# Wallie - Location-Based Credit Cards Offers

User Requirements Document

# Team Members

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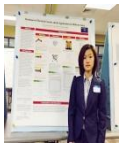
**Lan Liu** has Previously worked as Product Manager and Project lead experience in NetEase. She is interested in exploring more about design and product management.



**Kim Jin** is an enthusiast in making problem-solving products for people's day-to-day life. She's an incoming product manager at Expedia.

**Priyanshi Mittal** thrives to solve business problems and building new products. She has worked as the Lead Engineer for India's No 1 Jobsite, Naukri.com

**Sijia Chen** is a software Engineer and has worked as intern at Oracle and Byte-dance. He is a technical geek who likes to learn all kinds of new technologies.

# Goal

Keeping track of various credit card rewards, in-store deals and discounts or online promotions is rigorously time consuming and users tend to lose out on hundreds of dollars annually by either using the wrong card at wrong place or by not knowing the offers for the card or the store.

The ultimate goal of the solution is to maximize the rewards and offers for the users based on the preferences and location.

A location based service uses location to control features and provides information based on the current location of the user. Our location based service provides accurate information about which card to use for maximizing the offers and discounts for the store/place the user is in. A user can also get offers for a particular store or a particular card.

By using our location based application, credit card users can save money as they will know which credit card to use to avail the offers. With the kind of information that our app provides, Users will also know which bank or financial institution is issuing credit cards with best offers.

Our initial plan is to have this service for offline shopping and then in later versions we want to extend this service to online shopping as well.

# Terms Used / Glossary

**Users:** Potential or existing people who use this application. A registered user has a user account and is identified to the system by a username. A registered user can access to all the services offered by the system as long as s/he provides credit card info.

**Merchants**: Third party companies or businesses we cooperate with, including (but not limited to) banks, restaurants, shops who provide information we need in the App.

**API:** An application programming interface (API) is a set of subroutine definitions, protocols, and tools for building application software. In general terms, it is a set of clearly defined methods of communication between various software components. In this case, It means we need to get API from Facebook so that users can login with FB account; it also means we need to get API from Google map to get map info in real time.

**Stores/Places:** Places the user potentially wants to use their credit card.

**Credit Cards:** All kinds of credit cards that have rewards/deals/discounts.

**Location-based System**: A software-level service in the app that uses location data to control features such as nearby stores, current store and its related offers from the place.

**Nearby**: Based on the current location, “nearby” place means the surrounded places/stores depending on the scale of the map.

**Notification**: The message that pops out on the phone when the system detects that there is a need to notify the user for offers. The frequency depends on the preference the user sets.

**Offers/Rewards/Discounts/Deals:** Various of benefits designed by credit card companies that card holders can get after payments in particular places. These can be rewards points, cash-back points, cash-back money bonuses, discounts, discount vouchers, gift cards or miles

**Preferences**: A set of options included with the application that allows users to modify various system settings including location, notification and deal settings according to user's’ own likeness and tolerance.

# Stakeholders

**Banks and Financial institutions:**

- We will need information from Banks and Financial institutions about different credit card types they issue and the offers each credit card type provides.
- Our app will need to interface with Databases of different Banks and Financial institutions so that we have access to all the credit card offers provided.
- Banks and Financial Institutions will have access to deals system of our app where they can enter, modify or update all the latest deals for different credit card types they issue.

**Shops and Restaurants:**

- We will need information from Shops and Restaurants if there are any specific offers they provide for customers.
- Shop representatives will have access to deals system of our app where they can enter, modify or update all the latest deals specific to their shop

**Users:**

- When the user is about to sign into our app for the first time, we will need the users to input the type of credit card (bank name and credit card type, not the credit card number) they have.
- Similarly, if the user gets a new credit card, then the user needs to update that new credit card type in our application.
- We need user to allow our app to access his/her current location to push location based offer notifications.

# Scope

| Feature | In Scope | Out of Scope | Future Release |
|---|---|---|---|
| Credit cards and offers/rewards offered by banks | ✓ | | |
| User account management (personal, cards, preferences) | ✓ | | |
| Connect to bank/credit card accounts from within the app | | | ✓ |
| Location based notification | ✓ | | |
| Explore deals in map mode | ✓ | | |
| User data privacy protection | ✓ | | |
| User submitted deals | | ✓ | |
| Payment gateway | | ✓ | |
| Online shopping offers | | | ✓ |
| Merchant Account Management | ✓ | | |

**Features that will meet above user requirements:**

In this section we will define “What” the system(app) must do to meet user requirements in the form of features mentioned in the above table. “How” the system (app) must do will be decided during design and development phase.

**User account management (personal, cards, preferences)**

- This includes initial setup of the user account and signing in. The user can sign up using Facebook or Email/Password.
- Once the user signs up, user needs to add cards. The user can choose the bank and card types from the lists the system has .
- The user is then asked to setup his/her preferences about location, notification and deals.
- The notifications preferences include user’s choices for frequency of the push notifications and if she/he wants to get aggregated notification or individual store notification.

- The location preferences include if he/she is okay to share the location always or only while using the application and within what distance of store/place he/she wants to receive notifications.
- Similarly, the user can sign in when returning to the app and can modify the cards and the preferences.

**Credit cards and offers/rewards offered by banks**

- The user will be able to see the offers offered by banks and financial institutions, which offer credit cards.
- The offers can be rewards points, cash-back points, cash-back money bonuses, discounts, discount vouchers, gift cards or miles.
- The user will only be able to get the offers according to the preferences he/she has put in (according to user account management feature mentioned above).
- The app will show the rewards for a particular store, irrespective of its type (cash, miles, gas points etc), in terms of cash value after conversion of respective credit card rewards. This conversion will be as close to the true "cash value" as possible.

**Location based Notifications**

- Once the user has set up the account and has opted for receiving notifications and sharing the location always, the system will push the notifications for any offer available within the distance range the user set.
- If the user opted for aggregated notifications, he/she will receive notification for nearby stores/places just once, while if he/she opted for individual notification, he/she will get offers for each store.
- If the user is in a mall, he/she will receive single notifications irrespective of what he/she chose. Once the user clicks on the notification, the app will open and the user can see the detail about the offer(s).

**Explore deals in map mode**

- The user can anytime open the app and look for deals nearby (location distance set). The map will show the stores near by based on the deal preferences and list the stores and offers. The user will be able to click on the store on the map or on the list and view the details about the offers.

**User Data Privacy Protection**

- While a User sets up his/her account, the app will ask for user's credit card type and bank information. The app will also track user's location to push location based user notifications.
- We will have lot of data that is private to the user. We need to make sure that we use latest security standards and encryption algorithms to make sure that user data is safe.
- All the messages between the app and the back end servers should be encrypted.
- More specific details like what security standards to use and what encryption algorithms to use will be decided during design and development phase.

**Connect to bank/credit card accounts from within the app**

- This feature will allow the user to link the app with the credit card/bank account.
- This will help user in two ways, first, the user can get more relevant information about the offers analysing his/her past spending habits. Second, the user can get deals and offers that are personalized to his/her particular card number.

- An important point to note here is linking of financial accounts is completely optional. In order to use the app, the user does not need to link any of their accounts and we do not mandate user to enter credit card number.. This is an extended feature that will allow us to deliver even more targeted notifications to the user, if they so desire.

**User Submitted Deals**

- We do not aim to be a user-submitted deals service. We want to deliver only verified deals to our end user and user-submitted deals will need to be reviewed for their validity, in this case and are most often not the most convenient methods.

**Payment Gateway**

- Our app will not serve as payment gateway for users. This is out of scope of what we are implementing.

**Online shopping Offers**

- The first release of our app will only concentrate on offline shopping offers. There will not be any online shopping offers feature in the first release. Online offers will be planned as part of a later release.

**Merchant Account Management**

- The merchants will have an interface/system to manage the deals and offers and publish to the deals system. They will have account set-up and sign-in features. And once they have set up ready, they can add, modify and delete the deals.

# The Use Cases

## Primary Users and their Goals

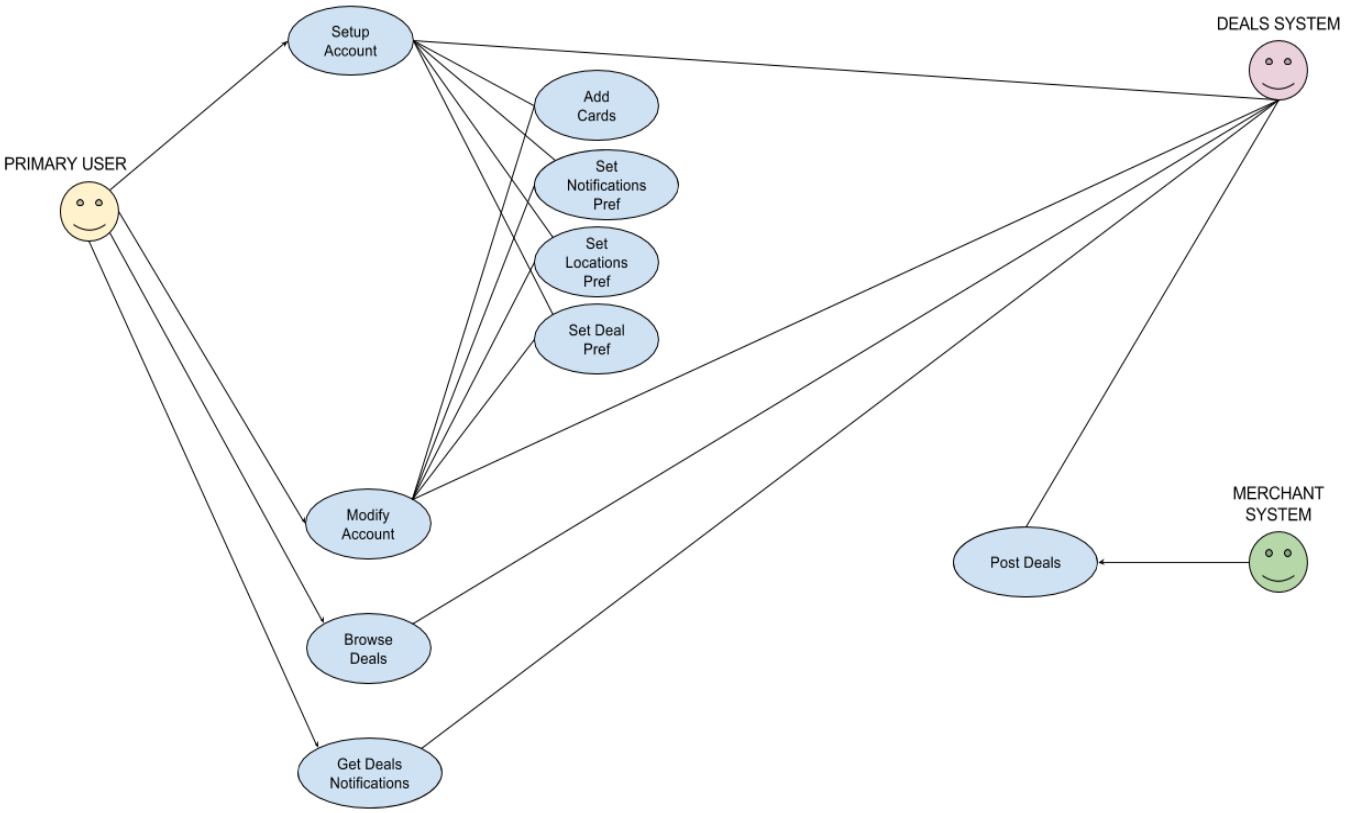
The primary users of this application are individuals who live in the U.S. and have at least one credit card. They might come from different countries but they can understand English well. The primary users can be from varied background and are comfortable using smartphones. The application needs to have simple and intuitive user experience that can adapt to all groups of people.

The goals of the primary users include:

- Get instant information about the offers in their credit cards when needed;
- Know how to maximize the rewards when shopping offline;
- Explore the possibilities with the current cards.

## Use Cases

**Primary Use Cases**



**Use Case 1**

**Setup Account:** The user sets up the account by signing up using Facebook or email/password and adds preferences for cards, notifications, locations and deals.

**Use case:** Setup Account

**Basic Flow**

1. Sign up using Facebook or email/password
2. Select Bank name and credit card type.
3. Set notification preference.
4. Set location preference.
5. Set deal preference.

**Alternative Flows**

1. Problem in signing up.
2. Added card details not recognized by the app system.
3. Default preferences set if preferences not changed.

**Use case Elaboration**

**Use case:** Setup Account

**Basic Flows**

1. **Sign up using Facebook or email/password:** The user can either use his/her existing Facebook credentials to sign up to the app or the user can create his/her own credentials specific to this app.
2. **Select bank name and credit card type:** User needs to select the bank type and the credit card type. User need not enter credit card number. The app needs to know only about bank name and credit card type to notify the users about offers for that specific credit card issued by the bank. If the user is not able to find the bank name or specific card type, the app will throw a message saying that bank or card type is not yet available in the app database.
3. **Set notification preference:** User enters the preferences for notifications such as frequency of the notifications and aggregated vs individual store notification.
4. **Set location preference:** User enters the preferences for location such as sharing his/her location and distance within he/she wants to receive notifications.
5. **Set deal preference:** User enters the types of store/places he/she is interested to get offers and deals for.

**Alternative Flows**

1. **Problem in signing up:** Some internal error occurs while signing up.
2. **Added card details not recognized by the App system:** When a user edits card details and enters new bank name and credit card type in Step 2 of basic flow, it is possible that the app does not recognize the bank name or card type because the app does not yet have any details about that particular bank or card. In this case, the user will be shown “unrecognized bank or card” message.
3. **Default preferences set if preferences not changed:** If the user chooses not to change any of the preferences, the system takes the default values for each set of preferences.

**Use Case 2**

**Modify card details and preferences:** Users can update their existing card details or preferences.

**Use case:** Modify card details and preferences

**Basic Flow:**

1. Login to the system.
2. Modify card details.
3. Modify different preferences like notification and location preferences.
4. Review the changes.
5. Submit changes.

**Alternative Flows**:

1. Modified card details not recognized by the app system.
2. Submitted changes not getting updated.

**Use case Elaboration**

**Use case:** Modify card details and preferences

**Basic Flows:**

1. **Login to the system**: User needs to enter his/her correct username/password or Facebook credentials to login. If the user enters wrong credentials, "incorrect username or password" message will be shown.
2. **Modify Card details:** User should go to card details section and click on edit button. After clicking on the edit button, user can edit credit card details or bank details. Here, user can add a new card, delete an existing card or modify an existing card details.
3. **Modify different preferences like notification and location preferences:** After clicking on the edit button as mentioned in step 2, user can edit his/her preferences like notification preferences and location preferences. User can add new preferences, delete existing preferences or modify existing preferences.
4. **Review the changes:** Once the user has modified card details and preferences as mentioned in steps 2 and 3, User will be directed to a review page where user can review the changes made so that he/she is sure about the changes being made.
5. **Submit Changes**: Once the user reviews changes and is ready to submit the changes, user should click on the submit button. Clicking on the submit button will save changes to the user database. Now, the screen will refresh and show all the changed details.

**Alternative Flows**:

1. **Modified card details not recognized by the App system**: When a user edits card details and enters new bank name and credit card type in Step 2 of basic flow, it is possible that the app does not recognize the bank name or card type because the app might not have any details about that particular bank or card. In this case, the user will be shown "unrecognized bank or card" message.
2. **Submitted changes not getting updated:** It is possible that user submits the changes in Step 5 of basic flow but the screen does not get refreshed with new card details. This might happen because of issues in the backend database or slow network connections etc. In this case, the app will show a message saying "unable to update changes, please try again in sometime".

**Use Case 3**

**Browse Deals:** User logs in, enters credit card type and browses deals for a store or/and a card.

**Use case:** Browse Deals for a store or/and a card

**Basic Flow**

1. Log on to the app.
2. Search for a store or/and a card
3. Get offers for the store or/and a card

**Alternative Flows**

1. No offers available for the parameters the user entered

**Use case Elaboration**

**Use case:** Browse Deals for a store or/and a card

**Basic Flows**

1. **Login to the App**: The user can either use his/her existing Facebook credentials to login to the app or the user can create his/her own credentials specific to this app. If the user does not enter the right login details, the system will throw a message saying incorrect login credentials. If the user enters right credentials, the user will be able to enter into the app.
2. **Search for a store or/and a card:** User goes to the search page, and enters the search fields - store and card. He/she enters (auto-complete) either of the two fields or both. He/she clicks on get offers.
3. **Get offers for the store or/and a card:** The app will display offers according to the search parameters. If the user entered a store, the app will display all the offers for that particular store (store specific and not offers for cards). If the user entered a card, the app will display offers for the specific card, categorized in different buckets such as household, restaurants, travel, and clothes. The user can select the category and see the offers for that category. If the user entered both store and card, the app will display all the offers available in that particular store for the entered card.

**Alternative Flow**

1. **No offers available for the parameters the user entered:** Based on the search parameters, if no offers are there, the app will display showing the user that for the search criteria there are no offers available currently. But the app will show the any available offers for the store on the other cards the user has.

**Use Case 4**

**Notifications based on location preferences:** User gets automatically notified when they visit a store that matches their location and deal preferences.

**Use case:** Credit card offer notifications based on location preferences

**Basic Flow**

1. User walks into a store/location
2. Gets a notification based on their defined preferences
3. Open the app/notification
4. Use the credit card and any other rewards code suggested

**Alternative Flows**

1. No offers for the store/location
2. No internet connectivity to deliver notification

**Use case Elaboration**

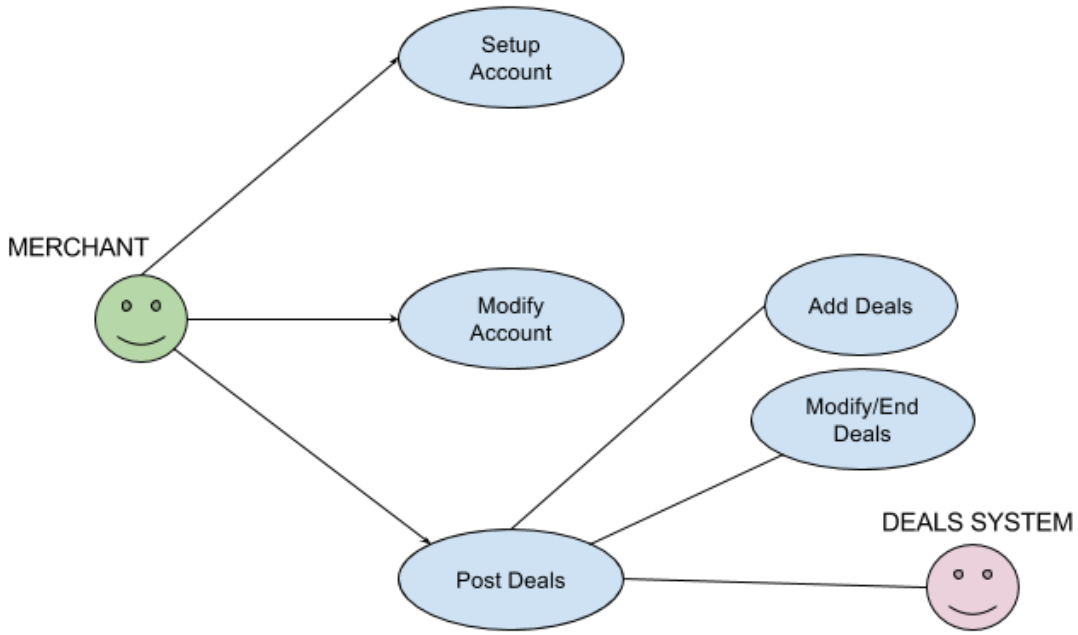
**Use case:** Credit card offer notifications based on location preferences

1. **User walks into a store/location**: User walks into one of the stores that are supported by the app.
2. **Gets a notification based on their defined preferences**: If the user has set that store type in their preferences, they will get a notification when they reach within a certain radius of that store location. The radius will also be set by the user.
3. **Open the app/notification**: After receiving the notification, user opens the app to see the suggested deal. They will see a list of credit cards with their respective rewards along with any other store deals, if available.
4. **Use the credit card and any other rewards code suggested:** During checkout, user uses the credit card recommended by the app along with additional store deals through barcode or unique coupon code as specified by the merchants.

**Alternative Flow:**

1. **No offers for the store/location:** Based on the user preferences, if no offers are available at the given location, the user won't get any notification.
2. **No network to deliver notification:** During step 2, if there is no internet connectivity to deliver the notification, the user won't be able to receive any automated responses. In that case, the user will have to figure out alternative means to get connected to the internet, such as manually connecting to the store wifi network or walking to an area where a cellular network is available so the notification could be delivered to the user.

**Business Use Cases**



**Use Case 1**

**Merchant/Banks add coupon/rewards information in website backend:** merchants log in, add the coupon for their deal and publish to the deals system.

**Use case:** Merchant/Banks add coupon information on website backend.

**Basic Flow**

1. Log in to the website backend.
2. Add the coupon/deals.
3. Add the relevant fields.
4. Submit coupon to the deals system.

**Alternative Flows**

1. No merchant account.

**Use case Elaboration**

**Use case:** Merchants add coupon information in website backend.

**Basic Flow:**

1. **Log in to the website backend**: The user uses his/her merchant account to login in the website backend. If the user does not enter the right login details, the system will throw a message saying incorrect login.
2. **Add the coupon/deals**: The user needs to confirm the item that he/she wants to add. The website needs to know the details of the coupon item.
3. **Add the relevant fields**: User should write new value in the fields that she/he wants to add.
4. **Submit coupon to the deals system:** After she/he adds all the details, the deal will be published to the deals system.

**Alternative Flows:**

1. **No merchant account**: Jump to “Merchants sign up accounts user case”.

**Use Case 2**

**Merchants modify coupon information in website backend:** merchants log in, choose the coupon information they want, modify relevant information and publish the new version.

**Use case:** Merchant/Banks modify coupon information on website backend.

**Basic Flow**

1. Log in to the website backend.
2. Modify the coupon/deals.
3. Modify the relevant fields.
4. Submit coupon to the deals system.

**Alternative Flows**

1. No merchant account.

**Use case Elaboration**

**Use case:** Merchants modify coupon information in website backend.

**Basic Flow:**

1. **Log in to the website backend**: The user uses his/her merchant account to login in the website backend. If the user does not enter the right login details, the system will throw a message saying incorrect login.
2. **Modify the coupon/deals**: The user needs to confirm the item that he/she wants to modify. The website needs to know the details of the coupon item.
3. **Modify the relevant fields**: User should write new value in the fields that she/he wants to modify.
4. **Submit coupon to the deals system:** After she/he adds all the details, the deal will be published to the deals system.

**Alternative Flows:**

1. **No merchant account:** Jump to “Merchants sign up accounts user case”.

# Technologies Used

## Mobile Platforms used to Develop the Platform

Initially, the app will be developed on iOS platform. Later, the plan is to develop the app on Android platform also.

## Databases

Backend databases will be needed to maintain user information, credit card information, preferences information etc.

## External Systems with which our App needs to Interface

- **Facebook login APIs**
  Our app needs to integrate with Facebook login APIs so that we can provide login to the user. We will also have our own database to maintain user credentials but if the user wishes to choose Facebook login credentials, he/she may do so as our app will interface with Facebook login APIs

- **Google Maps APIs**
  As our app needs to send notifications from nearby locations, we will use Google maps APIs to detect the nearby locations of a user so that we can push offer notifications from the nearby locations.

- **Database systems of Banks and other Financial Institutions**
  Our app needs to interface with Bank Database systems to keep track of credit card offers. The credit card offers vary from bank to bank depending on the type of credit card issued to the user. We need to interface with the data base systems of different banks so that we can keep track of credit card offers from different banks and other financial institutions.

## Technology Requirements for Users to use the App

- **Mobile Phone or Tablet Requirements**

To use our app, Users need to have an iOS or Android Mobile phone/tablet with the following features:

- **3G/4G or Wifi connectivity**
  Users should either have 3G/4G connectivity or Wifi Connectivity on their mobile phones/Tablets because we will track the users' location which means decent internet speed is required.
- **GPS enabled**
  User's mobile phone/tablet should be GPS enabled as our app needs to get the location of the user to push location based offer notifications.

## Development Effort Estimation

We are currently a team of 6.

**Team composition**

- **Number of Software Engineers:** 4
  Software Engineers will be responsible for coding, testing and other technical work needed to build the app.
- **Number of Product Managers:** 1
  Product Manager will be responsible for collecting all the user requirements, app design, maintaining product road map, monetizing different features provided by the app.
- **Number of Business Development Managers:** 1
  Business Development manager will be responsible for coordinating with different merchants like Banks, financial institutions and stores.

We will need 6 months' time to come up with the first version of the app.

# Other Requirements

## Business Rules

**User**

- The user should have at least one card. The card can be credit card, debit card or a store specific card. The user needs to register his/her cards with the app.
- Once the user registers his/her cards in the app system, the app will send notifications based on the preferences. To get location based notifications, the user should be willing to share his/her current location so that the app can accurately push location based offer notifications.

**Merchant**

- Merchant can be any Bank or financial institution that issues cards. Merchant can also be any store.
- The merchant should add new offers to the deals system that our app provides and similarly the merchant should delete obsolete offers from the deals system so that we always send accurate and up to date notifications to the users.The app will then notify users about card specific offers as well as shop specific offers.
- If the Banks or financial institutions do not want to login to our app's deals system to update offers, then they should provide access to their database that has information about credit card offers and our app will use APIs to get the latest deals information from the bank's database.

## Technical Non-Functional Requirements

- **Performance requirements**
    - **Response time**: When the user is using the app, we should make sure the response time is within acceptable limits to the user. If the response time is too slow, user experience will not be great.
    - **Resource Utilization**: When the users install the app in their mobile phones, we need to make sure that we don't consume too much memory and at the same time we need to make sure that our app interoperates well with the host operating systems Android and iOS.
    - **Availability**: The app should be reliable and should have an uptime of close to 100%. If the app hits an exception or becomes unresponsive when the user is using the app, the user should be able to restart the app and start his work again.
    - **Scalability**: Multiple users will use the app at the same time. This means the app should be scalable for multiple users to access different functionalities in the app at the same time.
- **Accuracy and Precision**
- **Location tracking**: Our app needs accurate detection of current user location to push notifications. Any external maps API that we use should integrate with our app seamlessly and should be able to provide accurate location information.
- **Coupon/Deals information should be real-time and accurate**: We should make sure that the coupon/deals information in our app at any given time is latest and accurate.
- **Security**

- Credit card is sensitive information for users, proper encryption should be implemented. Similarly, we will be tracking the location of the users. All this information is personal to the user. We need to make sure that we use latest security standards and meet all the security compliances so that user information is safe and secure.

## Deferred requirements

The following features are deferred to future releases

- **Online shopping Offers**: We will not have online offers in our first release. We will concentrate only on off line (brick and mortar) offers in our first release.
- **Connect to Bank/Credit accounts from within the app**: In the first release, we will not have any interface or API to connect to Bank/Credit accounts from within the app. This feature will be provided in later releases.

# Other Issues

## Human Back - Ups To System

Information about credit card offers and discounts is very crucial for the product and should be well updated. In the initial phase the merchant system will require some human interventions to enter the offers in the system. Initially the information will be entered into the system only for some specific card, but in the subsequent releases that will be automated to get in information about more cards.

## Legal and Political Requirements/Issues

The app will take the location of the user and information about the cards. Legal laws revolving around consumer protection to prevent fraud, user privacy including personal and location information and security are important for the product as it will deal with users and merchants. The system will comply with laws and protect internal information of each merchant and each user.

Political factors such as tax rates and legislation will affect the system as the offers can fluctuate accordingly.

Aspects around economy can change the dynamics the system as well. Unemployment rate can affect the purchasing power of customers and also the dynamics of rewards offered by the card companies. Hence, it can fluctuate the use of the app. Another factor to be considered is the education level, which changes how people use the application.

## Training Requirements

Some training is required for the merchants to enter/link the system to get updated offers for the stores and credit cards. The training will include a demo and walk through video and customer support to help setup the system or any other problem they face.

## Assumptions and Dependencies on the Human Environment

The users should be willing to update the preferences and update the cards they have. For maximizing the rewards they should also carry the cards along in the stores.

The merchants should update the offers in the system so that the system is up-to-date with the current offers and deals. And users can have access to correct information.