Run and Express

Report 3

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Member：Wally、Carr、Asa、Devon

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1.Customer Statement of Requirements

With the rapid development of the world economy, information technology has been widely used in the economic and trade field, and e-commerce has emerged. As an important part of the e-commerce system, online shopping has broad prospects for development and has been favored by consumers in recent years. In recent years, the development of the Internet has led people to enter a life rhythm to accelerate the society, so we have created a network platform "Campus Bounty Order" for the service people.

Therefore, we decided to develop a web platform for the university campus. This platform is open for registration of all the staff in the school. You can submit your own services and needs on the platform, publish your own needs information, and save you more. time.

Through the understanding and research of Java technology and SQL sever database content, this platform learns the whole process of website development, uses reasonable system design principles and clear target positioning, researches and analyzes existing network platforms, and learns their advanced methods. .

The software is based on the Internet web platform and mainly meets the needs of users and system administrators. The main functions are as follows:

(1) Administrator function requirements: The administrator can enter the system background through the computer, and the system is fully managed, including product management, member management and order management.

(2) User function requirements: Users can enter the web page through the web,

register and log in, view service information, and publish service information.

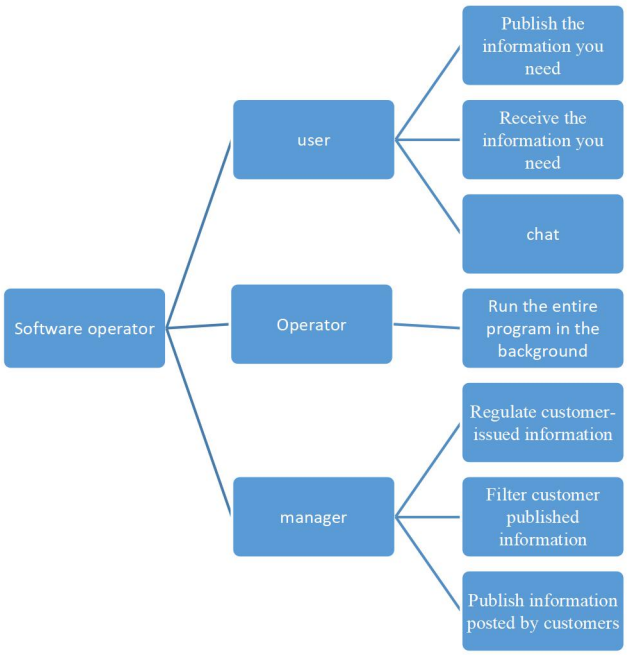
2.Glossary of Terms

The term	Definition
Client	The other party receiving the service
Method	How to achieve
JDK（Java Development Kit ）	Software used by programmers writing Java programs
JRE（Java Runtime Environment）	Software used by users running Java programs
JavaBeansTM	JavaBean reusable, interchangeable software components. JavaBeans can be as simple as buttons or tools for accessing databases
IDE(Integrated Development Environment)	Application software for assisting development programs
PATH	Set the search path of the executable file. It is only valid for .com, .exe, .bat files.
Object	That is, a concept after abstracting various concrete objects
Attributes	The data elements used to describe an

	object are called the properties of the object (also known as data/state).
Abstract class	A class that uses the keyword abstract declaration is called an "abstract class."
Class	The files that are placed under the package and ending with .java are the classes.

3.System Requirements

a. List functional requirements



Functional module	Achieve function
Log in	log in
Post and receive information	Publish the information you need
	Receive the information you need
Chat	Chatting between customers
	Customer chats with the background
Query customer information	Check customer mobile number
	Query customer address
Complaint information	Customer complaint information
Operation	Safe operation of the program
	Avoid program customer information disclosure
Management	Regulate customer-issued information
	Filter customer published information
	Publish user-published information

b.Enumerate non-functional requirements

Performance requirements:

1. The client's general response time does not exceed 3 seconds.

2. Support one thousand people to simultaneously publish and receive information online.

Security requirements

(1) Permission control: according to different roles, set the corresponding permissions, the user's important operations are to do the corresponding log records and view, users who do not have permission (multiple release of violation information, pull into the platform blacklist) are prohibited from using this platform.

(2) Important data encryption: This platform encrypts some important data according to certain algorithms, such as user passwords and important parameters.

(3) Data backup: Allow users to perform data backup and recovery to compensate for data corruption and loss.

(4) Logging: This platform can record errors that occur while the system is running, including local errors and network connection errors. These error records make it easy to find the cause of the error, and the log also records the user's critical operational information.

External interface requirements

(1) User interface: This platform uses the java framework architecture, and all interfaces use web style.

(2) Hardware interface: server-side recommended to use a dedicated server

(3) Software interface: applicable to all Mobile phone and computer browser.

(4) Communication interface: applicable to all networks.

Other demands

(1) Support multi-system operation

(2) Web browsing is more convenient

User interface requirements

The interface of the software can refer to the interface format of the Meituan APP, so that the customer has a better degree of operational proficiency. The color of the interface is dominated by warm colors, and the overall layout of the entire interface is determined by usability engineering, ergonomics, cognitive psychology, aesthetics, color theory, and so on. Refer to the individual cultural background, knowledge level, personal preferences, etc., and try to make each customer familiar with this interface. A friendly target system should be close to or even consistent with the user's ideal model, so the requirements analysis should ultimately fully identify the user's potential needs and implement the user requirements in the target system. In the process of demand analysis, the user always faces the actual running interface of the perceptual visualization. Therefore, the result of the interface requirement is the target system interface that meets the user requirements.

4.Functional Requirements Specification

Stakeholders

This platform serves students and teachers at major universities, so stakeholders

include: students, teachers, on-campus stores, and various social groups or individuals.

Student: Publish information about the services you need on this platform.

Teacher: You can post information that needs help.

Each store: Publish goods, deliver goods, etc.

Group or individual: release design drawings and tutorials.

Sponsor: You can post ads on this platform to promote products for sponsors.

Etc.

b.Actors and targets

Register: This function enables the user to prepare for the login platform, register a private account, and enter personal information.

Login in: This function will enable users to log in to the client interface using their own account.

Publish order: The user posts his or her own demand information after logging in.

Receiving order: Users can receive orders that they can complete according to their ability.

Delete order: The user can delete the order.

Background message: The user's evaluation of the order can be evaluated by the user, and the platform review will be processed accordingly.

Actor	Actor's Goal	Name
Customer	User fills in personal information registration account.	**Registered account**
Customer	Enter your username and password to log in to the platform.	**log in**
Customer	Let the user choose the type of service.	**Demand**
Customer	Pay the amount of the service type selected by the user.	**Payment page**
Customer	User cancels an order that has been selected or booked.	**Cancel order**
Platform management	The worker logs in to the background user name to view the user information.	**Administrator login**
Platform management	After receiving the service request from the user, the administrator confirms the user's main personal information to achieve a foolproof.	**Confirmation information**
Platform management	The manager will serve the consumer at the specified time and place based on the information the user sends on the platform.	**Orders**
Problem solving	Briefly describe the problems that arise on the platform to achieve timely repair.	**Briefly describe the problem**

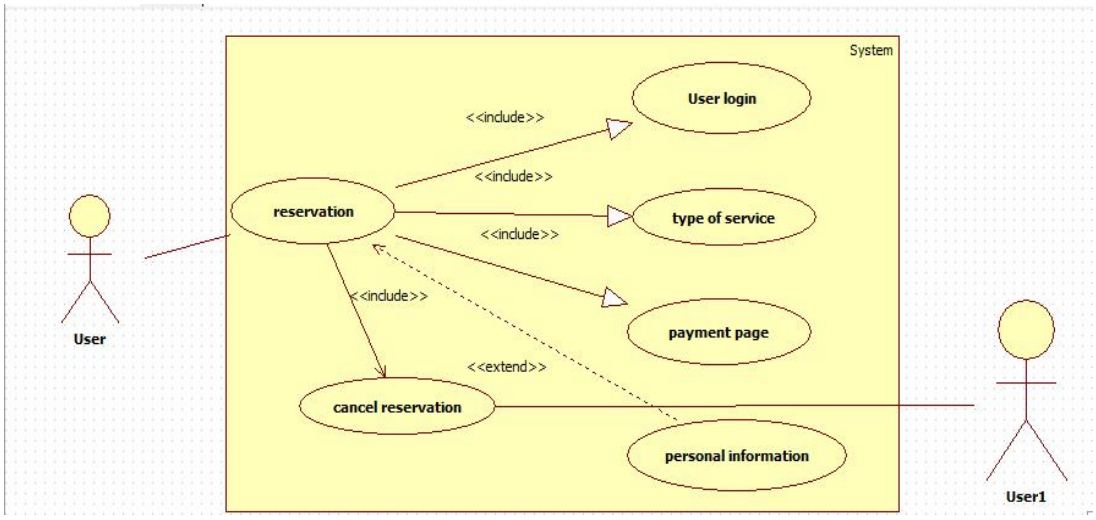
Problem solving	Finding problems and dealing with them in time.	**Background processing**

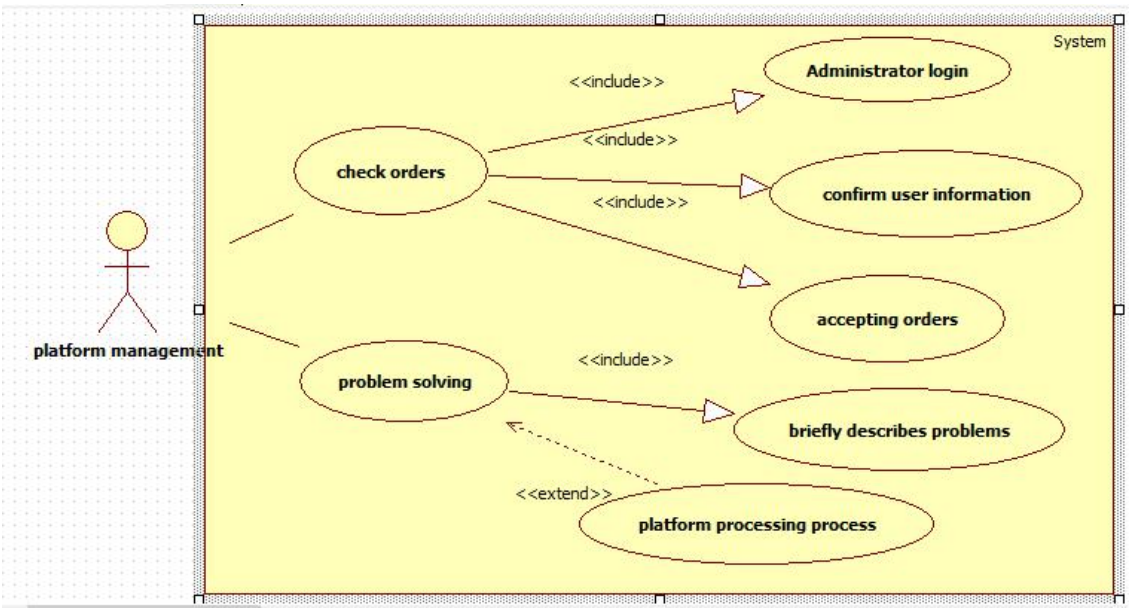
c. Use Cases

i.Casual Description

After registering the platform account, the user can select the type of service he needs (substitute express, homework counseling, question answering, etc.) on the platform page, then pay on the payment page, and can check the progress of the order at any time to supervise and contact the employee and so on. The platform filters the information posted by the customer and then publishes it to the platform. The process of notifying the customer's order and real-time monitoring of the order completion of the employee. Sponsors can advertise on the platform, and the platform can also publish some public welfare activities (search for people, find things, publicity activities, etc.) for free.

ii.Use Case Diagram





iii.Traceability Matrix

UC1: User posting information	REQ1: User selects service type
UC2: Register and log in	REQ2:.User login interface.
UC3: User personal information input	REQ3:.Fill in your personal information.
UC4: Payment interface	REQ4: Amount paid for the selected service
UC5: cancellation of order	REQ5: Return selected order.
UC6: Administrator login	REQ6: Administrator login to the platform.
UC7: Confirm user information	REQ7: The administrator confirms the personal information filled in by the user.
UC8: Orders	REQ8: Successful order.
UC9: Briefly describe the problem	REQ9：Problems in the Process of Service Acceptance by Users
UC10：Background processing	REQ10：Platform Handles Customer Problems

iv.Fully-Dressed Description

Use Case UC-1：	User posting information
Related Requirements:	REQ1, REQ2 stated in Table 2-1
Initiating Actor:	Any of: student, teacher, society
Actor's Goal:	Enter the platform to publish service information
Participating Actors:	Wally
Preconditions:	• New users register through the login interface • Old users can log in directly to enter the homepage
Post-conditions:	User-published information is subject to legal permission
Flow of Events for Main Success Scenario:	
→	1.The user enters the main page through the account and password.
→	2.Users can select the services they need on the home page or query the services they need and publish them to the platform.
←	3.Platform review passed and feedback to users.

Use Case UC-2	Register and login
Related requirements	REQ2 stated in Table 2-1
Initiating actor	Student、teachers、society in campus
Actor’s goal	Implement user registration platform account and login platform
Participating actors	Devon
preconditions	User owns platform account
Post-conditions	User selects service type and completes payment
Flow of Events for Main Success Scenario:	
→1、Tenant：User chooses to register account menu System：System authentication user account and password ←2、(a) User enters login page.(b) Fill in your personal information.(c) Complete registration, bind the phone.(d) Login platform	
Flow of Events for Extensions (Alternate Scenarios):	
→1、Tenant：User chooses to register account menu ← 2、System：System authentication user account and password →3 、(a) User enters login page.(b) Fill in your personal information.(c) can’t Complete registration,(d) Mobile phone verification login.	

Use Case UC-3：	User personal information input
Related Requirements:	REQ2，REQ3 stated in Table 2-1
Initiating Actor:	Any of: student, teacher
Actor’s Goal:	Fill in your personal information after selecting the required service
Participating Actors:	Wally
Preconditions:	• User login into the interface • The user has selected the required service
Post-conditions:	User-published information is subject to legal permission
Flow of Events for Main Success Scenario:	
→	1.User enters personal information interface
→	2.The user enters the correct personal information on the personal information interface
←	3.The platform has been approved and notified to the user

Use Case UC-4：	Payment interface
Related Requirements:	REQ1，REQ2，REQ3，REQ4 stated in Table 2-1
Initiating Actor:	User who posted the information
Actor’s Goal:	Complete the payment of the order
Participating Actors:	Devon
Preconditions:	Users need to register their own payment account information
Post-conditions:	The user enters his or her account password, completes the payment, and the platform will transfer to the order user account
Flow of Events for Main Success Scenario:	
→	The user enters his or her account password and completes the payment of the order on the platform
→	The platform extracts the amount paid by the user according to a certain amount, and then transfers the remaining amount to the order user account
←	Received user receives completed payment message

Use Case UC-5：	cancellation of order
Related Requirements:	REQ4，REQ5 stated in Table 2-1
Initiating Actor:	Publisher (User 1), Assignee (User 2), Platform,
Actor’s Goal:	Cancel wrong order
Participating Actors:	Carr
Preconditions:	•Users have their own accounts •The user successfully placed the order. • Order not completed
Post-conditions:	The reason for withdrawal is reasonable.
Flow of Events for Main Success Scenario:	
→	1.Issue an order to cancel an order
→	2.The platform verifies whether the order cancellation standard is met
←	3.If the order is not received, it is cancelled directly and fed back to user 1
→	4.The received order will feed back the cancellation information to user 2
←	5.Feedback the order return process information of the order to user 1

Use Case UC-6：	Administrator login
Related Requirements:	REQ6 stated in Table 2-1
Initiating Actor:	Administrator, Platform, Database
Actor’s Goal:	Log in to the background for operations.
Participating Actors:	Carr
Preconditions:	• Have administrator account
Post-conditions:	Operate within the limits of authority
Flow of Events for Main Success Scenario:	
→	1.Flow of Events for Main Success Scenario:
←	2.Enter the wrong password
→	3.The information base records the login operation

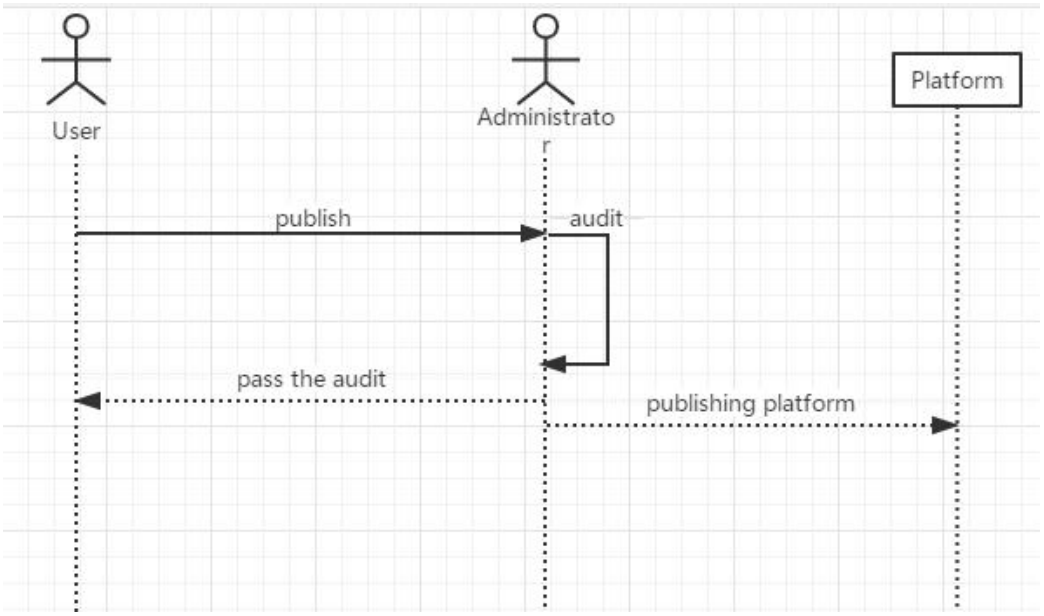
Use Case UC-7：	Confirm user information
Related Requirements:	REQ3，REQ6, REQ7 stated in Table 2-1
Initiating Actor:	Any of: student, teacher, society
Actor’s Goal:	The administrator enters the background to confirm whether the information entered by the user is incorrect
Participating Actors:	Asa
Preconditions:	• The administrator logs in the correct username and password • The administrator verifies that the user's valid information is incorrect
Post-conditions:	User-published information is subject to legal permission
Flow of Events for Main Success Scenario:	
→	1.The administrator enters the background service interface through the account number and password
→	2.The administrators can view all user information on the background service interface
←	3.After the administrator reviews the information, the platform will feed back the results to the user

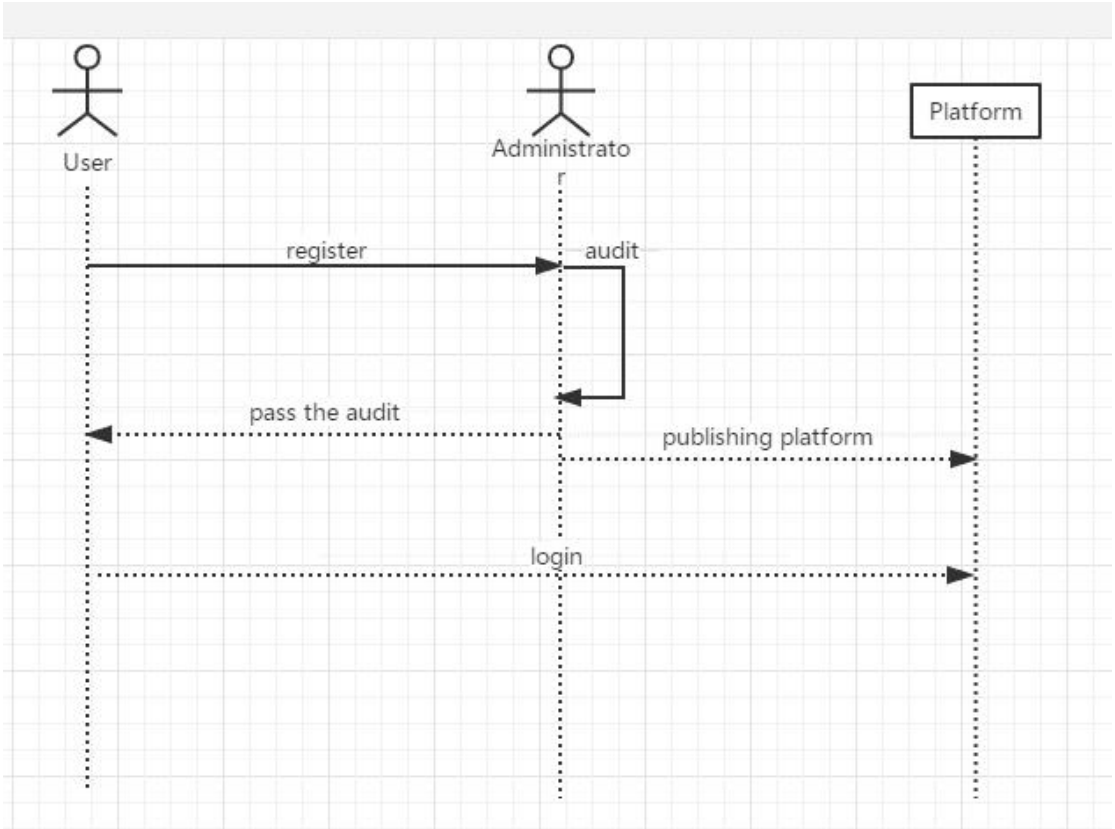
Use Case UC-8：	Accepting orders
Related Requirements:	REQ6，REQ7, REQ8 stated in Table 2-1
Initiating Actor:	Any platform service staff
Actor’s Goal:	The service provider arrives at the required location on time to service the user and complete the payment on the platform
Participating Actors:	Asa
Preconditions:	• Users complete payment • Users and service providers do their own preparations in the same time
Post-conditions:	Users and service providers should cooperate with each other within the scope permitted by law
Flow of Events for Main Success Scenario:	
→	1.The platform will automatically post user service information to the server
→	2.The service provider arrives at the user's request location in time for service
←	3.After the service is completed, the user can evaluate the server on the platform

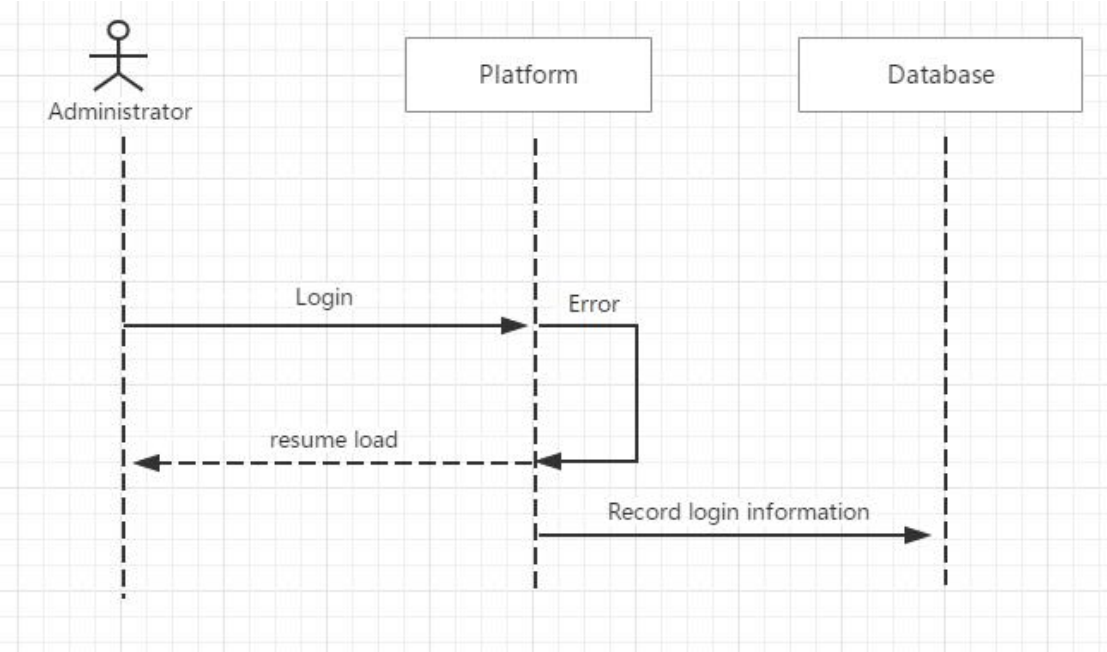
Use Case UC-9	Briefly describe the problem
Related requirements	REQ4，REQ7，REQ8，REQ9, REQ10 stated in Table 2-1
Initiating actor	information platform
Actor’s goal	Detect some procedural or information errors in the order
Flow of Events for Main Success Scenario:	
Participating actors	Paulo
preconditions	Receive order issues and system issues to process
Post-conditions	Handle problems and feed back to the management platform
Flow of Events for Main Success Scenario:	
→1，Tenant：The administrator receives the error message from the user and briefly describes the problem. ←2，(a)User sends order to management platform.(b)The manager sends a brief description and sends it to the background for processing.(c)Feedback to the manager after processing the problem in the background.(d)After the manager confirms that the order is correct, the platform will process the order.	

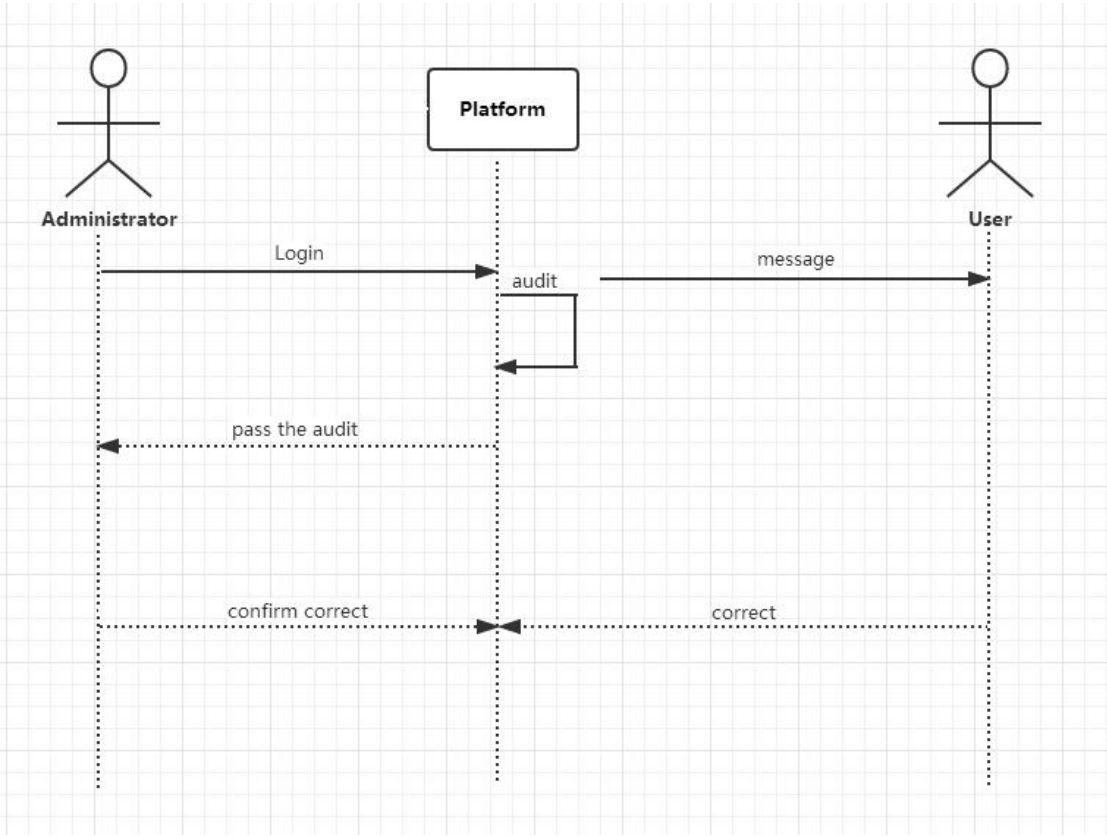
Use Case UC-10	Background processing
Related requirements	REQ4, REQ5, REQ6, REQ7, REQ8, REQ9,REQ10 stated in Table 2-1
Initiating actor	Platform administrator
Actor's goal	Hand over the brief questions to the background
Participating actors	Paulo
preconditions	Receive order issues and system issues to process
Post-conditions	Handle problems and feed back to the management platform
Flow of Events for Main Success Scenario:	
→1, Tenant: The administrator receives the error message from the user and briefly describes the problem. System: Handling error messages in the background and feeding back to the	

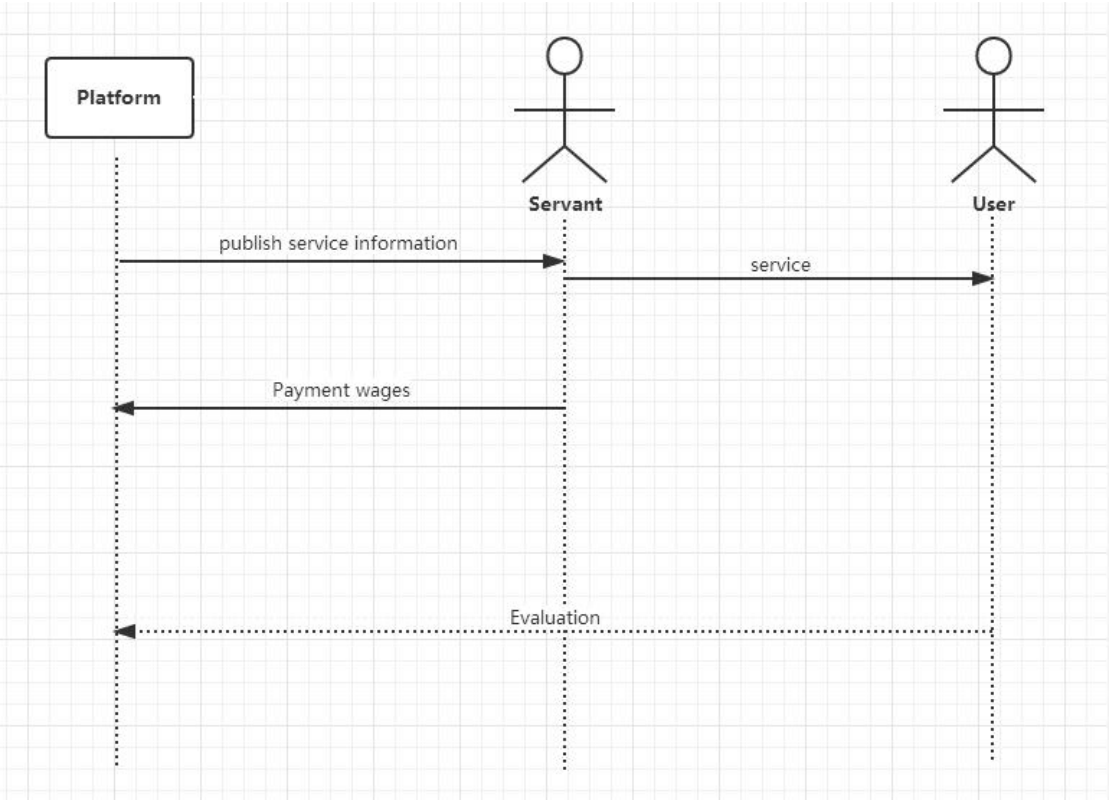
d.System Sequence Diagrams

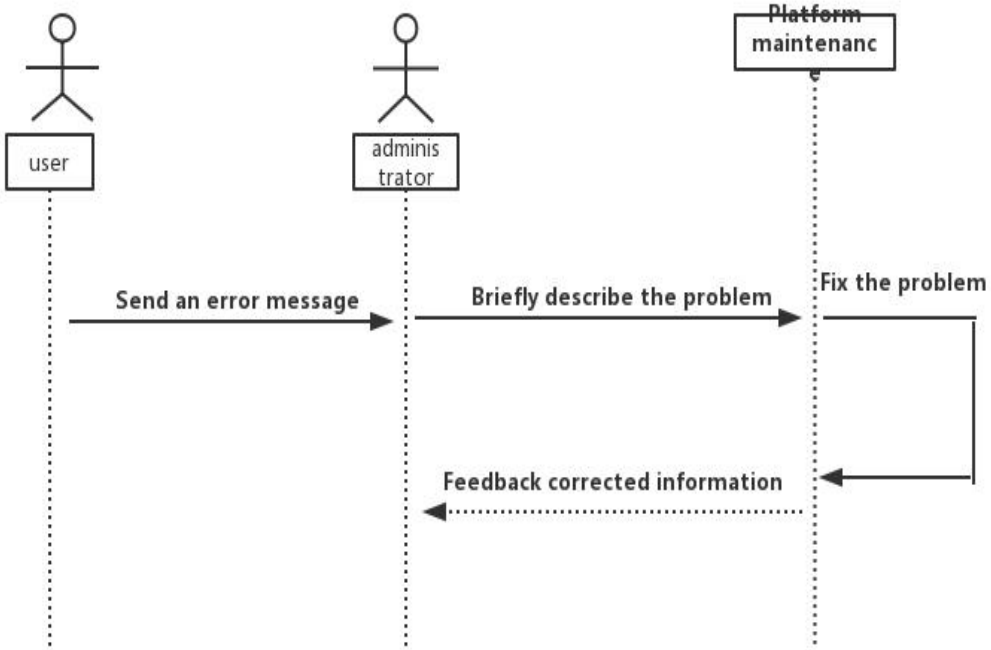


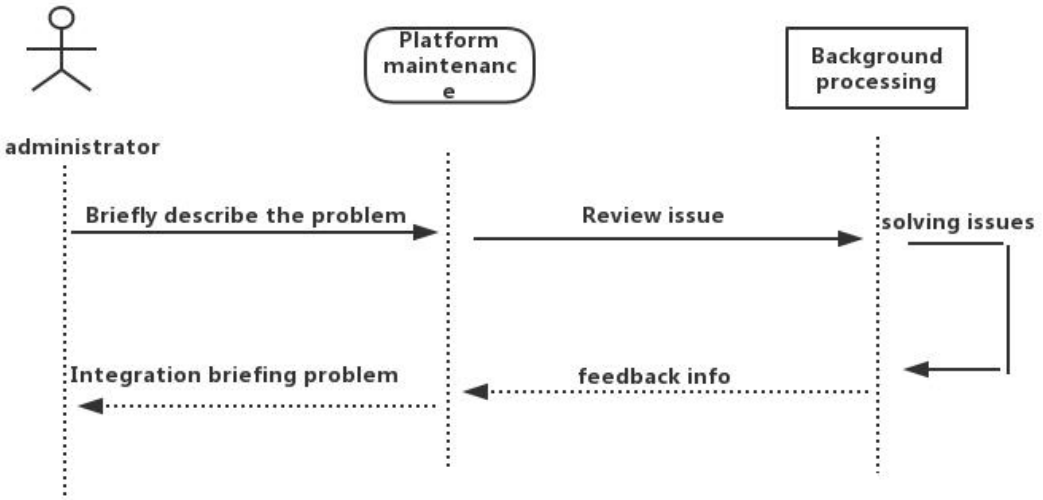



Administrator
Platform
Database
Login
Error
resume load
Record login information


Administrator
Platform
User
Login
audit
message
pass the audit
confirm correct
correct


Platform
Servant
User
publish service information
service
Payment wages
Evaluation


user
adminis
trator
Platform
maintenanc
e
Send an error message
Briefly describe the problem
Fix the problem
Feedback corrected information


Platform maintenanc e
Background processing
administrator
Briefly describe the problem
Review issue
solving issues
Integration briefing problem
feedback info

5. Effort Estimation using Use Case Points

a. Open the login interface

b. Click on the username

c. Enter the username

d. Click on the password

e. Enter the password

f.Click verification code

g.Enter confirmation code

h.Click OK to go to the main page

i.Choose the order you want to pick up or post

j.Click OK to enter your personal information

k.Exit the login interface

Mouse clicks required for the task: 8

Actor name	**Description of relevant characteristics**	**Complexity**	**Weight**
Administrator	Log in to the background and operate on everyone's order	Complex	3
User 1	Users log in to their own username to post all their orders on the platform	Average	2
User 2	Users log in to their own username to receive each published order on the platform	Simple	1
Database	Database is another system interacting through a protocol	Average	2

Use case	**Description**	**Category**	**We ight**
User posting info (UC- 1)	Simple user interface	Simple	5
Register and login in(UC- 2)	Simple user interface	Simple	2
User personal info input (UC- 3)	Complex user interface	Complex	5
Payment interface (UC- 4)	Simple user interface	Simple	5
Cancellation of order(UC- 5)	Average user interface	Average	4
Administrator login (UC- 6)	Simple user interface	Simple	2
Confirm users info(UC- 7)	Complex user interface	Complex	5
Orders(UC-8)	Average user interface	Average	2

Brief describe the Problem(UC-9)	Average user interface	Average	4
Background processing(UC-10)	Complex user interface	Complex	4

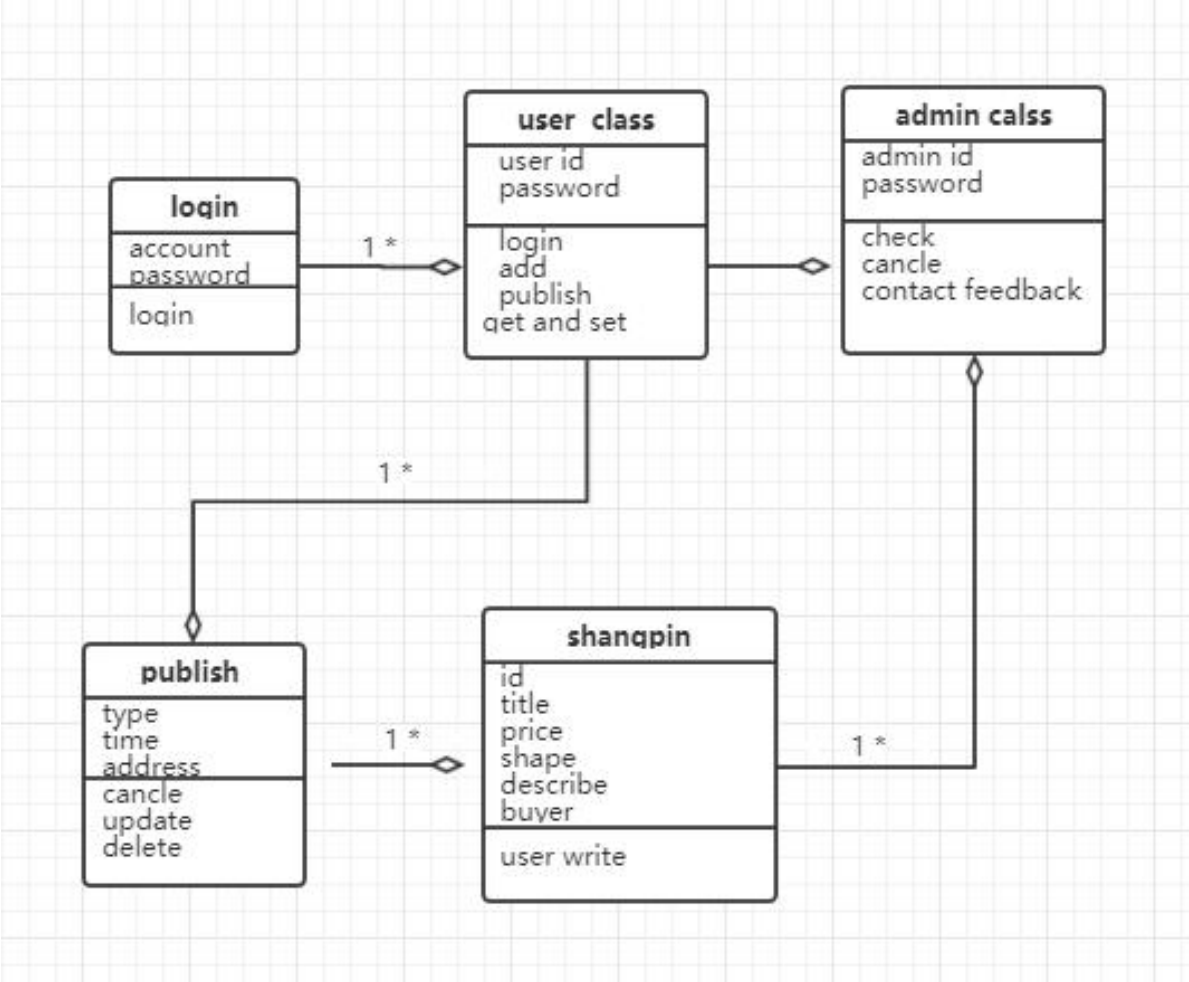
Technical factor	**Description**	**Weight**	**Perceived Complexity**	**Calculated Factor (Weight Perceived Complexity)**
T1	Distributed, Web-based system	2	3	2x3=6

T2	Post. Delete and change information at any time	1	5	1x5=5
T3	User expects efficiency	1	2	1x2=2
T4	Simple and average	1	2	1x2=2
T5	No requirement for reusability	1	0	1x0=0
T6	Ease of install is moderatel y important	0. 5	2	0.5x2=1
T7	Ease of use is very importa nt	0. 5	5	0.5x5=2.5
T8	No portability concerns bey ond a desire to keep databa se vendor options open	2	2	2x2=4
T9	Easy to change minimally r equired	1	1	1x1 = 1
T10	Concurrent use is required	1	0	1x0=0
T11	Security is a significant con cern	1	8	1x8=8
T12	No direct access for third p arties	1	0	1x0 = 0
T13	No unique training needs	1	0	1x0 = 0
Technical Factor Total:				31.5

Environmental factor	**Description**	**Weight**	**Perceived Impact**	**Calculated Factor (Weight Perceived Impact)**
E1	Familiar with the development process	1.5	5	1.5×5 = 7.5
E2	Application problem experience	0.5	5	0.5×5 = 2.5
E3	Paradigm experience	1	2	1×2 = 2
E4	Lead analyst capability	0.5	2	0.5×2 = 1
E5	Motivation	1	3	1×3 = 3
E6	Stable requirements	2	5	2×5 = 10
E7	No part-time staff will be involved	1	0	1×0 = 0
E8	Difficult programming language	1	0	1×0 = 0
Environmental Factor Total:				26

6.Domain Analysis

a.Domain model



b.Concept definition

Concept class	responsibility
User class	User id,password,login,add,publish
Admin class	Processing and Feedback of Platform Problems
login	Publish order information after landing
Commodity	Id, title, describe,price,describe, buyer
publish	Publishing the information of goods

c.Association definition

Concept	Association description
User ⟺ Login	Login after user registration
User ⟺ Publish	Users publish orders
Admin ⟺ Login	Administrator login account
Publish ⟺ Commodity	Publishing the attributes of goods
Commodity ⟺ customer	Goods are sent to customers

d.Attribute definition

Concept	Attribute description
Login	Account, password
Admin	Admin id, password
Publish	Id, title, describe,price,describe, buyer
Commodity	Size, shape, etc.

e.Traceability Matrix

Req't	PW	UC1	UC2	UC3	UC4	UC5	UC6	UC7	UC8	UC9	UC10
REQ1	5	×			×						
REQ2	2	×	×	×	×						
REQ3	5			×	×			×			
REQ4	4				×	×				×	×
REQ5	2					×					×
REQ6	1						×	×	×		×
REQ7	2							×	×	×	×
REQ8	1								×	×	×
REQ9	1									×	×
REQ10	1									×	×
MaxPW		5	2	5	5	4	2	5	2	4	4
TotalPW		7	2	7	16	6	2	5	4	9	12

（Table 2-1）

UC1: User posting information	REQ1: User selects service type
UC2: Register and log in	REQ2:.User login interface.
UC3: User personal information input	REQ3:.Fill in your personal information.
UC4: Payment interface	REQ4: Amount paid for the selected service
UC5: cancellation of order	REQ5: Return selected order.
UC6: Administrator login	REQ6: Administrator login to the platform.
UC7: Confirm user information	REQ7: The administrator confirms the personal information filled in by the user.
UC8: Orders	REQ8: Successful order.
UC9: Briefly describe the problem	REQ9：Problems in the Process of Service Acceptance by Users
UC10：Background processing	REQ10：Platform Handles Customer Problems

f.System Operations Contract

Use Case UC-1：	User posting information
Related Requirements:	REQ1, REQ2 stated in Table 2-1
Initiating Actor:	Any of: student, teacher, society
Actor's Goal:	Enter the platform to publish service information
Participating Actors:	Wally
Preconditions:	• New users register through the login interface • Old users can log in directly to enter the homepage

Use Case UC-2	Register and login
Use Case UC-2	Register and login
Related requirements	REQ2 stated in Table 2-1
Initiating actor	Student、teachers、society in campus
Actor’s goal	Implement user registration platform account and login platform
Participating actors	Devon
preconditions	User owns platform account
Post-conditions	User selects service type and completes payment

Use Case UC-3：	User personal information input
Related Requirements:	REQ2，REQ3 stated in Table 2-1
Initiating Actor:	Any of: student, teacher
Actor’s Goal:	Fill in your personal information after selecting the required service
Participating Actors:	Wally
Preconditions:	• User login into the interface • The user has selected the required service
Post-conditions:	User-published information is subject to legal permission

Use Case UC-4：	Payment interface
Related Requirements:	REQ1，REQ2，REQ3，REQ4 stated in Table 2-1
Initiating Actor:	User who posted the information
Actor’s Goal:	Complete the payment of the order
Participating Actors:	Devon
Preconditions:	Users need to register their own payment account information (WeChat, Alipay)
Post-conditions:	The user enters his or her account password, completes the payment, and the platform will transfer to the order user account

Use Case UC-5：	cancellation of order
Related Requirements:	REQ4，REQ5 stated in Table 2-1
Initiating Actor:	Publisher (User 1), Assignee (User 2), Platform,
Actor’s Goal:	Cancel wrong order
Participating Actors:	Carr
Preconditions:	•Users have their own accounts •The user successfully placed the order • Order not completed
Post-conditions:	The reason for withdrawal is reasonable

Use Case UC-6：	Administrator login
Related Requirements:	REQ6 stated in Table 2-1
Initiating Actor:	Administrator, Platform, Database
Actor’s Goal:	Log in to the background for operations
Participating Actors:	Carr
Preconditions:	Have administrator account
Post-conditions:	Operate within the limits of authority

Use Case UC-7：	Confirm user information
Related Requirements:	REQ3，REQ6, REQ7 stated in Table 2-1
Initiating Actor:	Any of: student, teacher, society
Actor’s Goal:	The administrator enters the background to confirm whether the information entered by the user is incorrect
Participating Actors:	Asa
Preconditions:	• The administrator logs in the correct username and password • The administrator verifies that the user's valid information is incorrect

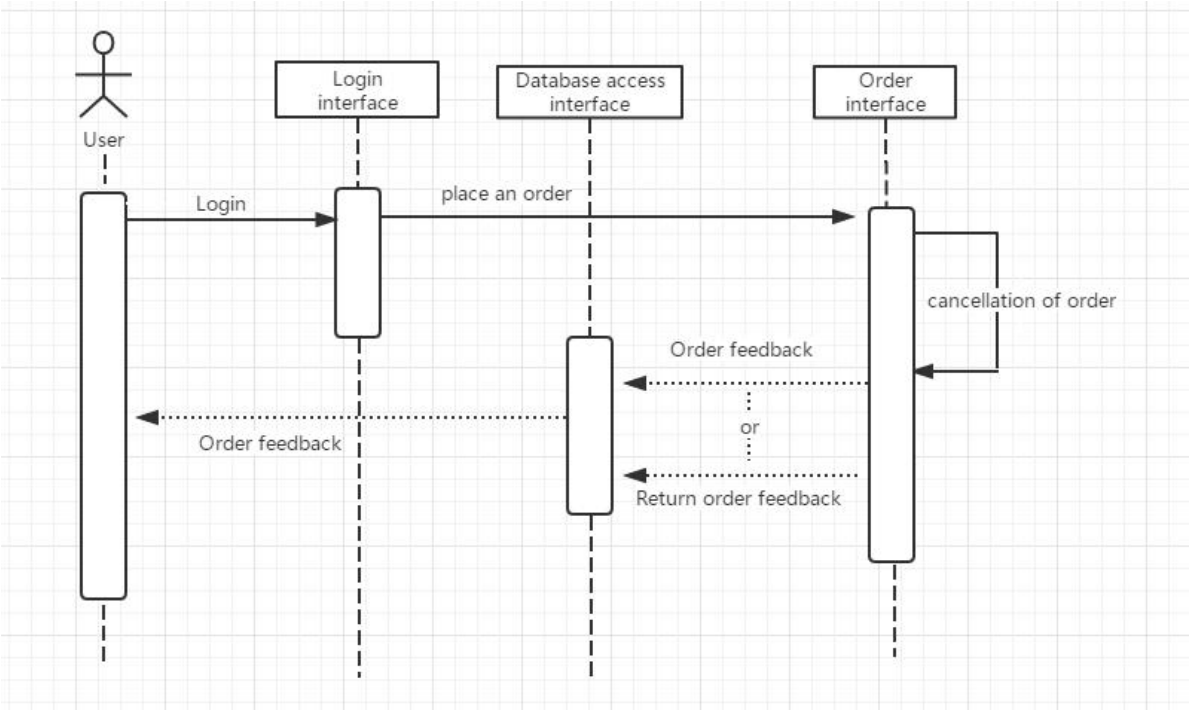
Use Case UC-8：	Accepting orders
Related Requirements:	REQ6，REQ7, REQ8 stated in Table 2-1
Initiating Actor:	Any platform service staff
Actor’s Goal:	The service provider arrives at the required location on time to service the user and complete the payment on the platform
Participating Actors:	Asa
Preconditions:	• Users complete payment • Users and service providers do their own preparations in the same time
Post-conditions:	Users and service providers should cooperate with each other within the scope permitted by law

Use Case UC-9	Briefly describe the problem
Related requirements	REQ4，REQ7，REQ8，REQ9, REQ10 stated in Table 2-1
Initiating actor	information platform
Actor's goal	Detect some procedural or information errors in the order
Participating actors	Paulo
preconditions	An error occurred in the order or program
Post-conditions	Found error message

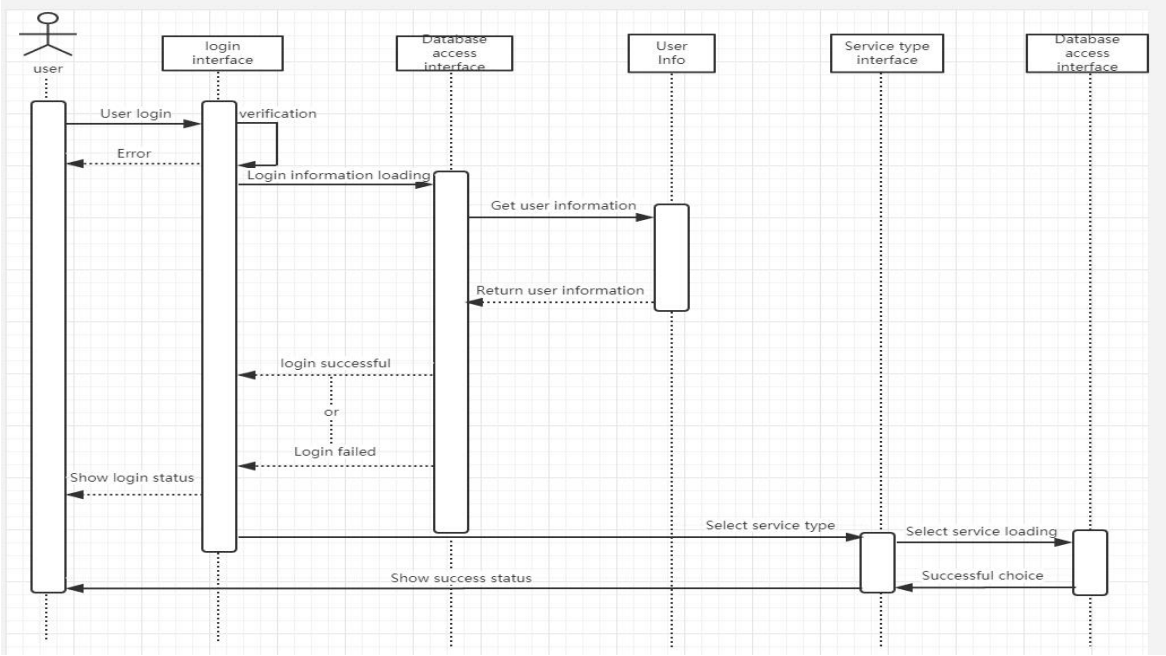
Use Case UC-10	Background processing
Related requirements	REQ4, REQ5, REQ6, REQ7, REQ8, REQ9,REQ10 stated in Table 2-1
Initiating actor	Platform administrator
Actor 's goal	Hand over the brief questions to the background
Participating actors	Paulo
preconditions	Receive order issues and system issues to process
Post-conditions	Handle problems and feed back to the management platform

7.Interaction Diagrams

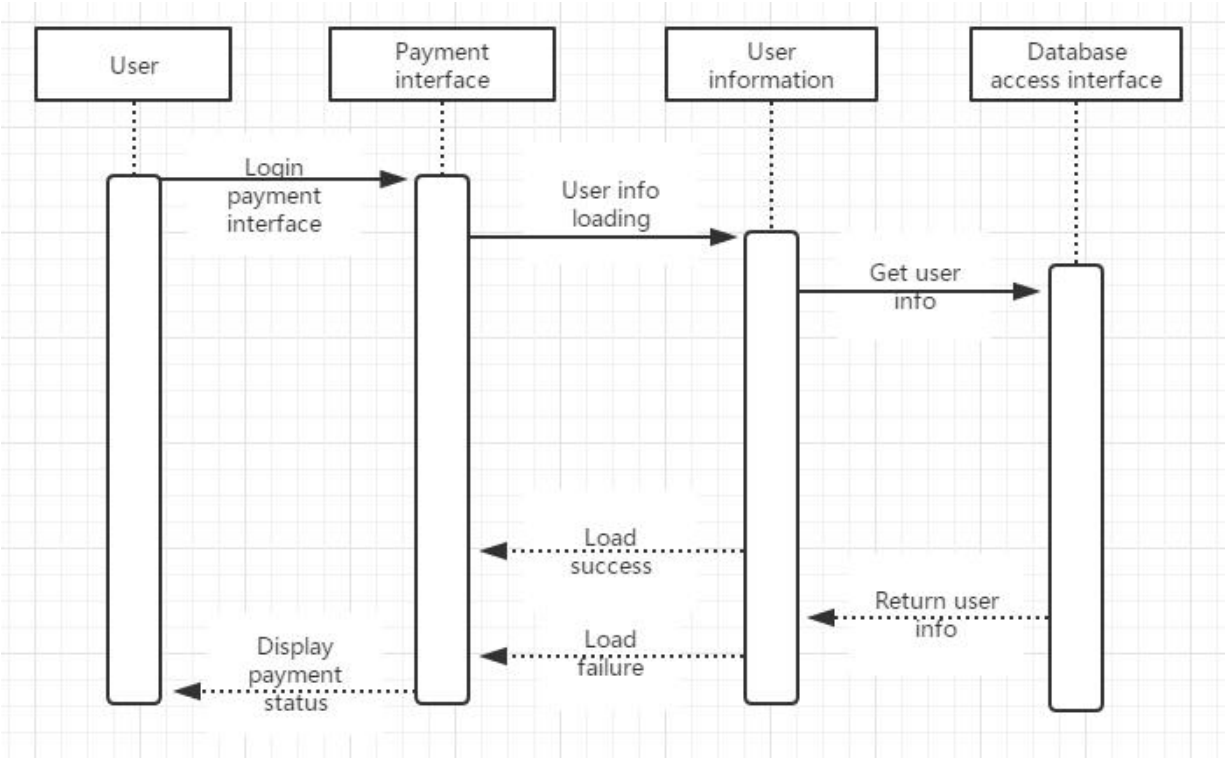
a.Order generation and cancellation



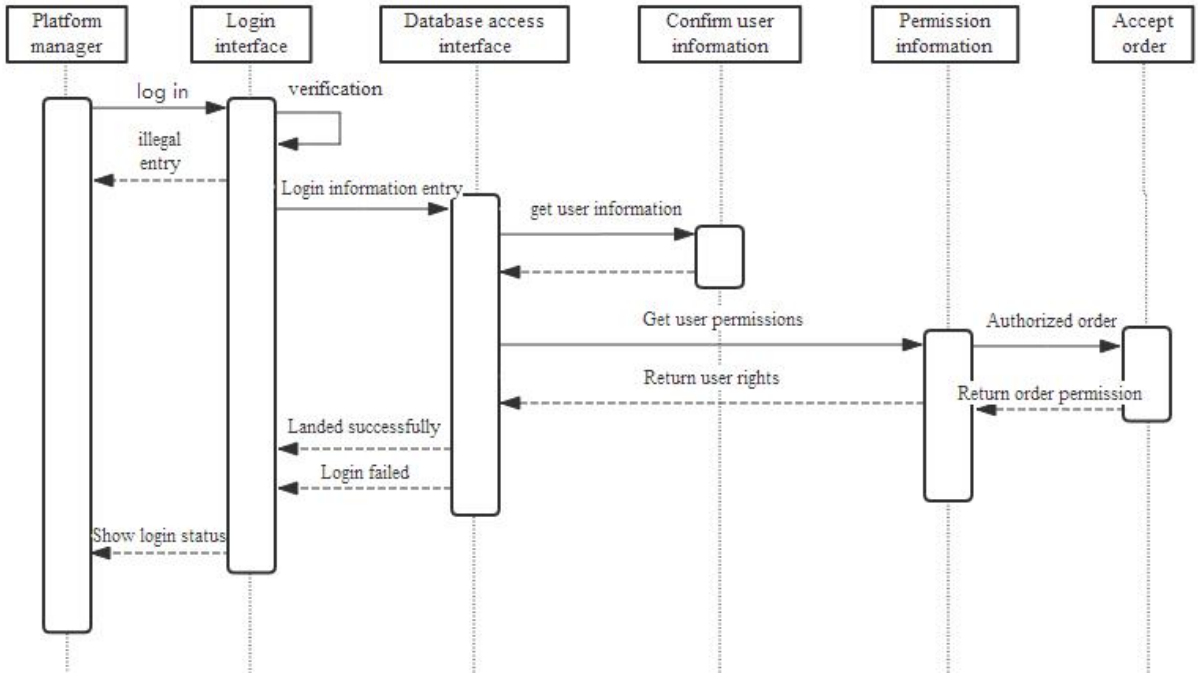
b.User selects service type



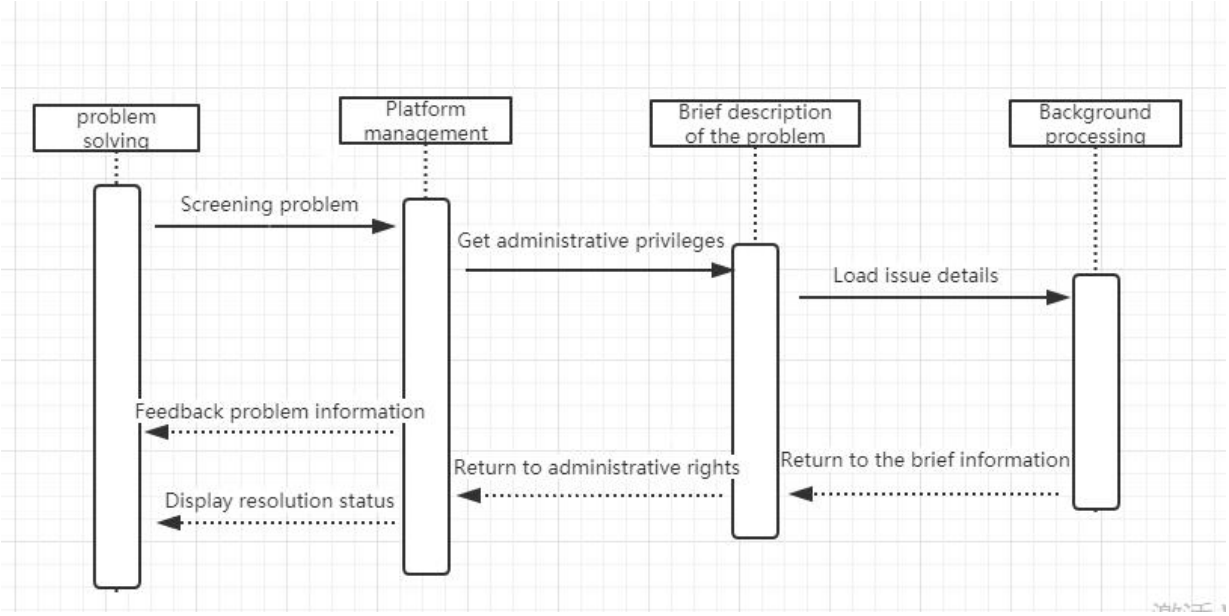
c.Payment interface



d.Check order



e.Brief description of the problem and deal with it



f.Design Patterns: Business Modeling

Interaction Diagram (Sequence Diagram) belongs to the second step in software engineering-the diagram in the business modeling phase. Business modeling requires us to turn our perspective from the system to the organization, and to look at the problem from the customer's point of view in order to achieve a clear and accurate "knowing the other". The terminology is to locate the value of the system from the organization's point of view, so as to avoid the failure of software projects, because a large number of software projects fail. The reason is one - the final implementation is inconsistent with user needs! Therefore, business modeling is also called organizational modeling. Keep in mind that in the business modeling and requirements analysis phase, forget your identity as a technical expert! In fact, to say so much, is a sentence: business modeling is to put the system in the organization to

look at. Business Modeling is a software model that describes the objects and elements involved in business management and business, as well as their attributes, behaviors and relationships. Including business organization modeling, business process modeling, business process improvement and so on.Composition of Business Sequence Diagram: Business users, business executives, business entities, and interactions among them to complete the implementation process of a business use case. Business users - mainly for publishing the required information on the Internet, business executives - are located within the business organization, responsible for some of the work in the business process. For example, students in school, business entities - in the process of business use case implementation, business service providers use "systems" such as the online campus running errand business we designed.

The steps of describing business status using sequence diagrams are as follows:

1. Identify business objects: business users, business executives, business entities;

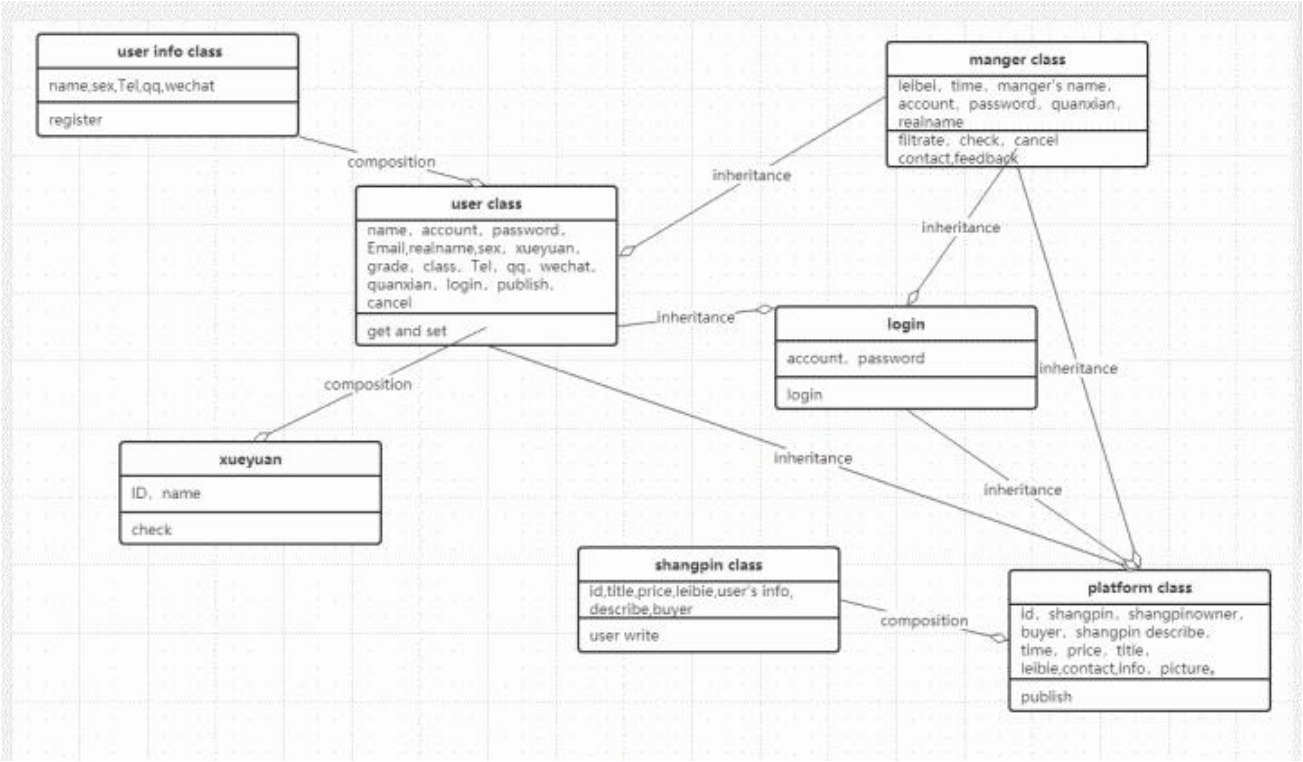
2.Determine the sequence of responsibilities, collaborations and interactions among business objects.

3. Drawing Business Sequence Diagram.

When drawing a graph, Lifeline is a vertical dashed line. It is used to represent the existence of objects in sequence diagrams for a period of time. Business modeling design has greatly improved the interaction diagrams in the business process, making the whole business process more coherent and orderly.

8.Class Diagram and Interface Specification

a.Class Diagram



b. Traceability Matrix

Phase	Requirement Trace	Guidance	Requirement
URS	URS-01	Set your requirement	All physical users (students, teachers) can log in to this campus bounty order system. You can also view the properties of an entity class, such as information and price of a service type, in the system.
FS	FS-01	Requirement is described in the form of its functionality	System administrator manages all entity classes
DS	DS-01	Detailed description of how the functionality will be fulfilled	All entity classes can log in to this campus bounty order system.
DR	DR-01	Verify that your requirement has been accommodated in the design documents. Verify that objects of entities is included in the functional and design documents	Verify that it meets the requirements of the system. Verify that it is connected to the administrator in the feature and design documentation.
FAT	FAT-01	N/A (as this would is built directly on site)	N/A (If this was built off site, verify that it is physically present, properly installed and connected)
SAT	SAT-01	The supplier must verify that they have supplied you with an object that can fulfil your requirements	1. Can the administrator manage all users? 2. Can an entity user log in to the system? 3. Can users post the services they need?

		(physical presence/installation and functionality)	
IQ	IQ-01	This is where you ensure that the installation is correct - refer to vendor documents if possible.Also check that the object has been entered into your systems maintenance schedule	Verify that the installation is correct and that the object has been entered into the system maintenance plan
OQ	OQ-01	Verify the functionality of the object. If possible, refer to vendor test documents here as well.	Test whether the user instance can log in to the campus bounty order system. After successful login, can the system interface class be displayed normally? Can the user successfully display the order interface class, is the user function experience good?
PQ	PQ-01	Checking for seasonal variationsor long term functionality (in this case). A PQ is designed to prove that an object works taking the whole picture into account.	Through the administrator's operation, verify that all users can use the full functionality of the system for a long time?

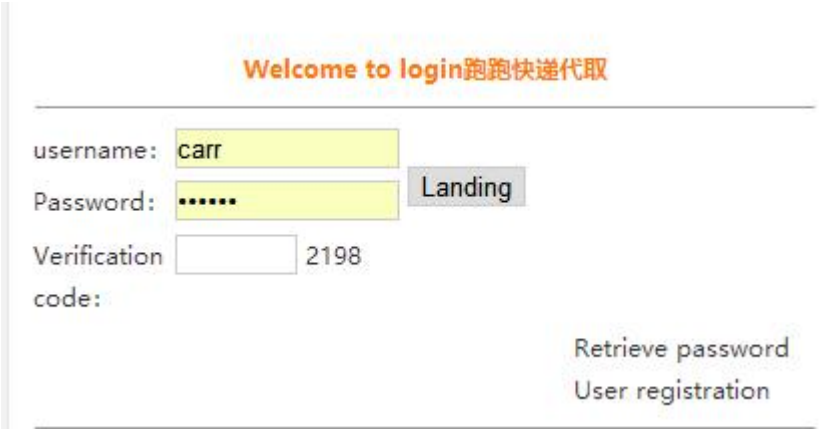
c.Design method

Interface control class undertakes most of the work of communication between user interface and other layers of the application program. Interface control class is relatively simple. For each user interface that needs to communicate with other layers of the application program, there should be a corresponding interface control class. The corresponding interface class defines an interface control class. Interface control classes are usually temporary and do not need to be stored in external memory. Their life cycle ends at the end of the interaction. In order to make the interaction between classes simple and clear, the interface control class is only related to the interface class and the use case control class. There should be no relationship between the interface control class. The interface class relies on the interface control class, while the interface control class relies on the use case control class. The operations and attributes of the interface control class can be defined when designing sequence diagrams, or when designing program code at the implementation stage.

d.Interface specification

Above is the user registration interface.

Registration Interface Method: localhost:8080/expressage/login.jsp



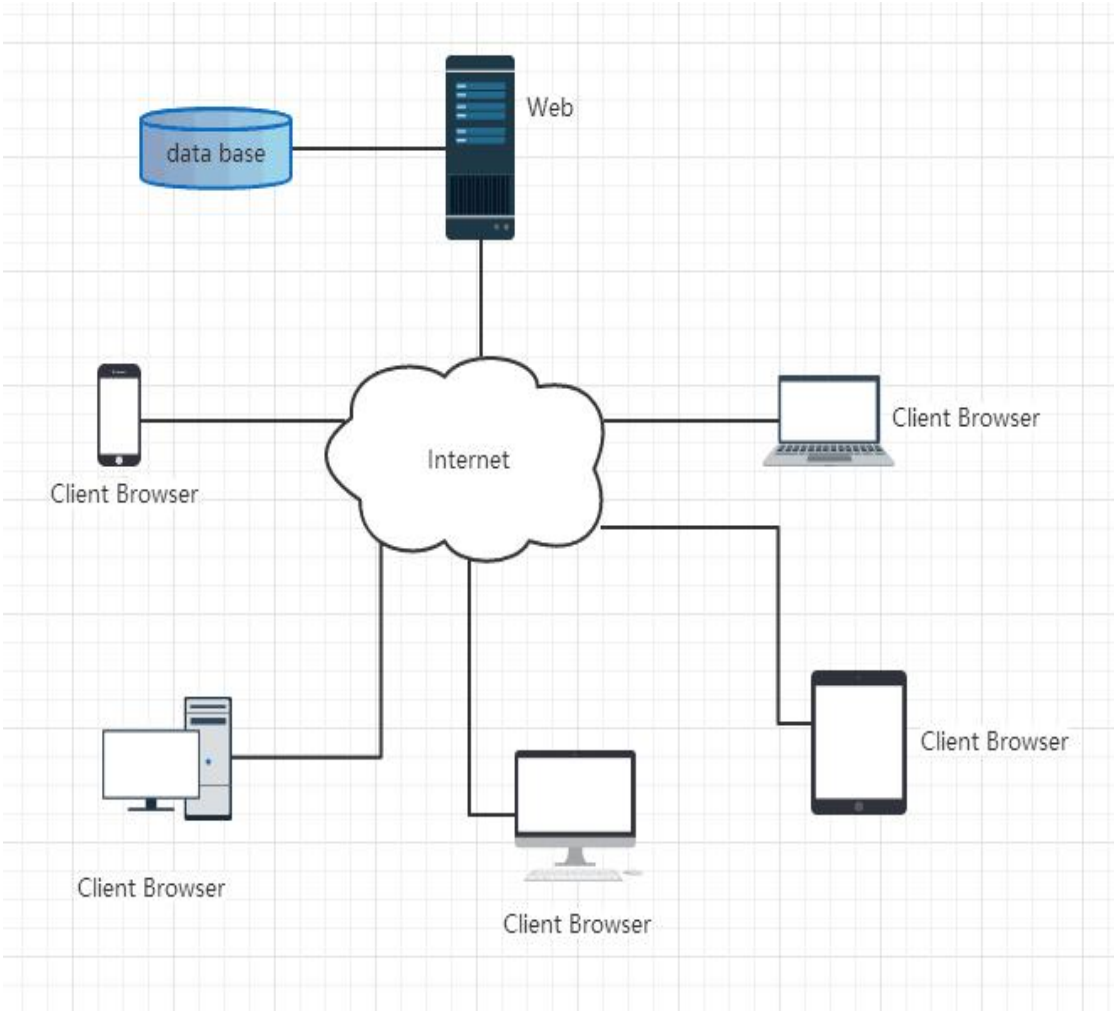

```
<%@ page language="java" import="java.util.*" contentType="text/html;charset=gb2312" %>
<%@ include file="iframe/head.jsp" %>
<TABLE class=MainTable cellSpacing=0 cellPadding=0 width="100%" align=center
border=0>
<TR>
<TD>
<TABLE class=dragTable id=viewarticle cellSpacing=0 cellPadding=0 width="100%" align=center border=0>
  <TBODY>
  <TR>
    <TD class=head>
            <H3 class=L></H3><FONT
                        color=#000000>Your current location: Member application&gt;&gt; Fill in the information</FONT>
    </TD>
    </TR>
  </TBODY>
</TABLE>


      <DIV align=center>
      <TABLE class=dragTable  cellSpacing=0 cellPadding=0 width="100%" align=center border=0>
        <TBODY>
        <TR>
          <TD width=100% align=left  bgColor=#c8c8c8 height=28>
          <SPAN class=black><strong><FONT color=blue>Please fill in the following information carefully:</FONT></strong></SPAN></TD></TR>
        <TR>
          <TD><FORM name="regbb" action="<%=basePath%>Member.do" method="post">
            <TABLE   height=170 cellSpacing=0  cellPadding=0 width="100%"  border=0 hspace="12">
            <TBODY>

              <INPUT type=hidden  name="method">
              <TR >
                <TD align=right width="38%"  height=30>username:</TD>
                <TD width="62%"  height=30 align=left><font color=blue><%=request.getAttribute("message")==null?"":request.getAttribute("message")+"<br>" %></font>
                <INPUT class=inputb id=username maxLength=10 size=21 name=username value='<%=request.getAttribute("username")==null?"":request.getAttribute("username") %>' onbeforepaste=
                          onkeyup="value=value.replace(/[\W]/g,'')" >  <input type=button value="Check if it is duplicated" onClick="sameREGcheck()" > Not less than 4 digits
```

9.System Architecture and System Design

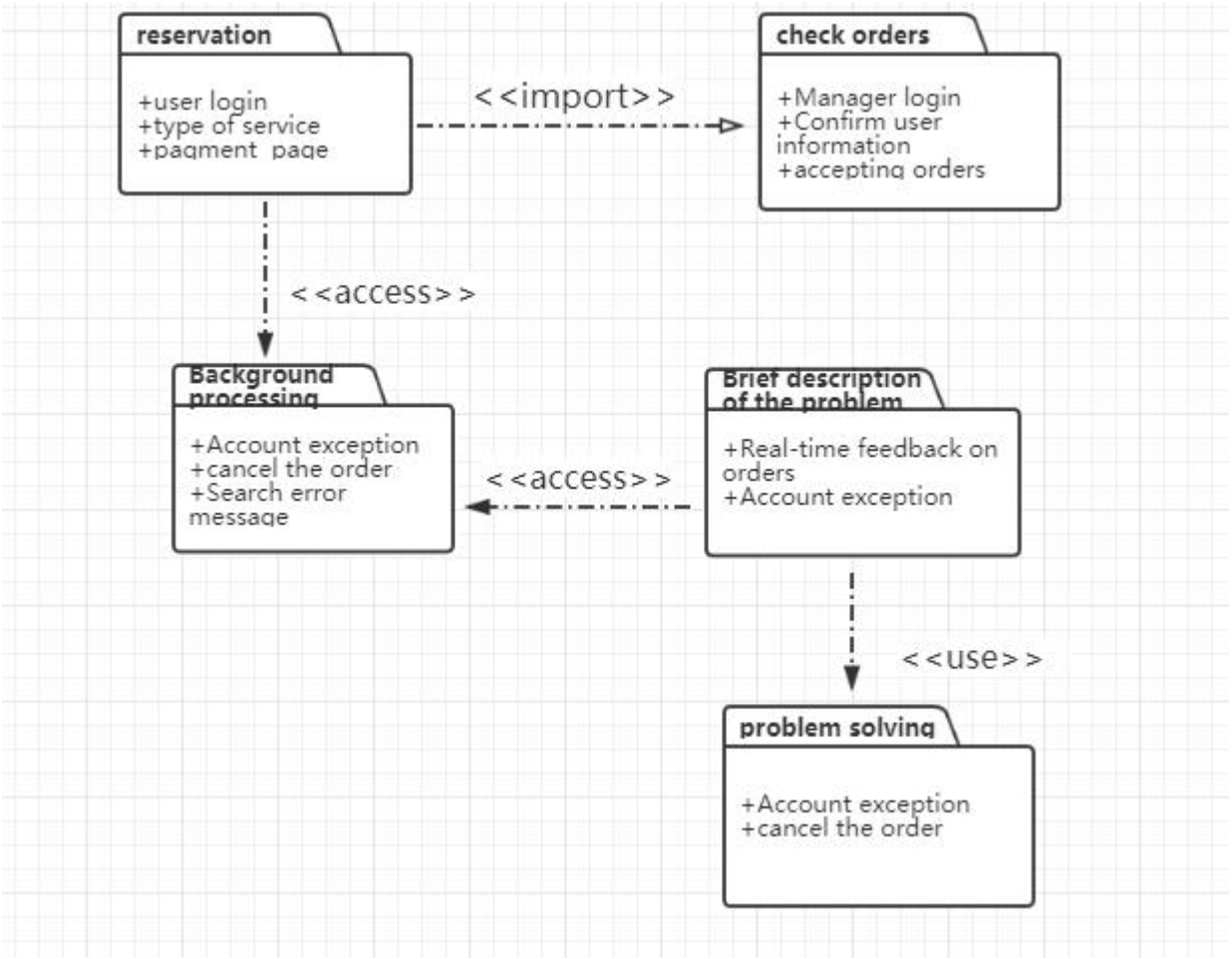
a.Architectural Styles



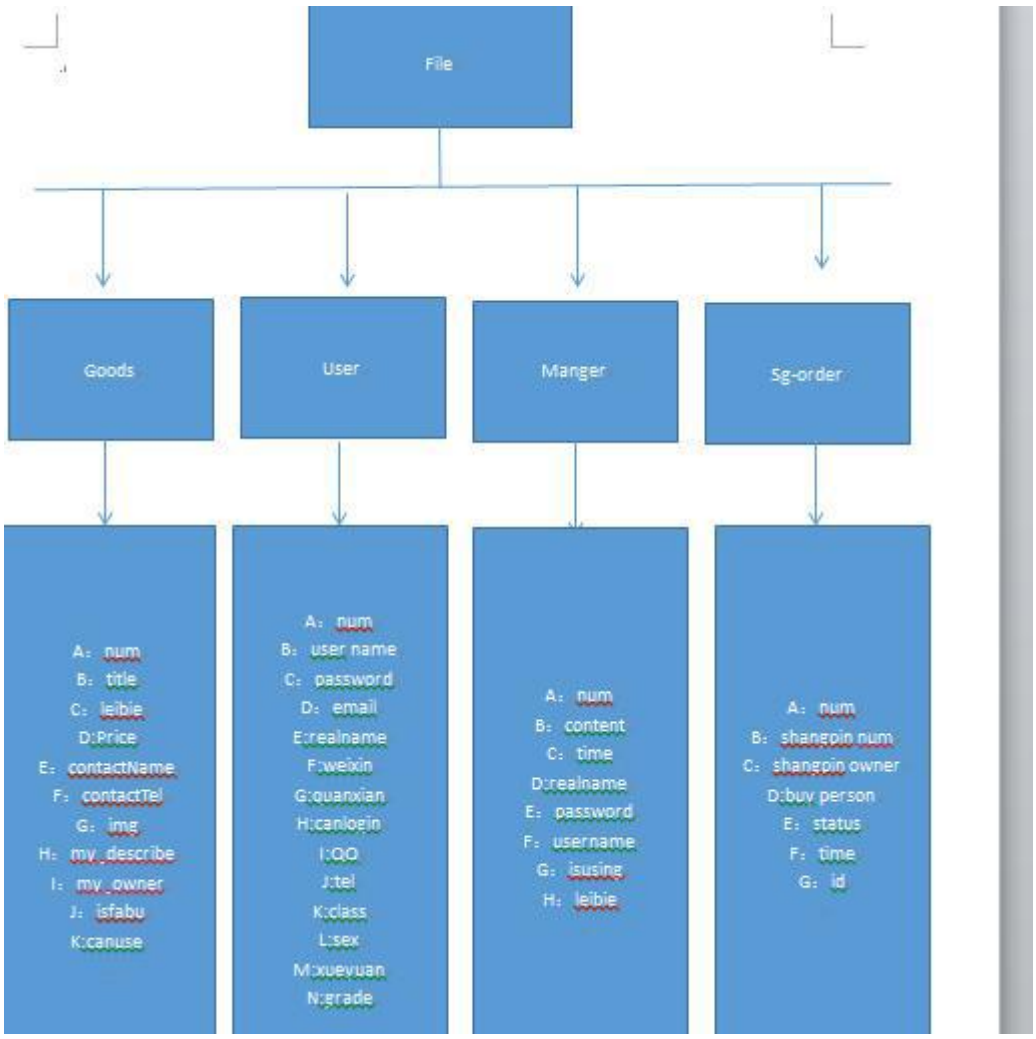
The architecture we use is B/S architecture, that is, Browser/Server. B/S is developed based on web browser technology, with powerful functions and low development cost.

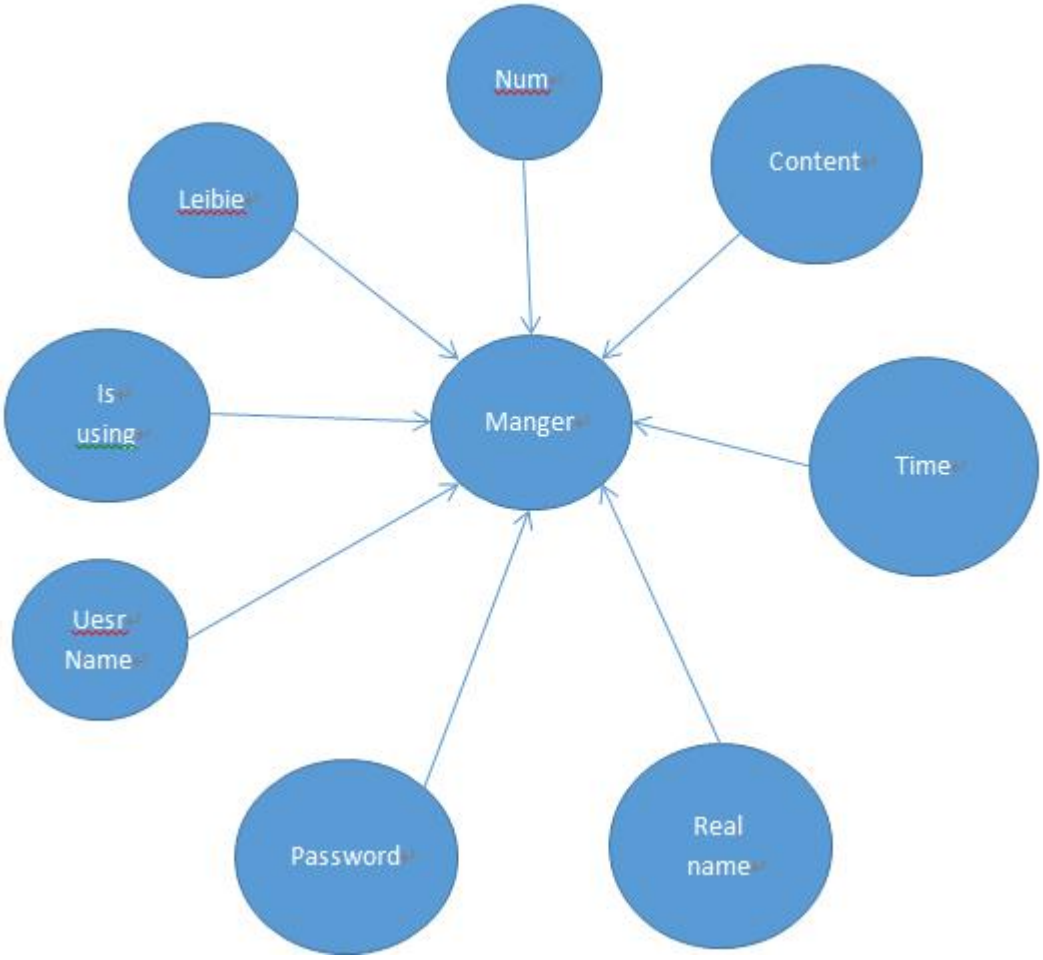
Using B/S architecture, you can operate anywhere without installing corresponding software. As long as there is a computer that can access the Internet, it can be used with zero installation and zero maintenance of clients. The expansion of the system is very easy.

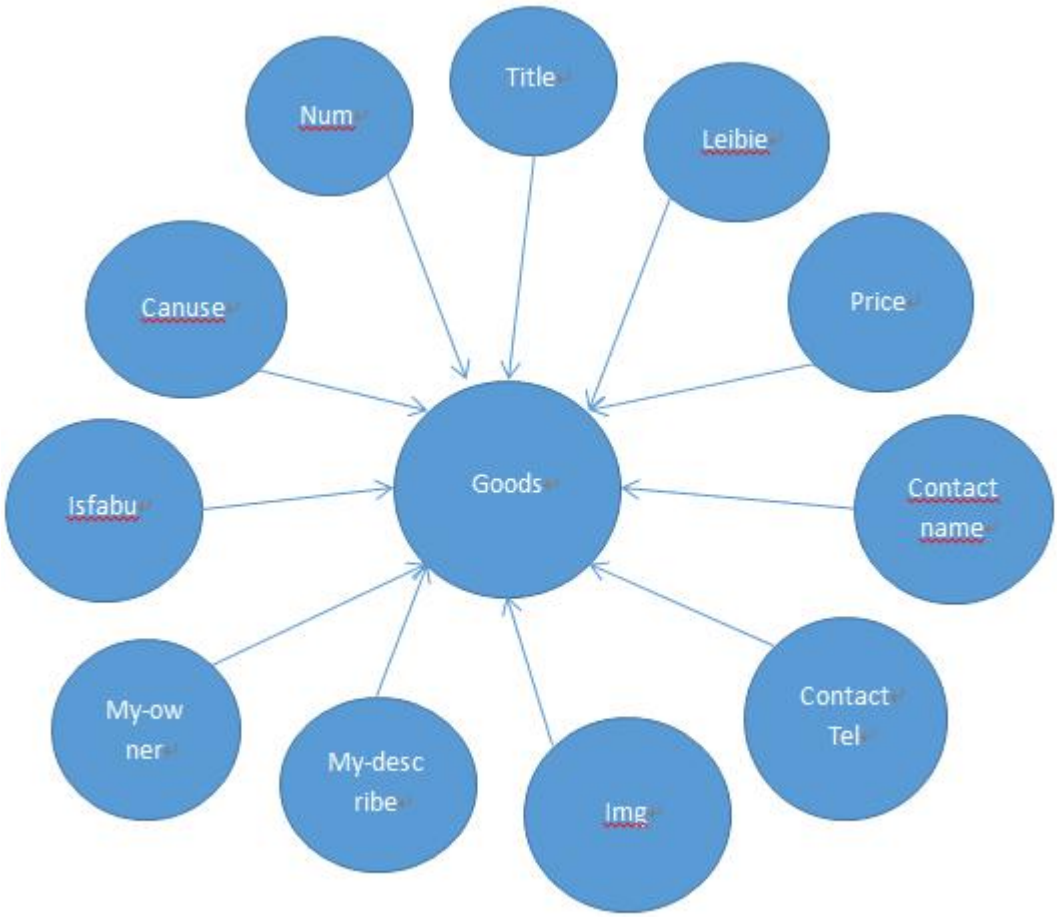
b. Identifying Subsystems

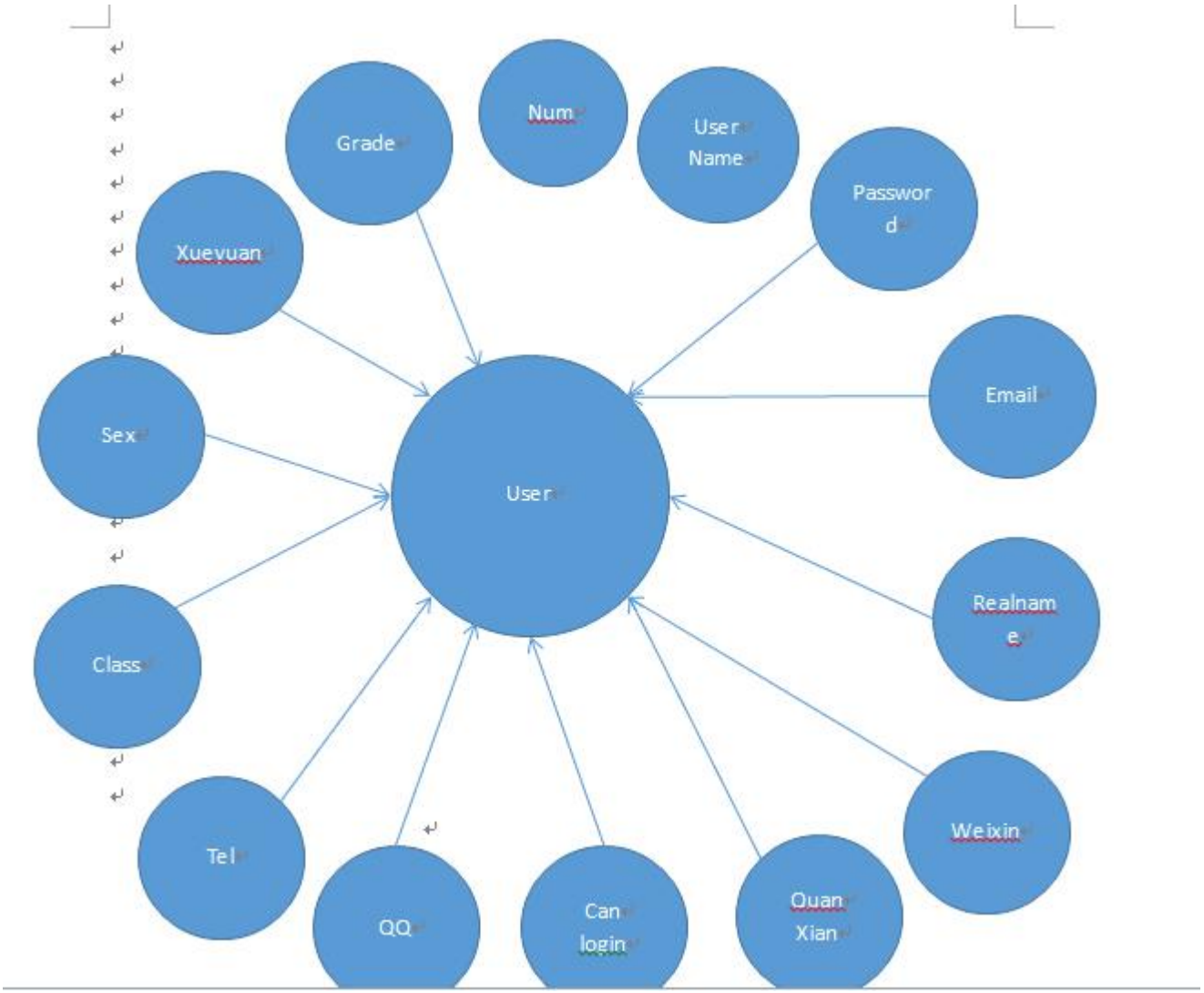


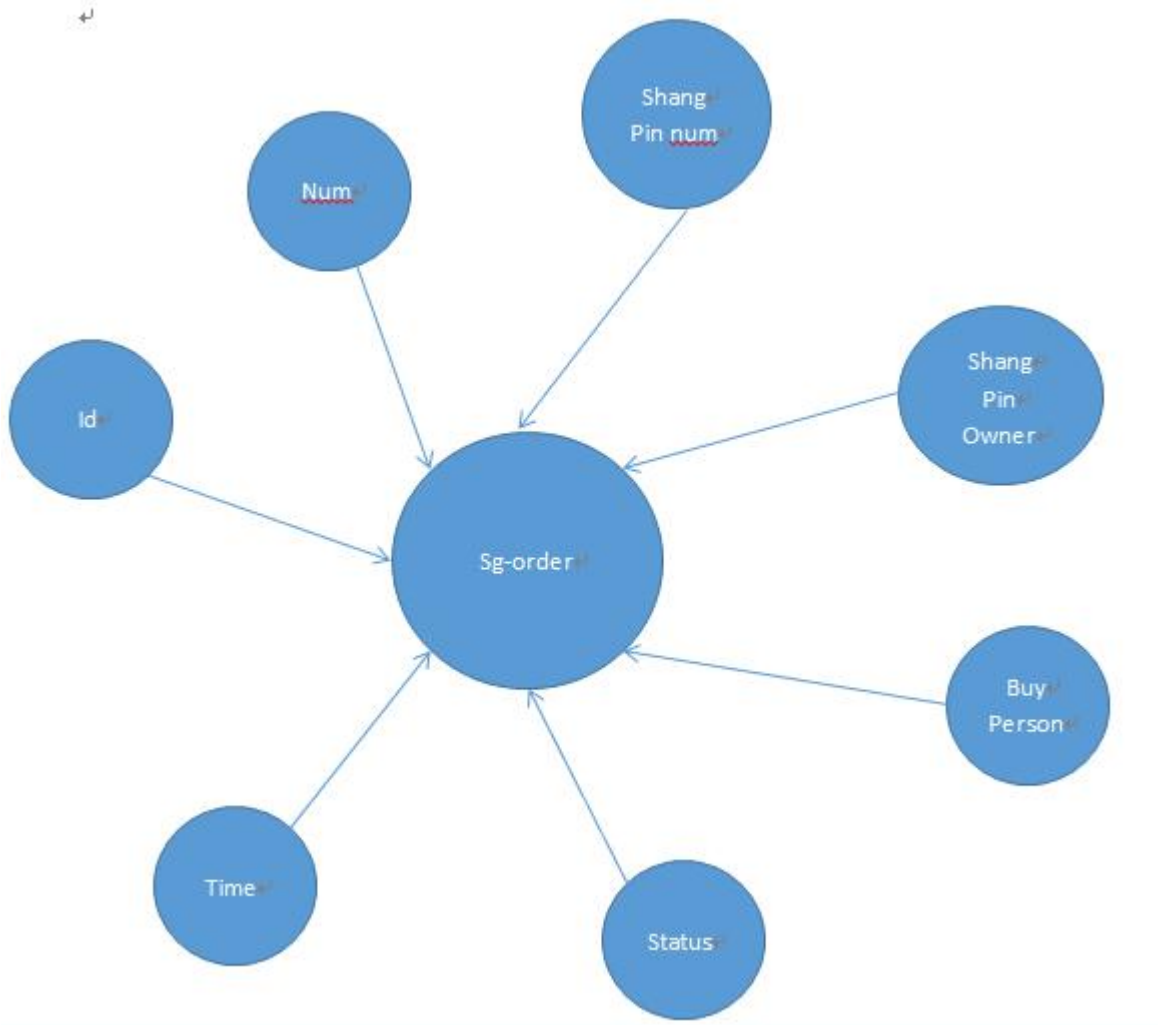
d. Persistent Data Storage




Num
Leibie
Content
Is using
Manger
Time
Uesr Name
Password
Real name


Num
Title
Leibie
Canuse
Price
Goods
Isfabu
Contact name
My-ow ner
My-desc ribe
Img
Contact Tel


Num
Grade
User Name
Password
Xuevuan
Email
Sex
User
Realname
Class
Weixin
Tel
QQ
Can login
Quan Xian



e. Network Protocol

HTTP has matured, and HTTP has almost become a universal web standard. Almost all data transmission (multimedia, XML, JSON) can use HTTP.

Web Browser (browser)

The browser obtains the server resource by sending a request, and implements the HTTP client, which can be called a client. In fact, many clients are now also converted by the web client, including the PC and mobile.

Web Server (server)

Used to store web objects, each object is addressed by a URL, and the web server

implements the server side of the HTTP server.

f. Global Control Flow

Execution order: user login, select service type, generate order, platform order and process.

Time dependency: the system needs a timer; each step of the user needs to be recorded, and a usage log is generated and recorded in the information base.

g. Hardware Requirements

The applet is based on web version, the screen is displayed in color and the minimum resolution is 800×600 pixels; on disk storage, at least 4GB of hard disk space is required; the smallest broadband network is 128Kbps; its central processor is generally The requirements are: i5-4670S @ 3.10GHz; the installed memory cannot be less than 4G. In the hardware requirements, only the above conditions can be met to make the whole process go smoothly, otherwise there will be problems such as pauses and loading failures.

10.Algorithms and Data Structures

1. We did not use the algorithm

2. We have used some common data structures such as arrays and linked lists, for example:

Array:

```
else{
    int id[]= new int[check.length];
    for(int i = 0;i<check.length;i++){
        int s = Integer.parseInt(check[i]);
        id[i] = s;
    }
    int flag = guestBookBean.delGuestBook(id);
    if(flag == Constant.SUCCESS){
```

Linked list:

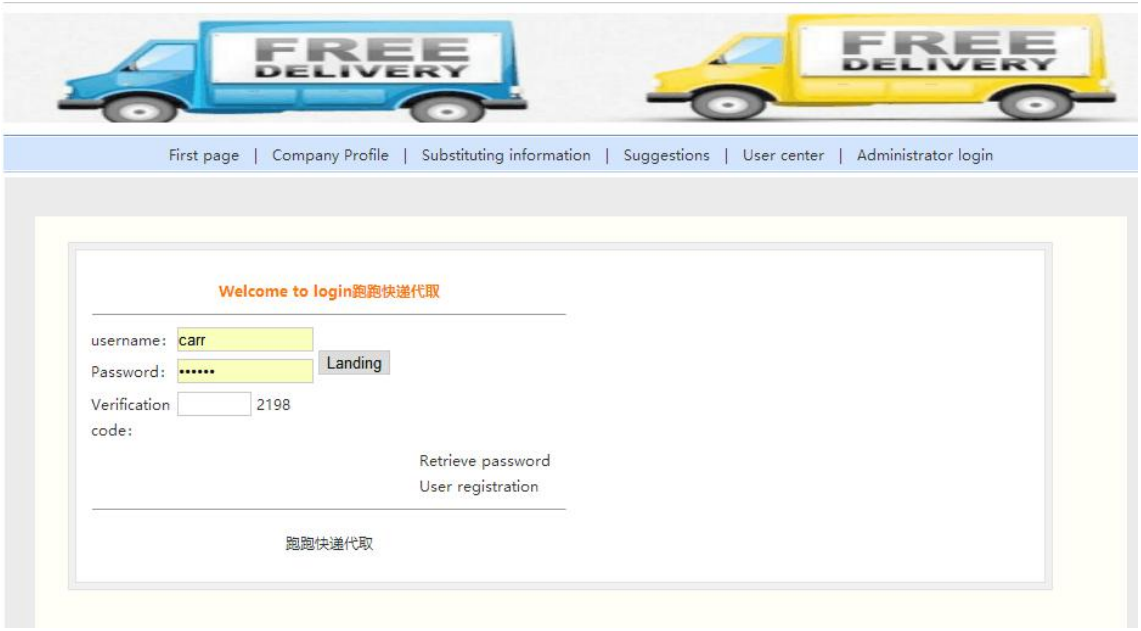
```
 * @author Administrator
import java.io.File;
public class FriendLinkBean {

    private List list;
    private ResultSet rs;
    private String date=new SimpleDateFormat("yyyy-MM-dd HH:mm:ss").format(Calendar.getInstance().getTime());
```

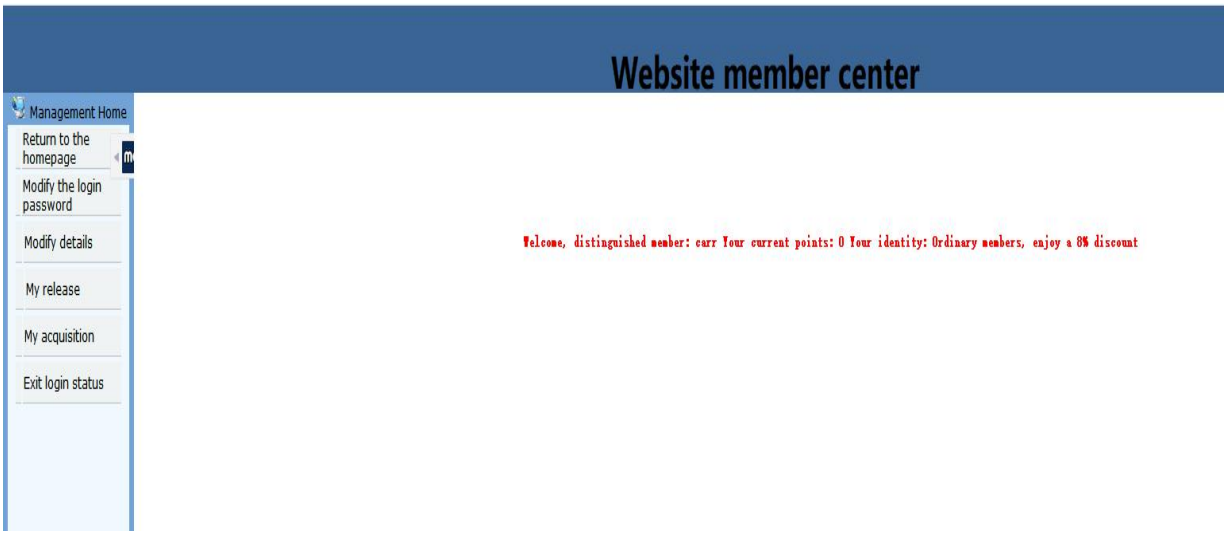
11.User Interface Design and Implementation

For our page design, we use white as the basic color, matching blue, yellow and green, and the fresher color matching is more convenient for us to operate.

Login page: We used relatively simple white and blue to match, the overall simple and generous, easy to operate. In the first place to attract the attention of users.



Personal page: the function bar on the left is blue, separated by dark blue lines.



My announcement: in order to distinguish the main part of the web page from the title bar between the navigation area, it is more concise and eye-catching.

Website member center

Order number	Package type	Bounty	Pick up time	Pick up location	Return location	Fee information	Receiver	contact number	status	State 2	Query/Modify	Confirm receipt	delete
61	packet	2.0	2019-05-28	西亚斯	西亚斯	Ordinary members, enjoy 20% discount	1234	11111111	Picked up	Picked up	Query/Modify	confirm	delete
60	packet	2.0	2019-05-27	sias	sias	Ordinary members, enjoy 20% discount	1234	1597554576	Picked up	Picked up	Query/Modify	confirm	delete
59	packet	2.0	2019-05-27	sias	sias	Ordinary members, enjoy 20% discount	carr	1597554576	Picked up	Picked up	Query/Modify	confirm	delete
58	packet	2.0	2019-05-22	sias	sias	Ordinary members, enjoy 20% discount	carr	11111111	Picked up	Picked up	Query/Modify	confirm	delete
57	Medium package	2.0	2019-05-07	sias	sias	Ordinary members, enjoy 20% discount	carr	1597554576	Picked up	Picked up	Query/Modify	confirm	delete
56	packet	2.0	2019-05-22	西亚斯	西亚斯	Ordinary members, enjoy 20% discount	carr	11111111	Picked up	Picked up	Query/Modify	confirm	delete

12.Design of Tests

a.List and describe use cases

Register and login

Initiating actor ： Student、teachers、society in campus

Actor’s goal：Implement user registration platform account and login platform

Preconditions： User owns platform account

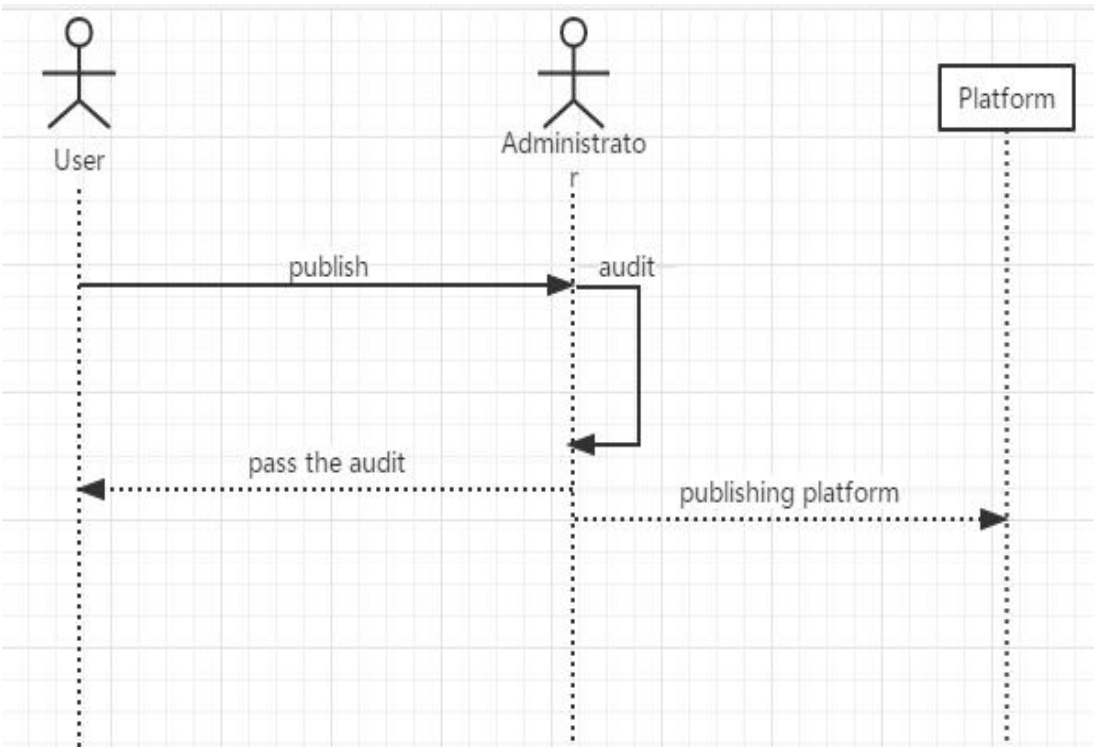
Users need to have their own accounts and log in on the platform so that they can publish and receive order information on the platform.

User → Registration → Platform Audit → Audit Success → Logon → Platform Information Processing

Use Case UC-2	Register and login
Related requirements	REQ2 stated in Table 2-1
Initiating actor	Student、teachers、society in campus
Actor’s goal	Implement user registration platform account and login platform.
Participating actors	Devon
preconditions	User owns platform account.
Post-conditions	User selects service type and completes payment.
Flow of Events for Main Success Scenario	
→1、Tenant：User chooses to register account menu System： System authentication user account and password. ←2(a) User enters login page.(b) Fill in your personal information.(c) Complete registration, bind the phone.(d) Login platform.	
Flow of Events for Extensions (Alternate Scenarios)	
→1、Tenant：User chooses to register account menu. ← 2、System：System authentication user account and password. →3(a) User enters login page.(b) Fill in your personal information.(c) Can’t complete registration.(d) Mobile phone verification login.	

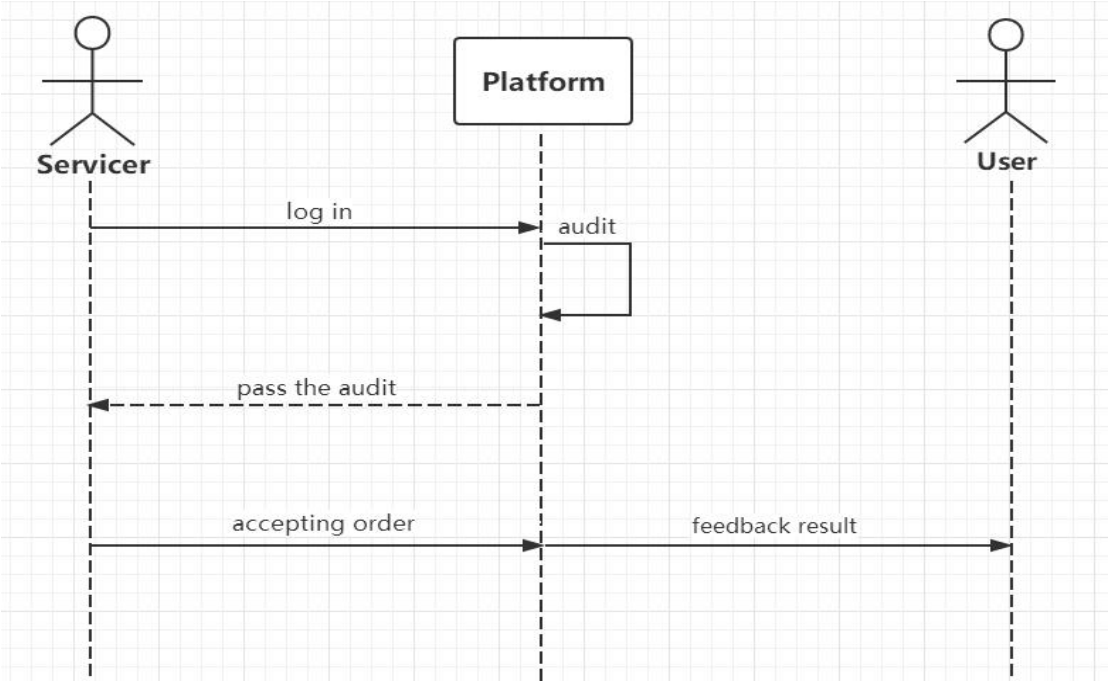
User posting information

Use Case UC-2	User posting information
Initiating Actor	Any of: student, teacher, society
Actor’s Goal	Enter the platform to publish service information.
Participating Actors	Wally
Preconditions	• New users register through the login interface. • Old users can log in directly to enter the homepage.
Post-conditions	User-published information is subject to legal permission.
Flow of Events for Main Success Scenario	
→	1.The user enters the main page through the account and pass word.
→	2.Users can select the services they need on the home page or query the services they need and publish them to the platform.
←	3.Platform review passed and feedback to users.


User
Administrato
r
Platform
publish
audit
pass the audit
publishing platform

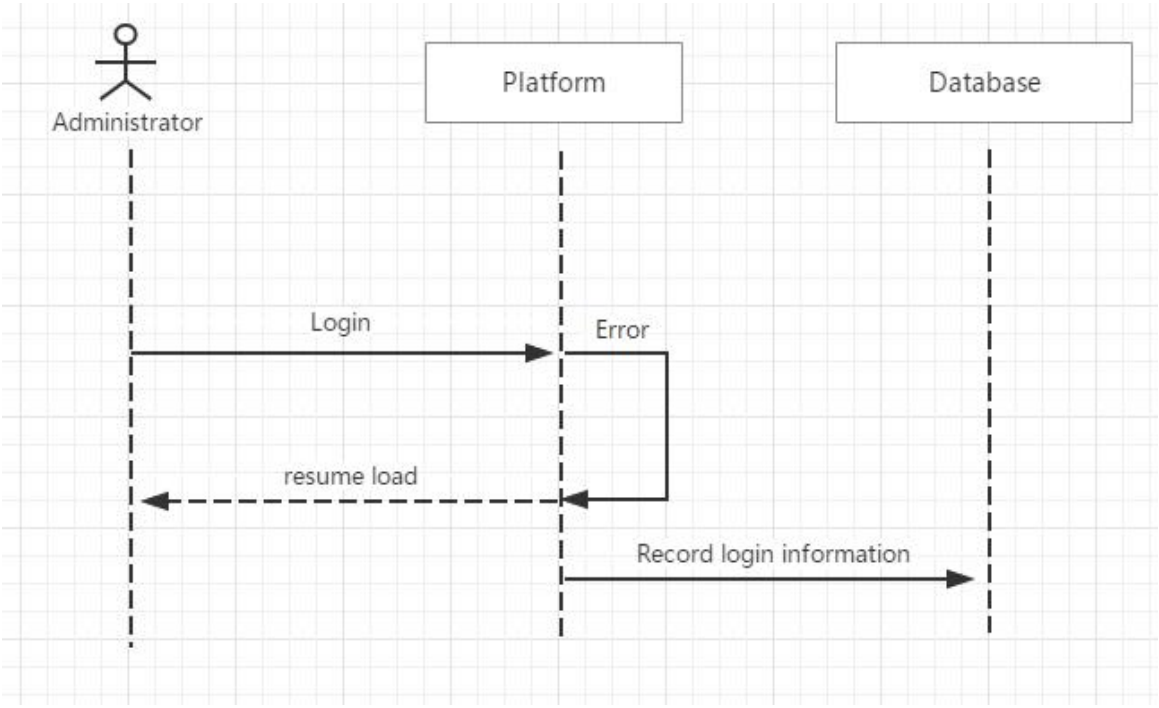
Accepting orders

Use Case UC-3	Accepting orders
Initiating Actor	Any platform service staff
Actor's Goal	The service provider arrives at the required location on time to service the user and complete the payment on the platform.
Participating Actors	Asa
Preconditions	• Users complete payment. • Users and service providers do their own preparations in the same time.
Post-conditions	Users and service providers should cooperate with each other within the scope permitted by law.
Flow of Events for Main Success Scenario	
→	1.The user confirms the receipt on the platform.
←	2.The platform will give the user a QR code payment interface.
→	3.User completes payment after scanning code.


Platform
Servicer
User
log in
audit
pass the audit
accepting order
feedback result

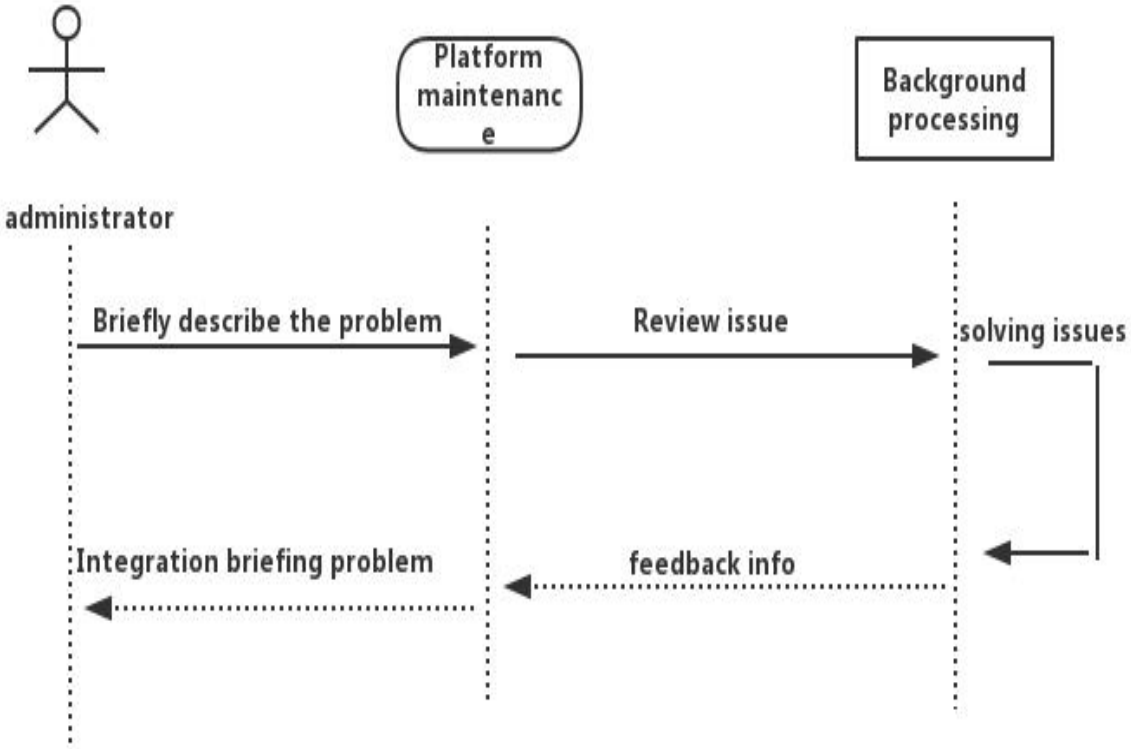
Cancellation of order

Use Case UC-4	cancellation of order
Initiating Actor	Publisher (User 1), Platform
Actor's Goal	Cancel wrong order
Participating Actors	Carr
Preconditions	•Users have their own accounts. •The user successfully placed the order. • Order not completed.
Post-conditions	The reason for withdrawal is reasonable.
Flow of Events for Main Success Scenario	
→	1.Issue an order to cancel an order.
→	2.The platform verifies whether the order cancellation standard is met.
←	3.If the order is not received, it is can celled directly and feedback to user1.
→	4.The received order will feed back the cancellation information to user2.
←	5.Feedback the order return process information of the order to user1.


Administrator
Platform
Database
Login
Error
resume load
Record login information

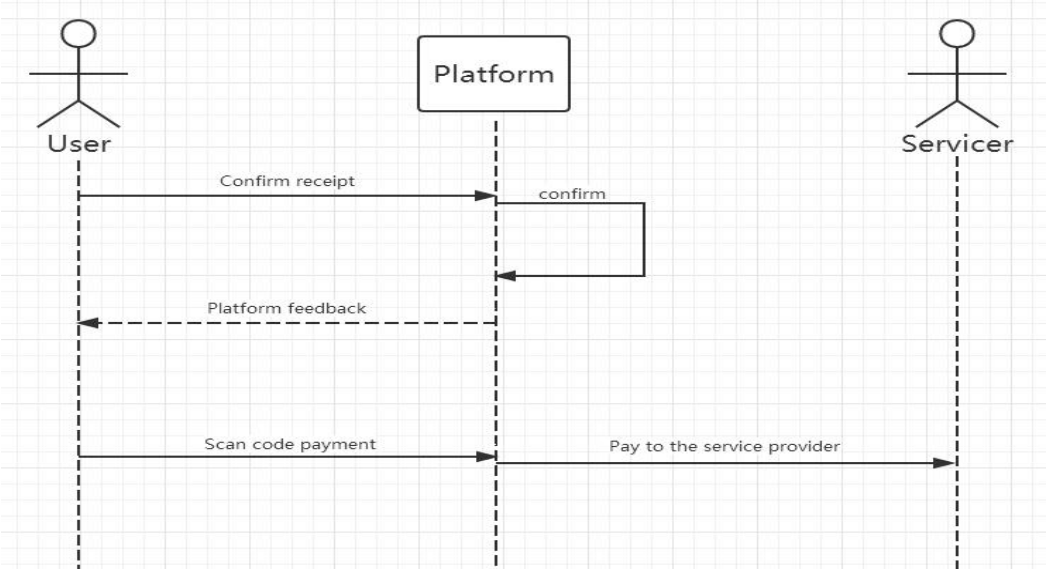
Background processing

Use Case UC-5	Background processing
Initiating actor	Platform administrator
Actor’s goal	Hand over the brief questions to the background.
Participating actors	Paulo
preconditions	Receive order issues and system issues to process.
Post-conditions	Handle problems and feed back to the management platform.
Flow of Events for Main Success Scenario	
→1, Tenant:The administrator receives the error message from the user and briefly describes the problem. System:Handling error messages in the background and feeding back to the manager. ←2, (a)User sends order to management platform.(b)The manager sends a brief description and sends it to the background for processing.(c)Feedback to the manager after processing the problem in the background.(d)After the manager confirms that the order is correct, the platform will process the order.	


Platform maintenanc e
Background processing
administrator
Briefly describe the problem
Review issue
solving issues
Integration briefing problem
feedback info

Payment operation

Use Case UC-6	Payment operation
Initiating Actor	Any individual who needs service
Actor’s Goal	After confirming the receipt, the user scans the Quick Response (QR) code on the platform.
Participating Actors	Asa
Preconditions	• Users complete payment. • Users and service providers do their own preparations in the same time.
Post-conditions	Users and service providers should cooperate with each other within the scope permitted by law.
Flow of Events for Main Success Scenario	
→	1.The user confirms the receipt on the platform.
←	2.The platform will give the user a QR code payment interface.
→	3.User completes payment after scanning code.



b.Test coverage

The test coverage is used to measure the test of the function code of the unit test. The statistical system test is used to quantify the test sufficiency of the number of simulation scenarios such as rows, branches, and classes in the function code. The premise of coverage is that there is unit testing, and from its intent to derive, the unit test that can be statistically covered should prove that the software is correct. This is an unshakable foundation, otherwise everything will lose its meaning. From the above analysis, it is not difficult to see that the focus of unit test and coverage is different. The unit test focuses on verifying that the software is correct, and the coverage is focused on describing the adequacy of the test. The two will not be equal, but in the project and team. A common understanding is that "high-coverage code is guaranteed to be functionally correct." The purpose of unit testing is to exchange software at a small price (white box) for correctness, and the purpose of coverage is to measure the

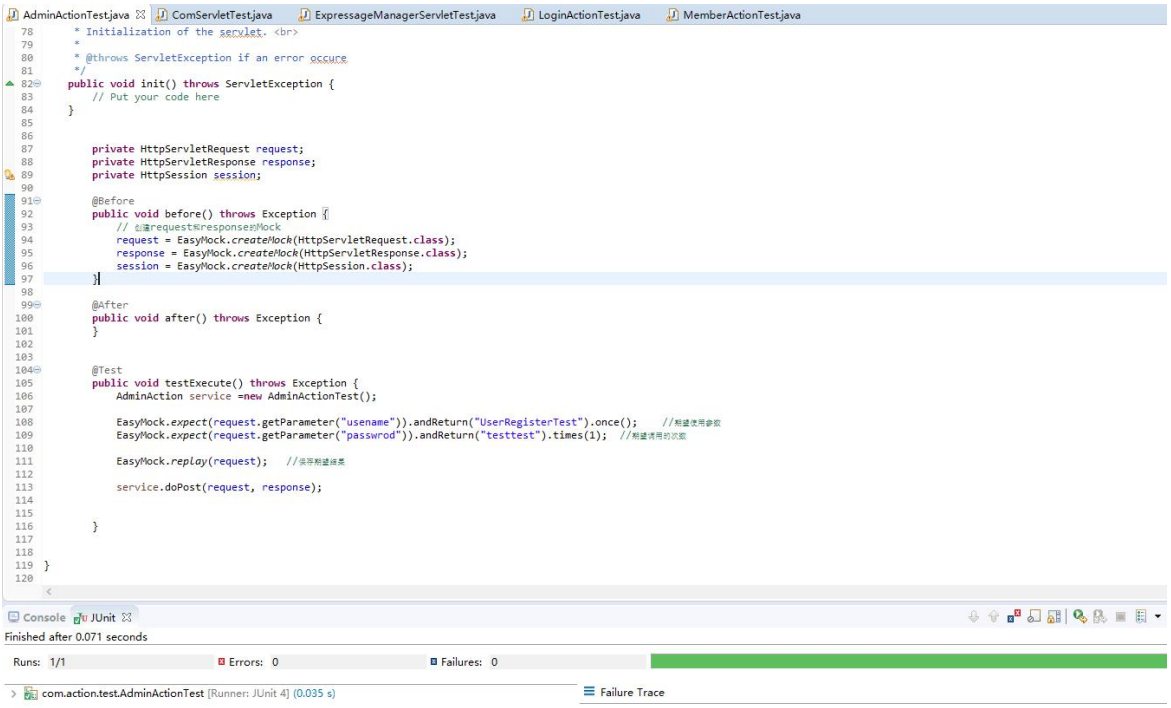
adequacy of the test code to test the object based on the effective unit test. There is a connection between the two but they cannot be replaced.

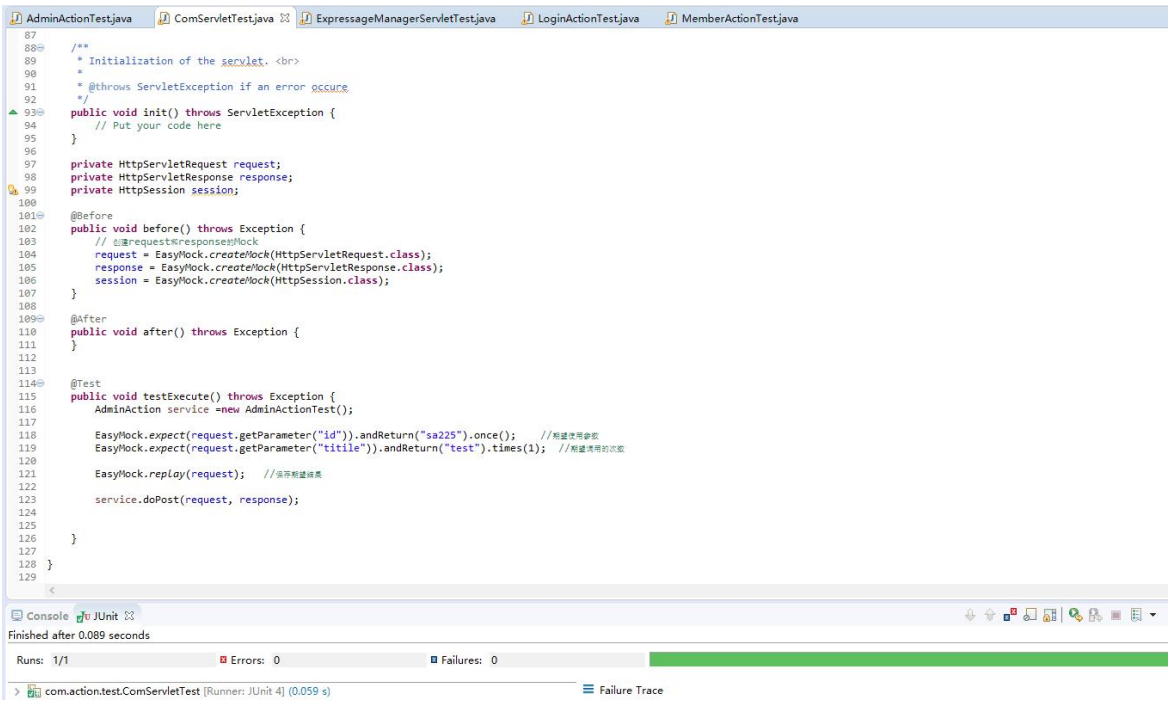
c.Use case integration test strategy and its execution plan

The project uses top-down integration with the following advantages: early verification of the main control and decision points; depth-first can be achieved and verified first a complete software function; function confirmed earlier; only one driver, reduce the cost of drive development; support failure isolation. At the same time, I hope to see the system's functional behavior of the product as soon as possible. When the back-end management and supervision department issues notifications or related notices on behalf of the platform, the headquarters customer service center will organize the employees in time to complete the corresponding customer needs, and then write notices or guidelines to deliver to the service providers. After the service provider receives the notification or guidance, the person in charge of the background manager organizes the relevant department staff to arrive at the designated place and serve in time. The back office manager is then responsible for the implementation of the relevant notice or guidance content at the sales department level. During the implementation process, the service department service personnel contact with the headquarters customer service center at any time to reflect the progress of the relevant work and feedback the problems encountered during the implementation process; the headquarters customer service center regularly or irregularly educates the service department's educational work plan, work progress and work results. Notify. It is

precisely because of this "top-down" overall planning, "bottom-up" implementation feedback mechanism, so that our project can be better carried out and used.

d.Test run result display





AdminActionTest.java | ComServletTest.java | ExpressageManagerServletTest.java | LoginActionTest.java | MemberActionTest.java

```
53      */
54      public void doPost(HttpServletRequest request, HttpServletResponse response)
55              throws ServletException, IOException {
56
57          this.doGet(request, response);
58
59      }
60
61
62          private HttpServletRequest request;
63          private HttpServletResponse response;
64          private HttpSession session;
65
66          @Before
67          public void before() throws Exception {
68              // 创建request和response的Mock
69              request = EasyMock.createMock(HttpServletRequest.class);
70              response = EasyMock.createMock(HttpServletResponse.class);
71              session = EasyMock.createMock(HttpSession.class);
72          }
73
74          @After
75          public void after() throws Exception {
76          }
77
78
79          @Test
80          public void testExecute() throws Exception {
81              ExpressageManagerServlet service =new ExpressageManagerServletTest();
82
83              EasyMock.expect(request.getParameter("action")).andReturn("UserRegisterTest").once();    //期望使用参数
84              EasyMock.expect(request.getParameter("id")).andReturn("sa522").times(1);  //期望调用的次数
85
86              EasyMock.replay(request);   //录制期望结果
87
88              service.doPost(request, response);
89
90
91          }
92
93
94  }
95
```

Console | JUnit

Finished after 0.081 seconds

Runs: 1/1 | Errors: 0 | Failures: 0

com.action.test.ExpressageManagerServletTest [Runner: JUnit 4] (0.039 s)

Failure Trace

AdminActionTest.java | ComServletTest.java | ExpressageManagerServletTest.java | LoginActionTest.java | MemberActionTest.java

```
38
39
40      public void doPost(HttpServletRequest request, HttpServletResponse response)
41              throws ServletException, IOException {}
42
43
44
45      private HttpServletRequest request;
46          private HttpServletResponse response;
47          private HttpSession session;
48
49          @Before
50          public void before() throws Exception {
51              // 创建request和response的Mock
52              request = EasyMock.createMock(HttpServletRequest.class);
53              response = EasyMock.createMock(HttpServletResponse.class);
54              session = EasyMock.createMock(HttpSession.class);
55          }
56
57          @After
58          public void after() throws Exception {
59          }
60
61
62          @Test
63          public void testExecute() throws Exception {
64              LoginAction service =new LoginActionTest();
65
66              EasyMock.expect(request.getParameter("reg_user")).andReturn("sa").once();    //期望使用参数
67              EasyMock.expect(request.getParameter("reg_pwd")).andReturn("sasa").times(1);  //期望调用的次数
68              EasyMock.expect(request.getParameter("reg_type")).andReturn("one").once();    //期望使用参数
69              EasyMock.expect(request.getParameter("method")).andReturn("reg").times(1);  //期望调用的次数
70
71              EasyMock.replay(request);   //录制期望结果
72
73              service.doPost(request, response);
74
75
76          }
77
78
79  }
80
```

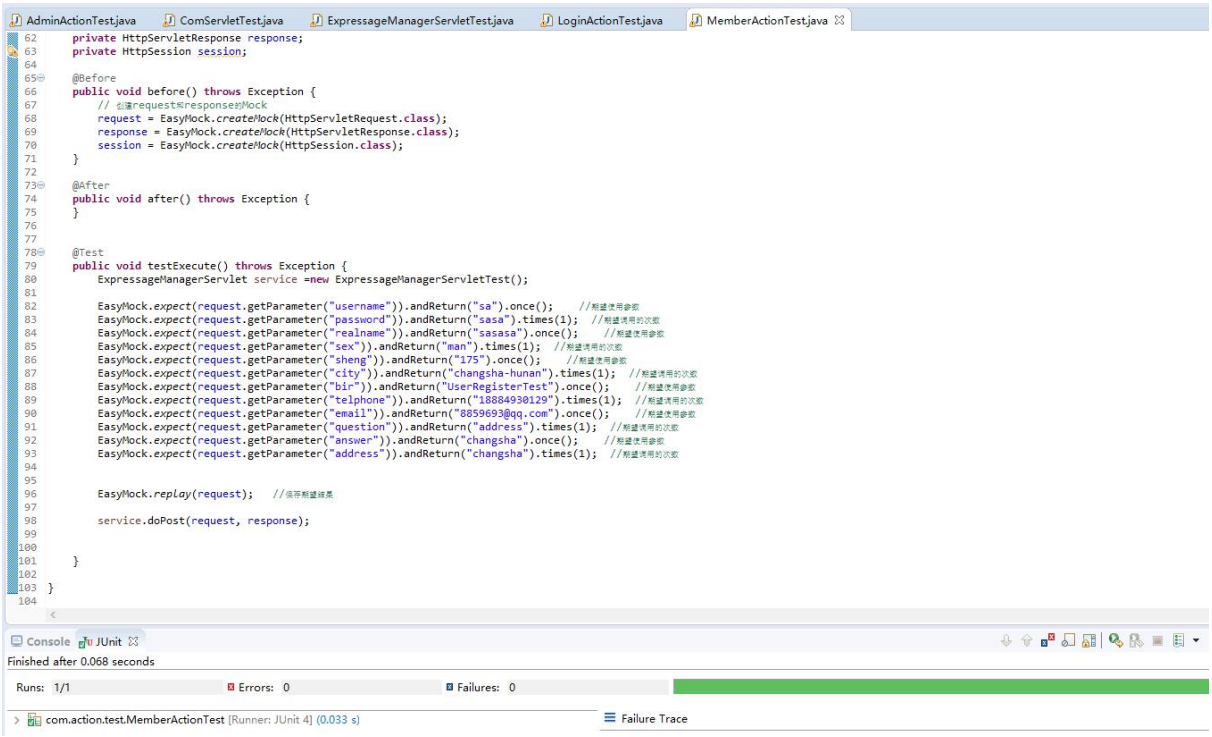
Console | JUnit

Finished after 0.076 seconds

Runs: 1/1 | Errors: 0 | Failures: 0

com.action.test.LoginActionTest [Runner: JUnit 4] (0.039 s)

Failure Trace



13.History of Work, Current Status, and Future Work

At the beginning of this semester, we have done a project on campus running. The project is mainly for college students, in order to better serve anyone who needs help and save their time. At the beginning of the project, we named it “Campus Bounty Order”. In the process of each modification, we finally changed the name of the project to “Run and Express”, in the first week and the second week, our team Everyone has a clear division of labor, but as the project progresses, each person's division of labor has changed. At the same time, we introduced the background of the development of the project and the initial plan of the team. Under the guidance of the teacher, we first proceeded to the project. A preliminary description. Then, in the next month, we made a preliminary statement on the customer's problem and a description

of the system's requirements. We also pointed out the corresponding requirements for the security technology. The external interface requirements were provided with the help and guidance of the teacher. We have also met the requirements. When the project plan is initially completed, the user interface requirements and functional requirements have a very standardized narrative. At the same time, we attach the flow chart of our project at the end of the first part, and in early April. Completed the first part of our project. Next we have to complete the second part of the project. At the beginning of the second part, we first completed the interaction diagram. Then, for the next period of time, we led the orderly division and led by the leader Paulo. Every task assigned by everyone, including class diagram and interface specification, system architecture and system design. During this period, we write and run the corresponding code. Under the guidance of the teacher, we put all the problems in our project. Can be resolved in a timely manner, and we submitted our second project report at the end of April. At this stage, we are perfecting the third part of our project. In this operation requirement, we not only summarize all the items we have written before, but we also need to complete the algorithm and data structure, user interface design and implementation. Test design, we will also hand over to the blackboard on time in early June. At the same time, we also solved the problems in the second part of the project, and completed the operation of the payment interface. Although there is still a small problem on the payment page, it will not affect the whole project and work in the future. Solve these small problems. In the future work, we will continue to solve the problems in the project in a timely manner, and optimize the project pages to

the best, then plan operational tests, and constantly improve the problems in their own projects, and believe that in the future One day, our project can be used on the university campus or in the society to benefit more people and help more people to solve their various needs.

14.References

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https://max.book118.com/html/2017/1108/139362162.shtm

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http://ishare.iask.sina.com.cn/f/68412891.html

15.Work Distribution

Name	Paulo	Asa	Carr	Wally	Devon
Detailed division of labor	Check the status of the order for the status of all orders and for the corresponding code and test classes in this section.	Posting information and processing business for all orders, and responsible for the corresponding code and test classes for this part of the content.	The relevant manager is working in the background, responsible for the background operation, and is responsible for the corresponding code and test class of this part.	All content related to the user's registration and modification of personal details, and is responsible for the corresponding code and test classes for this part of the content	The code and test class for the user to log in and quit the content, and responsible for this part of the content.