

Coupay System Design Document Series

Software requirements specification

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1 Introduction

1.1 Written to

The overall sum and summary of all system requirements, which determines the development of functionality, performance and interface of software. It makes system analyst and software developer can clearly understand the needs of users, and on this basis we can put forward outline design specification and complete the subsequent design and development work.

1.2 Background

This system named coupay, Is a third-party payment system, developed from South China University of technology Day Sheng-Chang team.

1.3 Define

- Android: Android is based on Linux Free and open source operating system, mainly used in mobile devices, such as smart phones and tablet computers, the Google and the Open Handset Alliance and leads the development of the company.
- NFC: NFC Is Near Field Communication Abbreviations, short-range wireless communications technology. Jointly developed by Philips and Sony, NFC is a kind of contactless identification and interconnection technologies for mobile devices, consumer electronics, PC and smart control tool for short-range wireless communication.
- Mobile: mobile terminals or mobile communication terminal refers to the computer can be used in mobile devices, broadly speaking, including mobile phones, laptop, Tablet PC, POS Even the onboard computer. But this article mainly refers to mobile phones.
- System accounts: accounts belonging to system users, there is a certain capital.
- Consumer experience: users on the consumption of a specific evaluation, including evaluation of text, business ratings, pictures and so on
- Dropdown refresh: a way of updating data, updated with the latest news.
- Up and more: a way of updating data, updating information earlier than the current information.
- AES: advanced encryption standard cryptography (Advanced Encryption Standard, AES), also known as the Rijndael advanced encryption standard encryption method, is a block cipher standard use by the United States Federal Government.
- MD5: Message Digest Algorithm MD5 is widely used in the field of computer security is a hash function to provide message integrity protection.

- JSON : JSONObject class is a third-party JAVA class, used to store key-value pairs for data interaction.
- C/S : C/S structure, where the client and server architecture. It is a software system architecture, through which you can fully take advantage of hardware environments on both ends, the rational allocation of tasks to Client -side and Server -side implementation, reduces the communication overhead system.
- B/S : B/S structure, a structure of the browser and the server, is a network structure with the rise of WEB.
- SSH : SSH struts+spring+hibernate is an integrated framework, which is one of the popular Web Application of open source frameworks.
- HTTP : Detailed rules of the mutual communication between the browser and the Web server, transmitted via the Internet World Wide Web document data transfer protocol.
- SQL SERVER : It is a comprehensive database platform.

1.4 Reference materials

- a. IResearch: Investigation Report of China Mobile Payment Users From 2012 to 2013
- b. IResearch: Explanation of China Mobile Payment Industry's Development and Trend
- c. Deloitte Touche Tohmatsu. Trend and Expectation of China Mobile Payment Industry From 2012-2015
- d. Analysys: Comprehensive Annual Report of China Mobile Payment Market in 2012.
- e. Feasibility study report

2 Task overview

2.1 Target

- Background

With the popularization of smart phones as well as the development of Mobile Internet, smart phones have become closer to people's daily life. According to the date of China Internet Network Information Survey Center, by the end of June of 2013, the number of China's netizens was 591 million, among which about 80 percent of netizens surf with their mobile phones. Compared to the end of last year, the utilization of online payment by mobile phones has increased 4 percent, and netizens who pay online with mobile phones has increased 43 percent. When in April Ministry of

Industry and Information Technology issued the mobile payment standard of 13.56 MHz near field communication, mobile payment was meant to embrace the next stage of development with related policies to stimulate domestic demand. By integrating as many traditional payment instruments into a mobile device as possible, mobile payment takes advantage of the convenience of mobile devices so as to improve the paying process. With Cards, coupons and tickets bound together, mobile wallet, as a form of mobile payment, saves users the trouble of carrying different cards and realizes the visualization management of cards, coupons and tickets.

An overall view of mobile wallet service in the market shows the similarities as follows:

1. Most released in the past six months. The market of mobile wallet is on the initial stage.
2. The convenience of mobile phones is not fully realized. Few fully use LBS or combine it with payment applications.
3. Not enough relevance to young people, who accounts for the largest proportion of mobile wallet users.

Thereby, developing a XXXX with clear characteristics, enough relevance to young people as well as convenience of mobile phones realized to the utmost, is a good way to stand out the market in the fierce competition.

As young people, we know that most inconvenience of payment lies in carrying cash, getting change when sharing the expenses, and owning plenty of membership cards and coupons but little time or energy to manage them. In addition, by data collection we find that the comparatively mature mobile payment technologies like 2-dimensional bar code and NFC will be the trend of future. Therefore, we identify ourselves as a third-party mobile payment company. On one hand, with the technology of 2-dimensional bar code and NFC, we provide mobile wallet service to solve the inconvenience of carrying cash, getting change when sharing the expenses and managing cards and coupons, so as to provide integrated management of preferential information like membership and coupons and ultimately realize automation. At the same time, we get community involved and break the limit of time and space, in which case, users can share their consuming experiences and get consumption information of nearby area by GPS. With what mentioned above, we create our users a new experience of “saving your money and troubles, and embracing the brand-new life”. On the other hand, we provide a promotion platform for offline business to achieve mutual benefit.

The name of the system is Coupay, combining the words “coupon” and “pay”.

- Significance

For industry:

1. The promotion of technology and creativity.

This system plans to combine the method of handling short-message based on user information, text categorization based on machine learning, recommendation algorithm based on collaborative filtering under social network and forum user interests detection based on community structure of complex networks. With this technology of data mining, we combine the text message, trade record and complex networks to analyze the interests and emotion of user based on business and supply personalization service for user.

During the operation of the project, new needs of customers and the appearance of new problem would promote the development of technology and creativity.

2. More expensive reading to mobile payment

This system is characterized by more-than-one-person payment, automatic offer and use of coupons and community sharing, with special emphasis on automatic offer and use of coupons. By combining online management, marketing, promotion, publicity and offline payment, as well as consumer feedback, O2O circle is achieved and mobile payment is reformed. Mobile wallet not only free people from their physical wallets to a better lifestyle, but give more expensive reading to mobile payment by forming shopping a new way of social life by connecting payment with community.

For users:

Solution of payment problems:

Closely relating to the reality of young people; solving the common payment problems like getting change and sharing the expenses.

Improvement of life quality:

Integrated management and automatic use of preferential information and full use of resources provide high quality living for young people.

Optimization of fund application:

The mobile wallet service acts as a steward of the pocket and helps to optimize the fund all the time, in order to keep users away from the life from paycheck to paycheck.

Sharing the fun of shopping:

By recommending preferential information from community and publicity from nearby business, we break the limit of time and space to share the fun of shopping, making shopping a new way of social life.

For traders:

Optimization of charging service:

Simplify the cumbersome charging to EDESO, so that the process would be more effective, customers more satisfied and consumption promoted.

Maintaining customer flow:

The use of community and management system of coupons and membership card results in precise marketing, values of customers and high quality customers.

Getting immediate feedback:

With account management system reflecting the sales, traders can get to know to market trend and make adjustments accordingly.

2.2 User characteristics

With the development of e-commerce, Internet payment organizations and mobile payment organizations, many users are accustomed to using e-payment, especially the young-centered. So it's estimated that with the widespread of mobile terminals like smartphones and tablet personal computers, people will get used to mobile payment. According to statistics, in 2012, users aging from 18 to 35 accounted for 80% of mobile payment users.

2.3 Assumptions and constraints

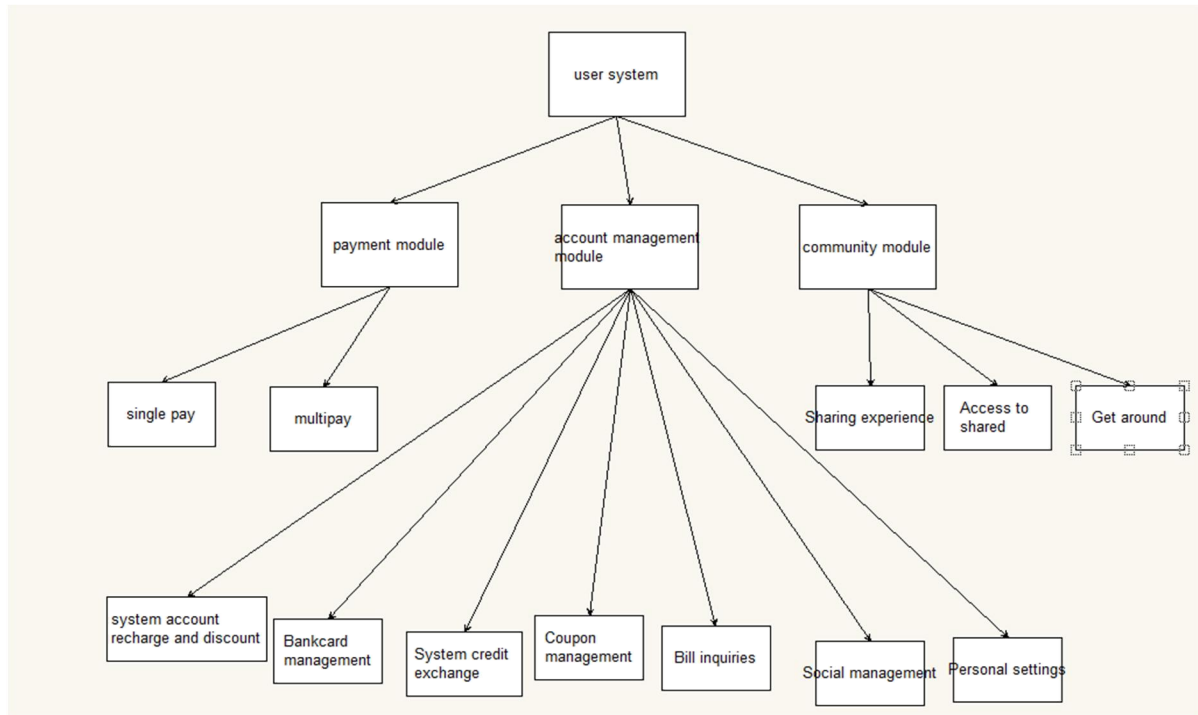
- Because of the larger system, the development limits 8 within a month.
- Financial constraints 1000 RMB
- Software architecture: User version and Business version use C/S Schema while Administrator version uses B/S Schema
- Development platforms: android Platform windows 7
- Databases: My SQL

3 Requirements specification

3.1 Provisions on functions

Function modules

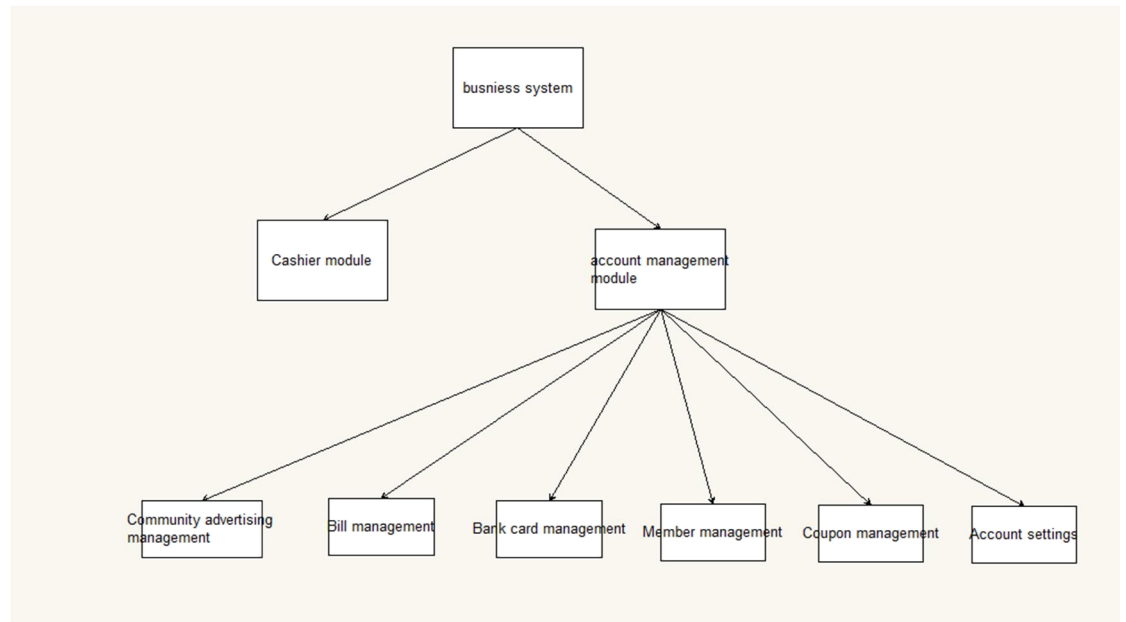
- User version:



Module name	Functional description
Payment modules	Through NFC or scanning the QR code, through the security validation then complete consumption, more-than-one-person payment now use AA Sharing
System account recharge and discount	Money from a user's system will amount is transferred to the system account in the bank account, while binding the system account fund transfer to bank account
Bank card management	Binding the bank account to the system account, easy for payment operations
System credit exchange	User exchange the coupon with system credit
Coupon management	View the coupon, you can do the gift coupon operation
Bill inquiries	Query user-related transactions
Social management	Deleting and concern about friends or sellers, query friends or sellers details, retrieve the user or sellers
Personal	Personalization

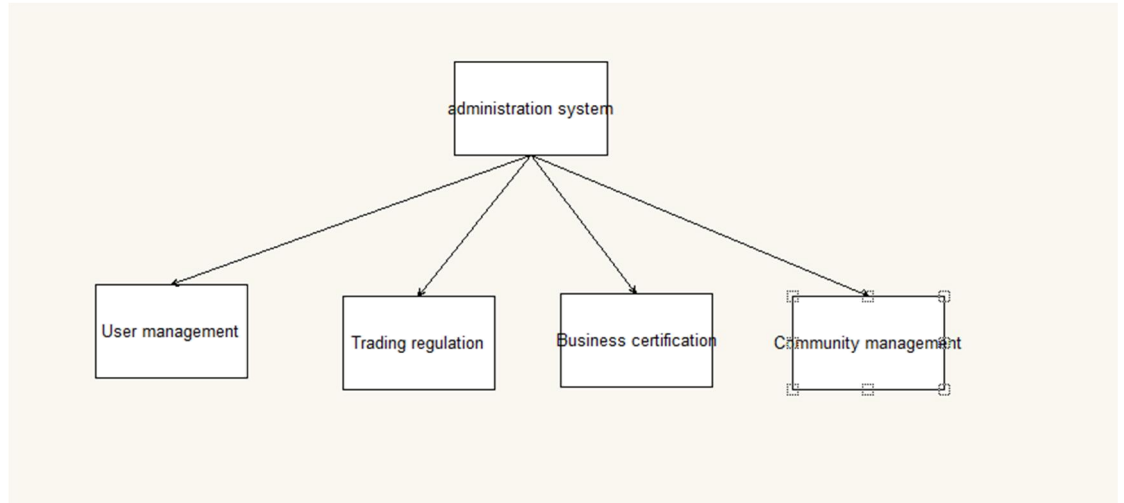
settings	
Sharing experience	After a consumption users may be undertaking an assessment of the consumer and to share to the community, for reference by friends
Access to shared	Viewing friends share
Get around	According to geographical location to get around business information

● **Business Version**



Module name	Functional description
Cashier module	Results to generate QR codes for consumers who are based on scans, accepting consumer successful payment information and display
Community advertising management	Release management ad
Bill management	Query trade record
Bank card management	Binding the bank account to the system account
Member Management	Managing the business member, and adjust the preferential rules
Coupon management	Editing and publishing coupons, free coupons for regular users
Account settings	Set the business related information

● **Administrator-side**



Module name	Functional description
User management	Querying user information or banning account
Trading regulation	Searching real-time trading information and immediately stopping certain transactions
Business certification	Approve or reject merchant registration request
Community management	Managing community content and advertising

Use cases, requirements specification:

Case name	NFC Payment	
Case number	BAS001	
Case scope	Payment	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	User, business user	NFC Payment
Pre-Conditions	User account is logged in, the network is available, mobile terminal support NFC Function	
Trigger conditions	User choose NFC Payment	
Basic Flow	Mobile Terminal b, enter the notional amount, mobile terminals mobile terminals a and b of the NFC chip close to the mobile terminal receives a successful payment tips	
Alternative Flows	Alternative Flows 1 : Error Return to the payment page	

Post-Conditions	The Payment Is reported in the account history statement	
Business planning	Allows registered users to transfer accounts by NFC device	
Special needs	None	
Case name	QR payment	
Case number	BAS002	
Case scope	Payment	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	User	Scan the QR code to pay
Pre-Conditions	User account is logged in, the network is available, camera available	
Trigger conditions	User selects QR code Payment	
Basic Flow	After user selects a QR code Payment, the system will automatically enable camera. After user scans QR codes, the system displays the payment information, confirmed, and enter security verification interface. After finishing the verification, the system displays the last confirmation window, after the user clicks on to complete Payment and the system displays Payment Success tips	
Alternative Flows	Alternative Flows 1 : Error Return to the payment page	
Post-Conditions	The Payment Is reported in the trade records, and then user can share this payment.	
Business planning	Allows registered users to consume by scanning QR codes	
Special needs	None	
Case name	User management card	
Case number	BAS003	
Scope case	Bank card management	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	User	Bank card management
Pre-Conditions	User successfully log in to the account Management page	
Trigger conditions	Click bank card management	
Basic Flow	User to the account management page, you can view the bank card binding on this account, increase, unbinding accounts and freeze accounts, to modify the	

	account number is required to authenticate	
Alternative flows	Alternative Flows 1 : If the user operation has not been authenticated multiple times, the system will give a warning and force the user to exit the system, disable user logins in short time.	
Post-Conditions	If the user modified successfully, the system will record the user's modifications, updates the account information for the user, or user account information remain the same	
Business planning	Allow users to manage their own bank accounts	
Special needs	None	
Case name	Redeem coupon	
Case number	BAS004	
Case scope	Coupon management, system integration management	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	User	System grade management
Pre-Conditions	Successful user login to enter the system grade management	
Trigger conditions	Click to enter system grade management	
Basic Flow	When the user wants to redeem the coupon, this use case started. User enter system grade management page, you can use a certain amount of points redeemed for a certain amount of coupons.	
Alternative Flows	Alternative Flows 1 : Lack of grade if the user want to redeem the coupon, you are prompted to "lack of integration"	
Post-Conditions	After the user exchanges coupons successfully, he can see it in coupon management interface.	
Business planning	Allows the user to use a quantitative system redeem coupon	
Special needs	None	
Case name	Query coupons	
Case number	BAS005	
Case scope	Coupon management	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	User	Coupon management
Pre-Conditions	Successful user login enter the coupon management interface	

Trigger conditions	Click to enter coupon management interface	
Basic Flow	When the user wants to view the coupons this case began. Users enter the coupon management page and get user's coupons automatically.	
Alternative Flows	Alternative Flows 1 : If the user does not have any coupons, you are prompted to "no coupon"	
Post-Conditions	Send coupon to some friends	
Business planning	Allows a user to view the user has coupons	
Special needs	None	
Case name	Gift coupons	
Case number	BAS006	
Case scope	Coupon management	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	User	Gift voucher to a friend
Pre-Conditions	Successful user login enter the coupon management	
Trigger conditions	Click here to enter coupon management, click on the gift button	
Basic Flow	When user wants to send coupons this case began. Users enter the coupon management page, click on them, and select a friend in your friend list, and fill in the number of coupons you want to gift when you click OK, you can gift coupons.	
Alternative Flows	Alternative Flows 1 : If the user does not have any coupons, you are prompted to "no coupon"	
Post-Conditions	No	
Business planning	Allows the user to gift a certain amount of coupons to friends	
Special needs	None	
Case name	Billing inquiries	
Case number	BAS007	
Case scope	Billing management	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	User	Viewing bills
Pre-Conditions	Users successfully log into billing management	
Trigger conditions	Click here to enter billing management	

Basic Flow	This case began when login to view bills. Users enter the billing management page, you can get the latest 10 billing information, after the user drop down the screen, gets 10 latest billing information, after pulling up the screen, gets 10 bills earlier than the date of information	
Alternative Flows	Alternative Flows 1 : If the user does not have any bills, you are prompted to "no Bill"	
Post-Conditions	Free	
Business planning	Allows users to view within a certain date of Bill	
Special needs	None	
Case name	Add/delete friend	
Case number	BAS008	
Case scope	Social management	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	User	Add/delete friend
Pre-Conditions	Users successfully log into social management	
Trigger conditions	Click here to enter social networking management, search for a friend, by clicking on the Add or select a friend and click Delete	
Basic Flow	When user wants to add or delete a friend this case began. User after entering the social management page, provide your friend's nickname, click search and find friends list, click Add, you can add friends, or select a friend has been added, click Delete, you can delete your friends	
Alternative Flows	None	
Post-Conditions	None	
Business planning	Allows the user to add or delete friends	
Special needs	None	
Case name	Concern businesses	
Case number	BAS009	
Case scope	Social management	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	User	concern businesses
Pre-Conditions	Users successfully log into social management	
Trigger conditions	Click here to enter social networking management, after a search for a business, click on the Add	
Basic Flow	When the user looks at the business case began. Users entering the social	

	management page, enter the business name and click search, find businesses, click on the concern button, then concerned about businesses.	
Alternative Flows	None	
Post-Conditions	None	
Business planning	Allows the user to concern businesses	
Special needs	None	
Case name	Get details of friends or business	
Case number	BAS010	
Case scope	Social management	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	User	Get details of friends or business
Pre-Conditions	Users successfully log into social management	
Trigger conditions	Click here to enter social networking management select a friend or business, view details	
Basic Flow	When user clicks to view details of this case began. Users enter the social management page, click on a friend or business, you can view details	
Alternative Flows	Alternative Flows 1 : If network outages, you are prompted to "failed to get the information"	
Post-Conditions	None	
Business planning	Allows the user to query friends or business details	
Special needs	None	
Case name	Search the user or business	
Case number	BAS011	
Case scope	Social management	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	User	Search the user or business
Pre-Conditions	Users successfully log into social management	
Trigger conditions	Click search button in social management interface, enter the user or business part or all of the nicknames, click on search	
Basic Flow	When the user clicks the search button this case starts. After user enters the social administration page, fill in the search bar with part or full name of user or business, click search, if the search is successful, then the user or business information will pop up; otherwise the implement the alternative flow 1.	
Alternative flows	Alternate stream 1 :	

	If the user does not exist or the business, you are prompted to "does not exist or the user business"	
Post-Conditions	Add users or concern businesses	
Business planning	Allows the user to retrieve the user name or business	
Special needs	None	
Case name	Sharing experience	
Case number	BAS012	
Scope case	Social management, payments	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	User	After the end of the pay, want to share experiences
Pre-Conditions	User finish a payment	
Trigger conditions	Click on the score, and fill in the words that would like to share, click share	
Basic Flow	After paying successfully, this case began. After the user finish a payment, then send share page pops up, select the score, adds share pictures and text, if bad network, performs alternative flow 1; If you do not wish to send the sharing, click on exit to implement alternative flow 2.	
Alternative Flows	Alternate stream 1 : If network outages, failed to send the message, you are prompted to "message sending failed" Alternative Flows 2 : Exit and return to the main page	
Post-Conditions	None	
Business planning	Allow users to share their experiences at the end, let a friend know.	
Special needs	None	
Case name	Get sharing	
Case number	BAS013	
Case scope	Social management	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	User	Get sharing
Pre-Conditions	Users successfully log into society interface	
Trigger conditions	After entering the society interface, click Refresh	
Basic Flow	When the user refreshes the circles after this case started. After the user enters	

	the circle, click Refresh the experience shared by friend, drop down Windows, you can refresh for the latest share, if bad network, performs alternative flow 1.	
Alternative Flows	Alternative Flows 1 : If network interruption, failed to get the sharing, you are prompted to "check the Web"	
Post-Conditions	None	
Business planning	Allows a user to view a friend's consumption share	
Special needs	None	
Case name	Get around	
Case number	BAS014	
Case scope	Social management	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	User	Get the peripheral location of businesses
Pre-Conditions	Users successfully log into society interface	
Trigger conditions	After entering the society interface, click for around businesses	
Basic Flow	When the user wants to get the surrounding businesses, this use case begins. After the user enters the society interface, click here for the surrounding businesses, information about nearby businesses pops up and the distance between businesses and users. If the network is not good, performs alternative flow 1; If there's no merchant, performs alternative flow 2.	
Alternative Flows	Alternative Flows 1 : If network interruption, failed to get the sharing, you are prompted to "check the Web" Alternative Flows 2 : If there's no any merchant, you are prompted to "does not have any businesses in the vicinity"	
Post-Conditions	None	
Business planning	Allows users to view nearby businesses	
Special needs	None	
Case name	User logon	
Case number	BAS015	
Scope case	User logon	
Case version	1	
Priority levels	A	
Major players	User	

Stakeholders	Stakeholder name	Interested in
	User	User logon
Pre-Conditions	User opens the coupay	
Trigger conditions	Enter the password and click Login	
Basic Flow	Registered accounts in the system login screen, enter your user name, password, authentication code, the system verify that database information is entirely consistent, if you are prompted to login successfully, go to the main interface, and system error.	
Alternative Flows	None	
Post-Conditions	Clients go to the main interface	
Business planning	Allowing users to log in	
Special needs	None	
Case name	Normal users Account registration	
Case number	BAS016	
Scope case	User registration	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	User	User registration
Pre-Conditions	User opens coupay Click register	
Trigger conditions	After entering the information, click the submit	
Basic Flow	User enters registration information, after submitting system detection information, you are prompted to register successfully and automatic log in new account	
Alternative Flows	Alternative streams 1 : After user inputs the user name column, the system automatically detects if the user name already exists, returns the corresponding tips Alternative streams 2 : After user inputs the mailbox column, the system automatically detects whether the mailbox already exists, returns the corresponding tips	
Post-Conditions	<Registration was successful> Login new account <Registration failed> System display failure prompts and reason	
Business planning	Users register to add new valid account	
Special needs	None	
Case name	Business account register	

Case number	BAS017	
Case scope	Business account register	
Case version	1.0	
Priority levels	A	
Major players	Businessman	
stakeholders	Stakeholders name	Interested in
	Businessman, administrator	Business account register
Pre-conditions	Users enter the system of business version, and click to register.	
Trigger conditions	After inputting the required message, and click to submit.	
Basic flow	Users input the required message, and the system will check it after submitting, and then the administrator will send an email to applier after successfully verification.	
Alternative flows	Alternative flows 1: After users input the username, the system automatically detects whether the username already exists, and the system will return corresponding tips. Alternative flows 2: After entering the mailbox column by the user, the system automatically detects whether the mailbox already exists, returns the corresponding tips	
Post-Conditions	<Registration was successful> Login new account <Registration failed> System display failure prompts and reason	
Business planning	Users register to add new valid account number	
Special needs	None	
Case name	Business user login	
Case number	BAS018	
Case scope	Business user login	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	Business users	User login
Pre-Conditions	Users open the business version	
Trigger conditions	Enter the account password and click to log in	
Basic Flow	Users who have an account enter a user name, password and the verification code on the system login screen, and the system will verify them whether corresponding to the authentication database information, if yes, prompt, go to the main interface; otherwise, system error.	
Alternative Flows	Alternative Flows 1 :	

	None	
Post-Conditions	Clients go to the main interface	
Business planning	Allowing users to log in	
Special needs	None	
Case name	Business user collection	
Case number	BAS019	
Case scope	Business user collection	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	Business users, personal users	Business user collection
Pre-Conditions	Business user has logged on to the business version	
Trigger conditions	Businesses enter the amount and determine	
Basic Flow	Enter the billing amount, generated QR code and displays, and consumer scans it, after payment system will receive the tips for successful payment.	
Alternative Flows		
Post-Conditions	<Success collection> System displays the billing success tips <Collection failure> System displays hints and reasons for failure	
Business planning	Results to generate QR codes for consumers who are allowed under scan, accepting consumer payment success information and display	
Special needs	None	
Case name	Business publication advertising	
Case number	BAS020	
Case scope	Business publication advertising	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	Business user	Business publication advertising
Pre-Conditions	Business user has logged on to the business version.	
Trigger conditions	Businesses enter the ad management interface	
Basic Flow	Click on the ads, enter the necessary properties of the ad, and then click to publish.	
Alternative Flows	Can modify the published ads after releasing them	
Post-Conditions	<Publishing success>	

	System displays the publishing success tips <Collection failure> System display failure prompts and reason	
Business planning	Release management ad	
Special needs	None	
Case name	Business billing inquiries	
Case number	BAS021	
Case scope	Business user billing management	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	Business user	Business billing inquiries
Pre-Conditions	Business users logged in the business version	
Trigger conditions	Business user has entered the query billing interface	
Basic Flow	System displays bills according to the criteria	
Alternative Flows		
Post-Conditions	<The query successfully> System displays the Bill <Query failed> System displays hints and reasons for failure	
Business planning	Query for the bills, classified by the time.	
Special needs	None	
Case name	Business managing bankcard	
Case number	BAS022	
Case scope	Bank card management	
Case version	1	
Priority levels	A	
Major players	Business user	
Stakeholders	Stakeholder name	Interested in
	Business user	Management card
Pre-Conditions	User successfully log in to the Manage account page	
Trigger conditions	Click to account management	
Basic Flow	When user wants to modify their account information in this case at the start. Users enter the account management page, you can view the binding account, increase, unbinding accounts and freeze accounts, to modify the account number is required to authenticate	
Alternative Flows	Alternative Flows 1 :	

	If the user operation has not been authenticated multiple times, the system will give a warning and force the user to exit the system, user cannot log in in a short time	
Post-Conditions	If the user modifies successfully, the system will record the user's modifications, updates the account information for the user, or user account information remain the same	
Business planning	Allow users to manage their own bank accounts	
Special needs	None	
Case name	Business managing the member	
Case number	BAS023	
Scope case	Business managing the member	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	Business users	Business managing the member
Pre-Conditions	Business users logged in the business version	
Trigger conditions	Business users enter the member management interface	
Basic Flow	Successful query, add, delete, modify a business member, enter the interfaces of the discount rule set, modify preferential rules for each level member properties	
Alternative Flows		
Post-Conditions	<Operation failed> System displays hints and reasons for failure	
Business planning	Managing the member, and adjusting of preferential rules	
Special needs	None	
Case name	Coupons management for business user	
Case number	BAS024	
Scope case	Coupons management for business user	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	Business user	Coupons management for business user
Pre-Conditions	Business user has logged on to business version	
Trigger conditions	Business users enter the interface of coupon management	
Basic Flow	Querying, editing, publishing, gifting coupons	
Alternative flows		

Post-Conditions	<Operation failed> System display failure prompts and reason	
Business planning	Editing and publishing coupons, gifting coupons for regular users	
Special needs	None	
Case name	Administrator queries users	
Case number	BAS025	
Scope case	User management	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	Administrator	Administrator queries users
Pre-Conditions	Administrators login successful	
Trigger conditions	Administrators enter the interface of user management	
Basic Flow	After administrators search the target users by criteria, querying its details	
Alternative flows		
Post-Conditions	<Operation failed> System displays failure hints and reason	
Business planning	Querying user information	
Special needs	None	
Case name	Administrators ban users	
Case number	BAS026	
Scope case	User management	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	Administrator	Administrators ban users
Pre-Conditions	Administrators login successfully	
Trigger conditions	Administrators enter the interface of user management	
Basic Flow	After the administrators have searched the target users by criteria, ban the user.	
Alternative flows		
Post-Conditions	<Operation failed> System displays failure hints and reasons	
Business planning	Banning the user account and making them expired	
Special needs	None	

Case name	Administrators query transactions	
Case number	BAS027	
Case scope	Trading regulation	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	Administrator	Administrators query transactions
Pre-Conditions	Administrators login successfully	
Trigger conditions	Administrators enter the interface of the transaction supervision	
Basic Flow	After administrators find the target of the transaction, prohibit or mark the transaction	
Alternative flows		
Post-Conditions	<Operation failed> System displays failure hints and reasons	
Business planning	Searching the real-time trading information and immediate prohibiting the certain transactions	
Special needs	None	
Case name	Administrators verify business users	
Case number	BAS028	
Scope case	Business certification	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	Administrators and business users	Administrators verify business users
Pre-Conditions	Administrators login successfully	
Trigger conditions	Administrators enter the interface of the businesses certification.	
Basic Flow	After the business users submit the register request on the business version, then the administrator log in the administrator version, and enter the interface of the business authentication, shows just the business registration requests, click through	
Alternative flows		
Post-Conditions	<Operation is successful> The business user will receive certification through the mail <Operation failed> System displays failure hints and reason	
Business planning	Approving business registration request	

Special needs	None	
Case name	Administrators manage the community	
Case number	BAS029	
Scope case	Community management	
Case version	1	
Priority levels	A	
Major players	User	
Stakeholders	Stakeholder name	Interested in
	Administrator, business users	Administrators manage the community
Pre-Conditions	Administrators login successfully	
Trigger conditions	Administrators enter the interface of the community management	
Basic Flow	Query, delete, block shopping experience or ad	
Alternative Flows		
Post-Conditions	<Operation failed> System displays hints and reasons for failure	
Business planning	Managing community content and ad	
Special needs	None	

3.2 Quality specification

3.2.1 Precision

The precision of data mainly lies in date, amount of transaction and the longitude and latitude of the position where a client stands.

- For date: two formats are needed —— “yyyy-mm-dd” and “yyyy-mm-dd hh-MM-ss”
- For amount of transaction: the amount should accurate to two decimal places.
- For longitude and latitude: they should accurate to six decimal places.

3.2.2 Time quality specification:

- responding time: 2-5 seconds
- refresh time : within 1 seconds
- data transfer and converting : 2-5 seconds
- calculating time: within 1 second

3.2.3 Flexibility

- Divide system into several relatively independent modules to guarantee the portability of the system.
- Use property files, decouple the system and the data, so that the data is easy to redeploy.
- Design well-defined interfaces to support the merchants' and bank' system modification.

3.3 Input/Output requirements

	item	data type	I/ O	must given	range	examples
1	balance of account	float	O	√	Greater than 0	1000.50
2	grade	integer	O	√	1,2,3,4,5	1
3	pay password	string	I	√	between 8 and 20 bits	12345
4	bank account number	string	I	√		
5	password of bank account	string	I	√	between 6 and 20	12345
7	bank	string	I	√		中国银行
8	address	string	I		less than 40 bits	广州市大学城
9	contact type	string	I	√	Email,phone,qq	Email
10	contact number	string	I	√		123@qq.com
11	coupon content	string	I	√		买 100 送 100
12	couponId	int				

13	head time of coupon	date	I	√	yyyy-mm-dd	2013-09-10
14	coupon type	string	I	√	代金券 or 折扣券	代金券
15	discount rate	float	I	√		15 0.5
19	sex	char	I	√	男 or 女	男
20	birthday	date	I		yyyy-mm-dd	2013-08-10
21	name	string	I	√		张三
23	productId	string	O	√	less than 20 bits	NB001
24	product name	string	I	√	less than 30 bits	Iphone5S
25	price	float	I	√	greater than 0	10.50
29	login time	date	O	√	yyyy-mm-dd hh-MM-ss	2013-09-10 12:00:00
30	login address	string	I	√		127.0.0
31	message content	string	I	√		{pushtype:1,data:hello,sponsor:hello}
33	sentDate	date	I	√	yyyy-mm-dd hh-MM-ss	2013-09-10 12:00:00
36	login password	string	I	√	between 5 and 20 bits	12345
39	longitude and latitude	float	I	√	accurate to six decimal place	113.402257
41	sharing content	string	I	√	less than 140 bits	Hello
42	Vip card	int	I	√		123456789

	number					
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3.4 Fault handling requirements

- A group of maintainers are needed to do daily maintaining work of the server so that it can run steadily for a long time.
- Data needs to be backed up for fear that the server crashes.
- If the system appears bugs, users can contact with maintainers for solution.

3.5 Other special requirements

- The safety and secrecy of data must be guaranteed.
- Data should be easy to redeploy.
- The system should be transplantable.

4 Operating environment requirements

4.1 Equipment

- a. The system server hardware requirements are as follows:
 - Processor minimum : 1GHz
 - Memory minimum : 512MB RAM
 - Minimum hard disk space : 8GB
- b. Client hardware requirements for this system are as follows:
 - RAM Capacity:2GB
 - ROM Capacity:8GB
 - CPU Frequency:1000MHz

4.2 Support software

- a. The system's client system requirements are as follows:
 - Android OS 4.2 Or above.
 - The system server system requirements are as follows:
 - Windows server 2008 /Ubuntu Server 9.10.
- b. System programming language compiler/Assembly name and version number:

Java 1.7

- c. Name and version number of the database management system:
MySQL community server 5.5.29

4.3 Interface

- User version:
 - a) Interface with the bank transfer service
The system to send the bank transfer request, receive transfer of results to the user.
- Business Version:
 - a) Interface with the original receipt system of the business
This system receives the total amount of payment from the original receipt system of the business and send generated QR codes, after paying success, pushes the receipt information to original billing system.
 - b) Interface with the original member system of the business
The modification of the VIP of business will keep synchronous with the original member system of the business