the app or website and hasn't logged in. 2. The user clicks "LOG IN". 3. The user inputs username and password. 4. The user logs in successfully.
Alternative flow : a2. The user clicks "REGISTER" 　　a2.1. The user inputs personal information and sets password. a3. The user inputs wrong password. 　　a3.1. User can input for another 3 times. a3. The user forgets password. 　　a3.1. System sends security code to user and user can use it to reset password.
Postcondition : If the user is customer, he has priority to check order information, sign, pay the order and return goods. If the user is postman, he has priority to look on his customer's information.

Brief description: the customer or postman must register and login our website and app before take order, look on information.
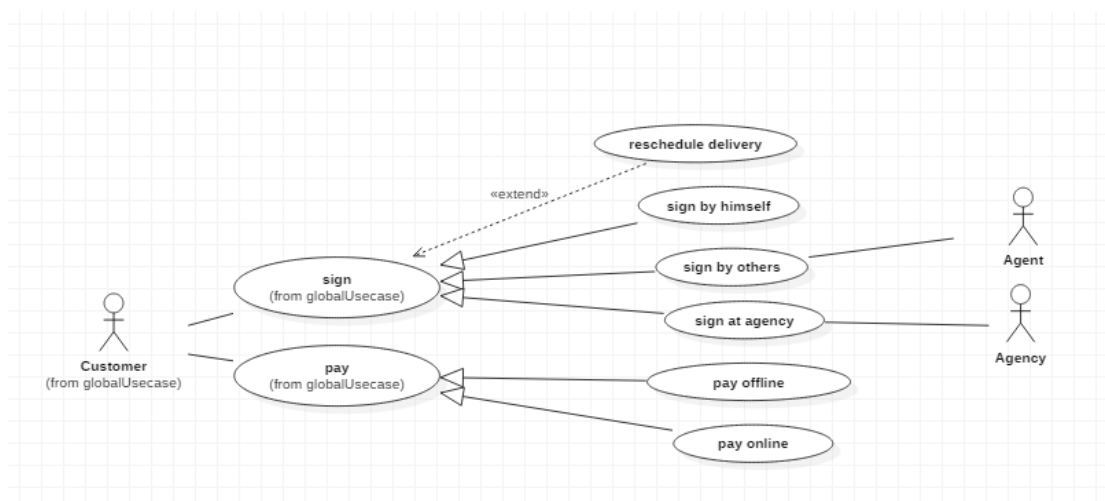
2.2.2.2 Function Track the product information

Track the product information use case

Use case : Track the product information
ID : UC04
Actors : Customer
Precondition : the customer has logged in, and has some products ordered.
Flow of events : 1. The use case starts when the customer has already logged in, and wants to track his ordered product. 2. The customer opens the page of the list of his ordered product. 3. The customer selects the order he wants to track. 4. The system shows the real-time location of the order and other information.
Postcondition : The customer gets the tracks of the product.

Brief Description: The customer can track his packages' information on our website and app.

2.2.2.3 function sign and pay

Sign Use Case

Use case : Sign
ID: UC05
Actors: customer
Precondition: postman has contacted receiver to sign the package and package has been paid.

Flow of events:
1.If customer won't sign by himself/herself
   1.1 customer confirmation before sign is necessary.
     1.11. if confirm fails, the sign process will stop.
       else the sign process will continue.
2.The receiver checks the package is intact or not.
3.The system starts the Receive Procedure of the order.
4.The receiver decides the approaches of signing.
5. If the receiver chooses the "Signature" digitally.
   5.1. the receiver shows his digital signature in web browser.
   5.2. the postman scans digital signature by the device and the system automatically verifies receiver's identity.
   Elseif the receiver chooses the "Fingerprint":
   5.1.The postman open the fingerprint page on the device
   5.2.The receiver presses his finger on the screen.
   5.3.The system automatically verifies receiver's identity.
Elseif the receiver choose the "ID card"
5.1.the receiver shows his ID card.
5.2 the postman scans ID card by the device and the system automatically verifies receiver's identity.
6.If the system verifies the receiver's identity successfully
    6.1. It updates the status of the order to "Sign successfully" from "Waiting";
Else updates the status of the order to "Sign fail ".

Postcondition: The system marks the order as complete.
Alternative flow: a1. If customer want to reschedule delivery , this delivery will be cancelled. a1.1 The delivery time will be rearranged.
Postcondition: The system marks the delivery time as reschedule

Brief Description: After postman contacting receiver to sign the package and customer paying the order ,the receiver himself/herself or the agent will sign the receipt using signature on a pad, fingerprint and so on. Before the agent signs the receipt, customer confirm is necessary. The system will mark the order as complete.
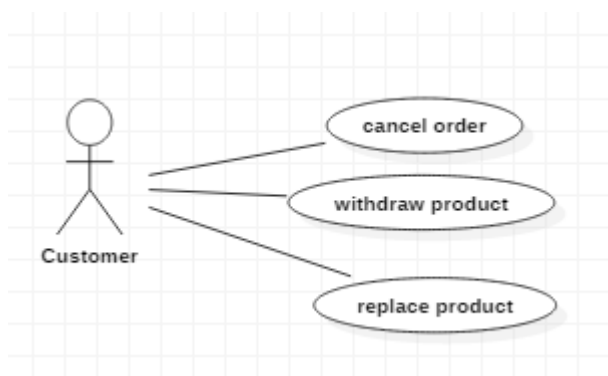
Pay Use Case

Use case : pay

ID : UC06
Actors : Customer
Precondition : The package has been sent to the customer. And the customer hasn't paid the order.

Flow of events:
  1. The customer chooses the ways of paying the bill.
  2.If the customer chooses "Pay online".
        2.1 The customer loges in the app.
        2.2 The customer scans the QR code of the package or selects the corresponding package in the app.
        2.3 The system shows the information of the package.
        2.4 The customer pays the package by Paypal.
     Else if the customer chooses "Pay by cash".
        2.1 The customer pays by cash.
     Else if the customer chooses by credit card".
        2.1 The postman has got the POS machine ready.
        2.2 The customer offer his credit card and input password.
        2.3 The customer signs on the receipt printed by the POS machine.
  3. The system exchanges the order's state from "not pay" to "already paid".
  4. If the customer asks for the invoices.
        The system prints out invoices.

Postcondition : The customer has paid the bill, and then can sign the package.

Brief Description: The package has been sent to the customer, and the customer hasn't paid the order. Then the customer can choose pay online or offline.

2.2.2.4 function withdraw, replace product or cancel order

Cancel Order Use Case

Use case : Cancel order
ID : UC07

Actors : Customer
Precondition : 1.The customer has already logged in our app or website. 2.The customer doesn't receive the package ,the package is damaged or other personal reasons.
Flow of events : 1.The customer makes a request to cancel the order. 2.The system gives customer a page about the reason of request. 3.The customer inputs the reason of request and pushes it. 4.The system accepts the customer's request and sends this message to the customer.

Alternative flow:
a4. if the customer has already paid the package.
    a4.1. The system pay the money back to the customer.
a4. if the system refuses the customer's request.
    a4.1. The system send refuse message to the customer.

Postcondition : The customer has already canceled the order and system marks this order. as complete.

Brief Description:

The customer request to cancel the order, because he doesn't receive package ,the package is damaged or other personal reasons. The System accepts this request and cancel the order.

Withdraw Use Case

Use case : Withdraw
ID : UC08
Actors : Customer
Prediction : 1.The customer has got the package but he isn't satisfied with the product. 2.The customer has logged in our app or website.
Flow of events: 1.The customer selects "Withdraw". 2.The customer return the product. 3.The system give the money back to the customer.
Postcondition : The system marks the order as complete.

Brief Description:

The customer has got the package but he isn't satisfied with the product. So he withdraw the product, return the product, and gets the money back.

Replace Usecase

Use case : Replace
ID : UC09

| |
|---|
| **Actors** : Customer |
| **Prediction** :
1.The customer has got the package but he isn't satisfied with the product.
2.The customer has logged in our app or website. |
| **Flow of events**:
1.The customer selects "Replace".
2.The customer return the product.
3.The system resends a new package to the customer. |
| Postcondition : The system sends a new package again. |

Brief Description:

The customer has got the package but he isn't satisfied with the product. So he replaces the product into a new one.

Brief Decsription of other use cases:

1. Consult information:The customer consults the staff for confusion about some process.And the staff can give him some advice and guidance.

2. Sign by himeself : The package has been sent to the customer and he sign by himself.

3. Sign by others : The package has been sent to the customer. But the customer can't sign by himself for some reasons, and ask for an agent to sign for him.

4. Reschedule delivery : The package has been sent to the customer. But the postman can't contact the customer. Or the customer can't sign by himself for some reasons and can't find an agency.Then they reschedule delivery.

5. Pay online : The customer pays online when he orders a product on the internet. (pay offline : The customer hasn't paid when the package arrives.And he will pay offline.

2.2.3. Agency Use Case
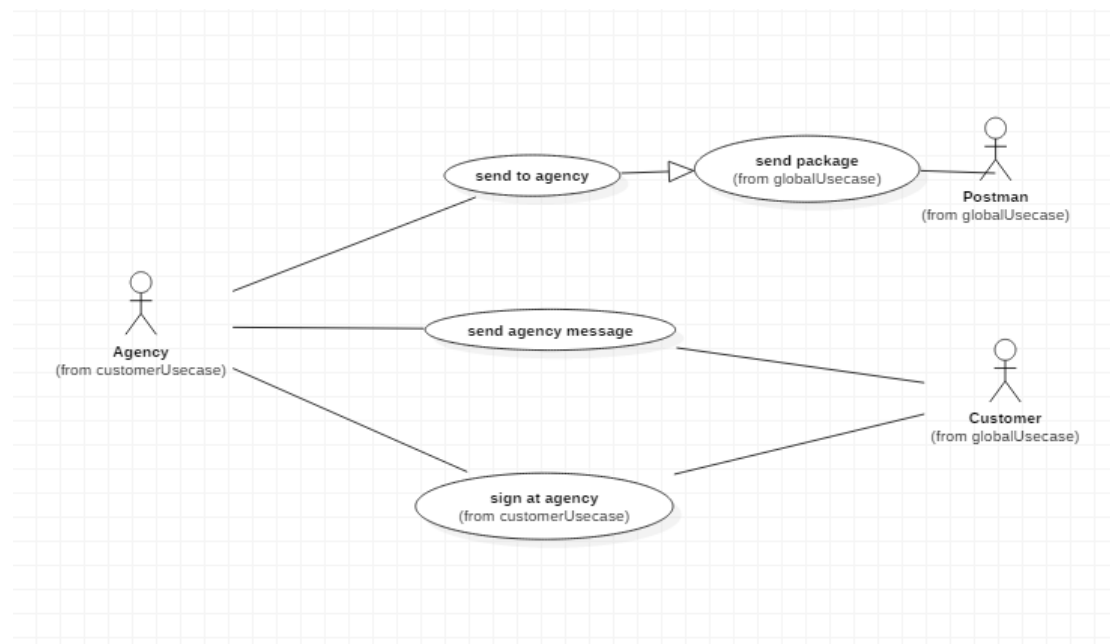
Breif Sescription:

1. Send to agency : In some case such as in campus,the postman sends the package to agency and the customer comes to agency to get the package.

2. Send agency message : When the agency gets a package, he will send a agency message to remind the customer of coming to the agency to get it.

3.Glossary of terms

    Agent
    Complete order
    Electronic invoice
    Electronic order system
    Error delivery
    Exchange
    Label of returning goods
    Non-delivery
    Order return
    Pay upon receipt
    Postman device
    Product information
    QR code
    Receipt
    Reschedule

Track information
Unsatisfactory order
Withdrawn

4. Supplementary specification

4.1 Security

1. There should have an access control system. Users without specified privilege should not have authority to access corresponding data.
2. All database queries should be well protected so that no SQL injection will occur.
3. The system should be able to resist CSRF attack and XSS attack.
4. The system should ensure attacker can't monitor or tamper data stream between the user and system.
5. The background should be well protected and ensure no attacker can drag the database.
6. Sensitive data stored background should be well handled. An effective hash algorithm should be used so that attacker won't get plain-text from background.

4.2 Performance

1. The webpage should be opened within 1 s and the application should be opened no longer than 2 s.
2. The system should be able to handle contemporary requests from up to 10000 customers.
3. All daily maintenance should be done background and shouldn't affect user's normal using.
4. The system should be able to rework within 10 minutes once an emergency occurs.

5. User Interfaces

5.1 Customer Interfaces

5.1.1 Log in webpage

Log in page for the customer.

http://www.demo.com/login

Index | Order | Products | About | Help

┌─ Login ──────────────────────────────────

Username

| Username |

Password

| Password |

☐ Remember me

| Log in |

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Don't have an Account? Create a New Account

5.1.2 Register webpage

Register page for those customers who don't have accounts.

http://www.demo.com/register

Index | Order | Products | About | Help

┌─ Register ──────────────────────────────

Username

| Username |

Password

| Password |

Password Again

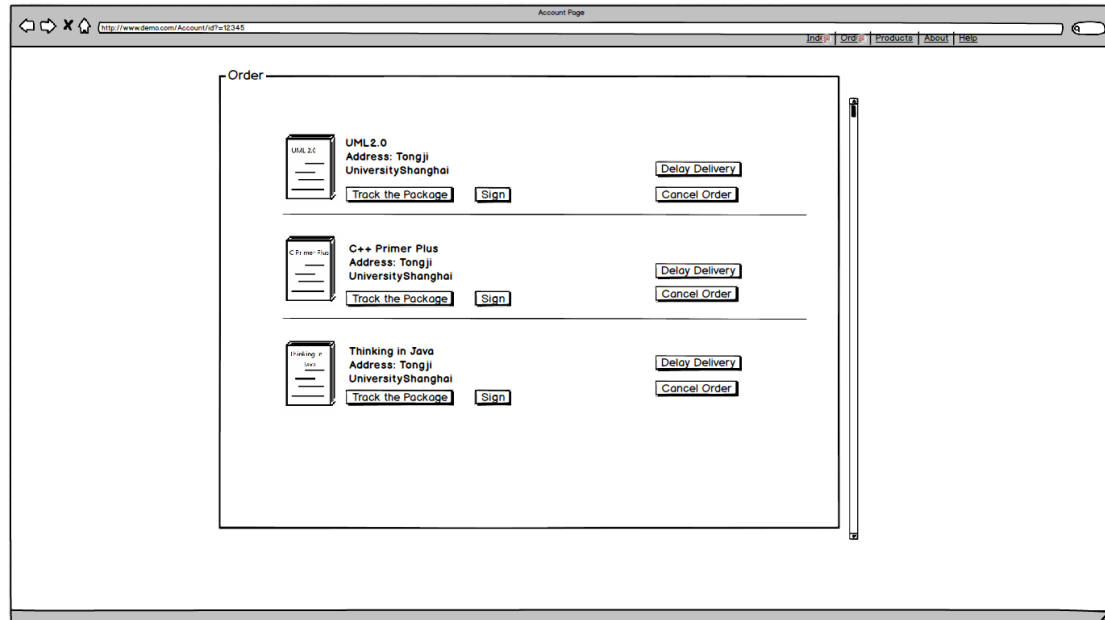| Password Again |

Telephone

| Telephone |

| Register |

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Already have an Account? Log in

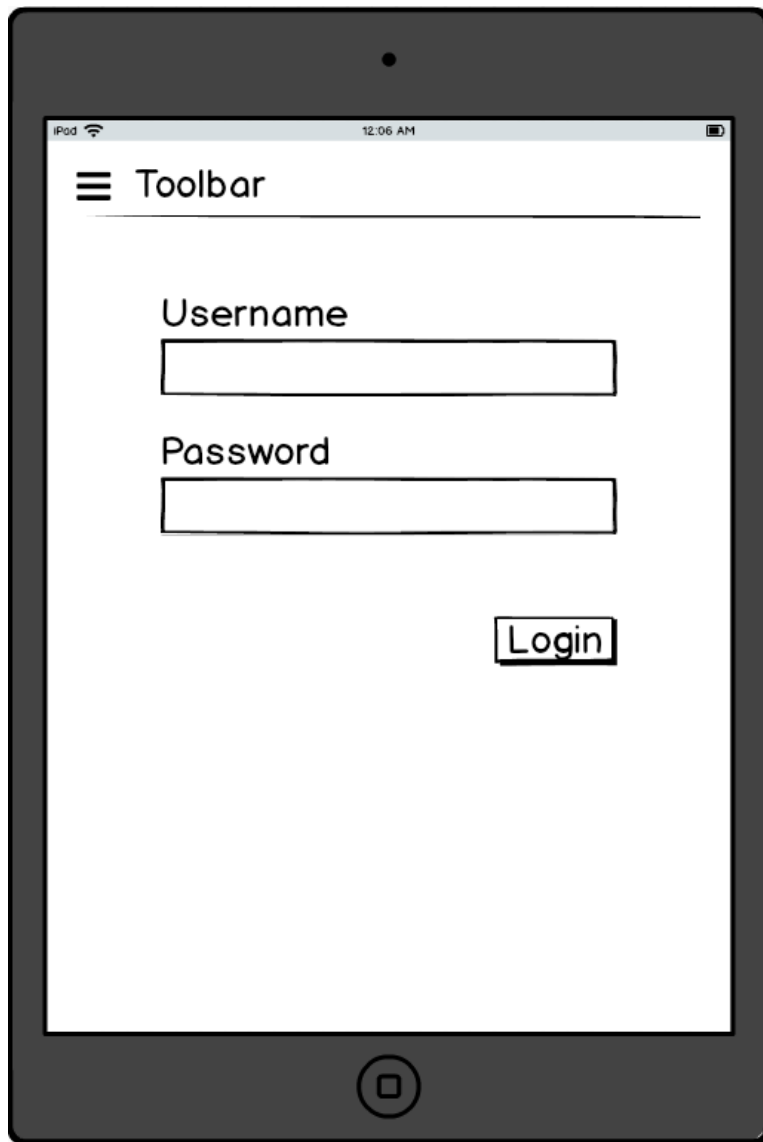### 5.1.3 Track information webpage

Page that list the items of the customer, where he can choose to track the package, Sign the package, Delay delivery or Cancel order.
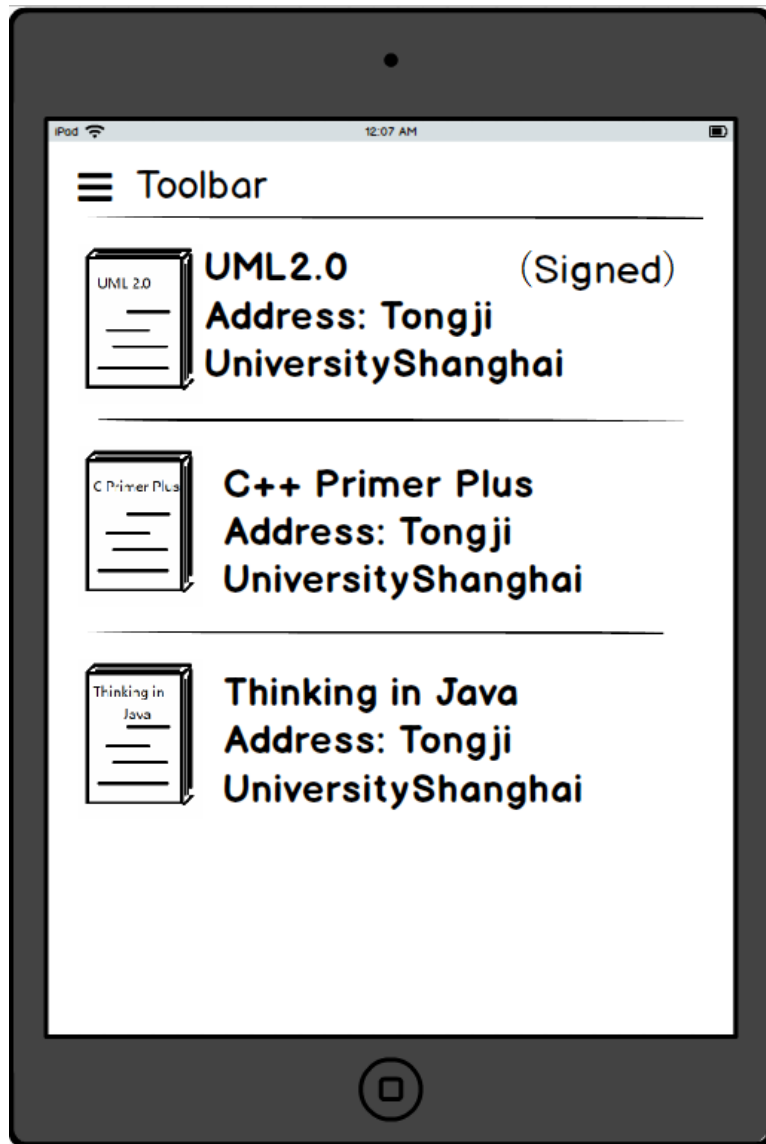

5.2 Postman Interfaces

5.2.1 Log in fragment

Log in fragment for the post man, whose username and password are given by the company.

5.2.2 Package List fragment

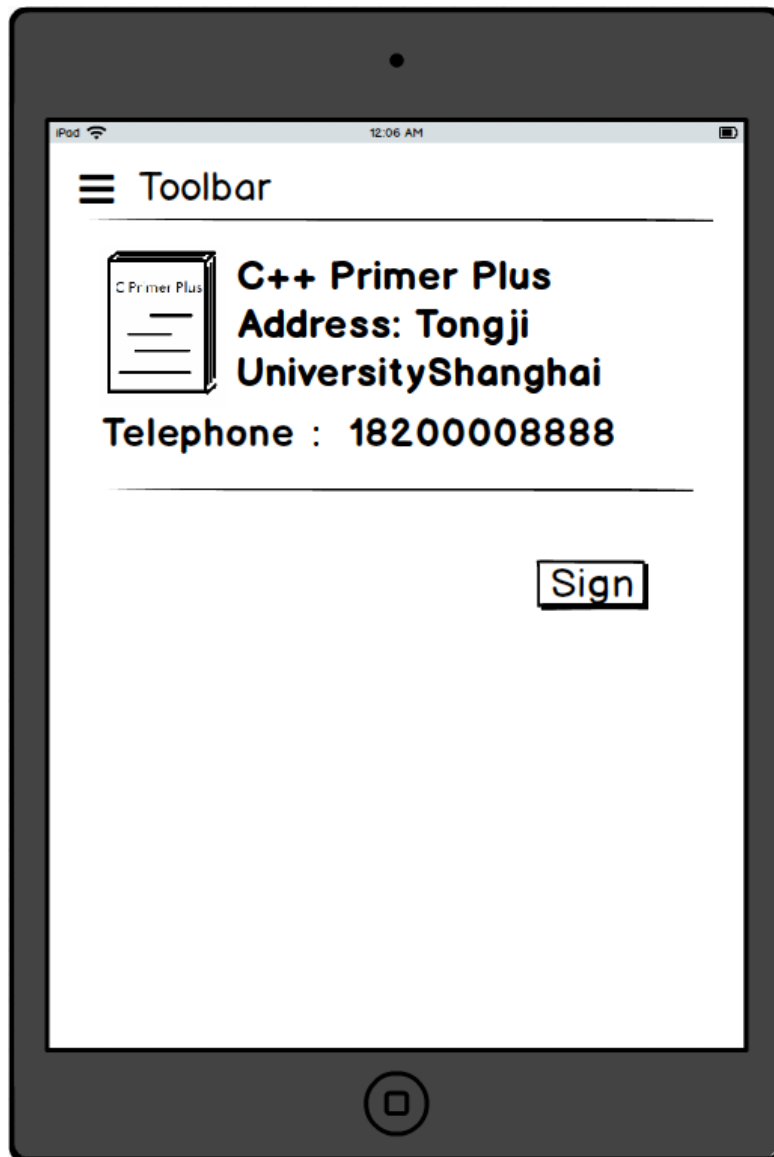Fragment that list the packages and sign status.

5.2.3 Details & Map fragment

Fragment that show package details and map, where the post man can choose to send message if the package is lost or damaged. (Click Arrived Button while the post man arrived.)

5.2.4 Sign fragment

Fragment for the sign of package.

iPod 📶   12:06 AM   🔋

≡ Toolbar

C++ Primer Plus
Address: Tongji
UniversityShanghai
Telephone : 18200008888

Sign

6. References

[1] Applying UML and Patterns 3rd Ed. - Craig Larman (2004)
Abstract: An Introduction to Object-Oriented Analysis and Design quickly emerged as
the leading OOA/D introduction; it has been translated into seven languages and

adopted in universities and businesses worldwide.Well-known object technology and iterative methods leader Craig Larman refines and expands this text for developers and students new to OOA/D, the UML, patterns, use cases, iterative development, and related topics.

[2] Logisitics Distribution Solutions for B2C Model of E-commerce.
  - GAO H, LONG H(2006)
Abstract: Logistics distribution is a very important process in E-commerce, and operation plays a significant role in the whole business activity. At present, information flow online transaction has been realized, and the safety of fiancé flow has been solved to some extent, but logistics is still a big problem for E-commerce's development. As a basic operation model of E-commerce, B2C has some problems such as unpunctual distribution, high distribution cost, etc.

[3]An Exploratory Study on Electronic Commerce for Reverse Logistics - A.I. Kokkinaki, R. Dekker, J. van Nunen and C. Pappis
Abstract: In a broad sense, reverse logistics stands for all operations related to the reuse of products and materials. Reverse logistic activities include collection, disassembly and processing of used products, product parts, and/or materials, in order to ensure a new use or an environmentally friendly recovery.

[4] Refactoring - Improving the Design of Existing Code
Abstract : A guide to refactoring, the process of changing a software system so that it does not alter the external behavior of the code yet improves its internal structure, for professional programmers. Early chapters cover general principles, rationales, examples, and testing. The heart of the book is a catalog of refactorings, organized in chapters on composing methods, moving features between objects, organizing data, simplifying conditional expressions, and dealing with generalizations

7. Contribution of members

Yifan Yin(1452692): Mockup

Yu Qian(1452834): User interface

Tongyao Si(1452707): Documents

Zihe Liu(1353026): Mockup

Xinlei Ma(1452723): Mockup