
MITX: 21W.789X BUILDING MOBILE EXPERIENCES

Assignment: Proposal

Master Card Credit

Sumeet Gyanchandani

February 24, 2014

ABSTRACT

The application enables a user to carry one credit card instead of many. The company would require issuing a unique card number to the customer, which maps all his general card numbers. It uses a mobile application, to make the choice of card from which the transaction is to be carried out.

The application is also capable of remembering an awful lot of details regarding all the credit/debit cards of a user. Like, Card Number, Pin, Card Network, CVV, Expiration Date, Current Balance and a log of all the transactions, in a secure way.

TABLE OF CONTENTS

<u>Abstract</u>	<u>2</u>
<u>Introduction and Related Work</u>	<u>4</u>
<u>Motivation</u>	<u>5</u>
<u>Description of Project</u>	<u>7</u>
<u>Figure 1 & 2</u>	<u>8</u>
<u>Figure 3 & 4</u>	<u>9</u>
<u>Figure 5 & 6</u>	<u>10</u>
<u>Figure 7</u>	<u>11</u>
<u>Tasks and Milestones</u>	<u>12</u>
<u>References</u>	<u>13</u>

INTRODUCTION

Today's typical consumer relies on credit cards issued by banks to transact much of its daily business. A single credit card is light and compact, but however, five, six or more are bulky and inconvenient to carry.

If a single credit card is lost or stolen, its authorized user is required to contact only one issuer to cancel the future credit extensions. However, if five, six or more cards are lost or stolen at the same time, their authorized user is required to contact each and every issuer individually to cancel the credit cards, which can turn out to be a very tedious job.

With many people having multiple accounts in the banks nowadays, people have to maintain multiple credit cards. Not only does it makes it difficult to carry all of the credit cards but managing all the credit-debit records and password pins is very inconvenient.

This paper aims at making this process hassle-free. The paper in its hypothetical sense has technology that is capable of doing what multiple cards can do, using just a single credit card and a mobile device.

MOTIVATION

Research Questions

1. Do you use credit/debit cards?
2. How many cards do you own?
3. How often do you use them?
4. Where do you use them?
 - i) Internet payments
 - ii) ATM withdrawal
 - iii) Paying for dinner/lunch
 - iv) Shopping
 - v) Any other
5. Do some one else use your credit card?
6. What problems do you face using the current credit card system?
7. How do you remember your current balance?
8. Do you have a hard time remembering your pin?
9. Do you keep a log of your transaction?
10. What do receipts mean to you?
11. Your card is stolen. Tell me your first unbiased thoughts.

Study Methods

- Contextual Inquiry
- Interviews
- Observation
- Interviews to Social Networks and Messenger
- Site tours
- Talk aloud

Study Findings

1. It is inconvenient to carry multiple cards.
2. It is difficult for a user to remember his/her pin and logs.

DESCRIPTION OF PROJECT

Application Concept

We need to provide the user with a single industry standard card that should be capable of performing transactions from every card that the user has. (Refer Study Finding 1)

We need to provide the user an app that could remember Card Number, Pin, Card Network, CVV, Expiration Date, Current Balance and a log of all the transactions, for every card, in a secure way. (Refer Study Finding 2)

Concept Description

I have developed a protocol that works at server-site that gives the app capability to handle multiple credit/debit cards by using a single card. The description of the server-site protocol cannot be provided here, as the patent for it is pending.

Regarding the Android App, well-documented images are given below. (Designed using "[Android Design Toolkit](#)")

Figure 1 shows the design of the database at server-site. At the client-site there will be two tables. First Cards Information and the second is the Log Information. The server will backup these tables from every user, and maintain them using User Table.

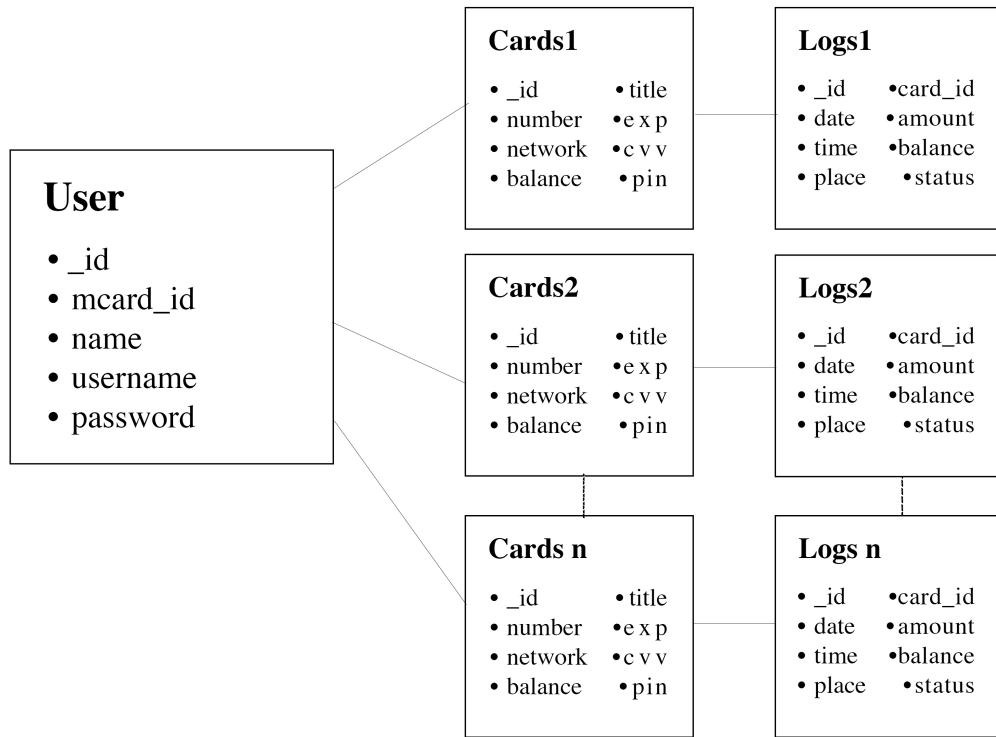


Figure 1: Database design at server

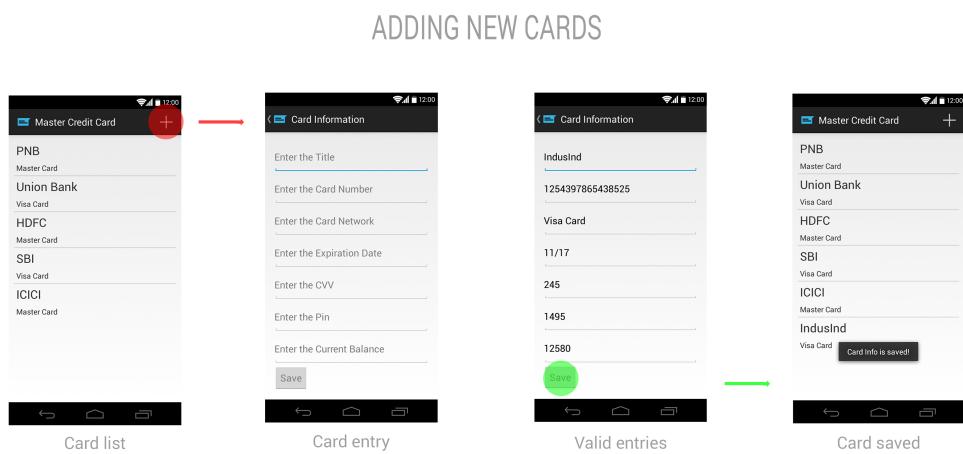


Figure 2: Process of adding a new card

VALIDATIONS

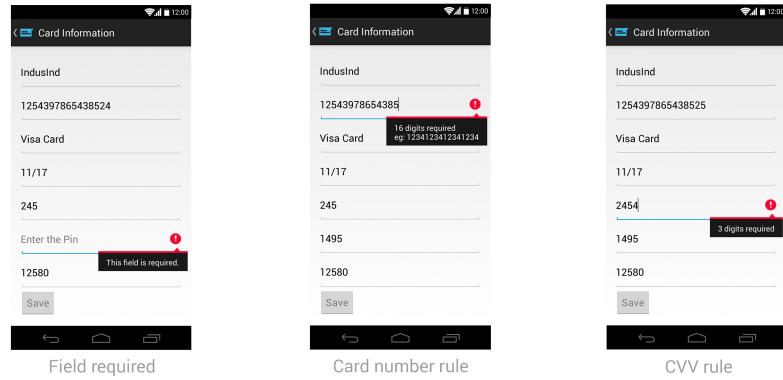


Figure 3: Types of Validations

EDITING CARD INFORMATION

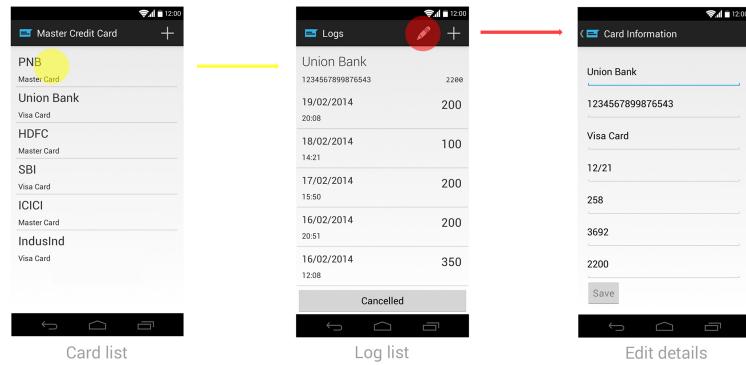


Figure 4: Process of editing card information

DELETING CARDS

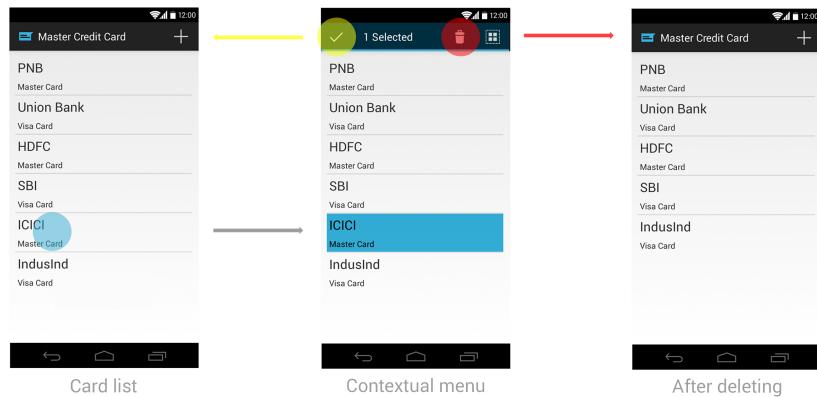


Figure 5: Process of deleting cards

LOG LIST ACTIONS

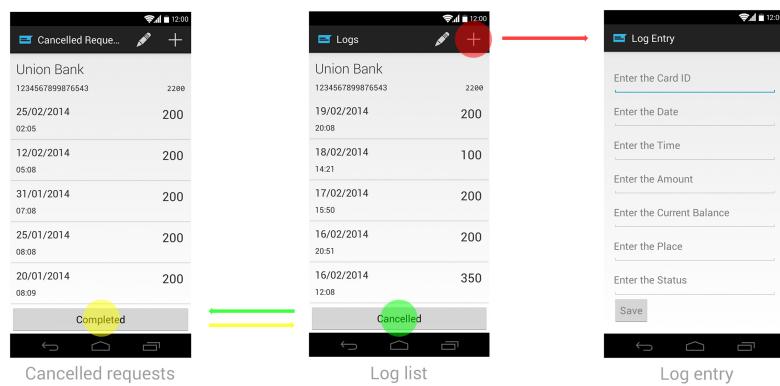


Figure 6: Other actions

SELETING ALL THE LOGS

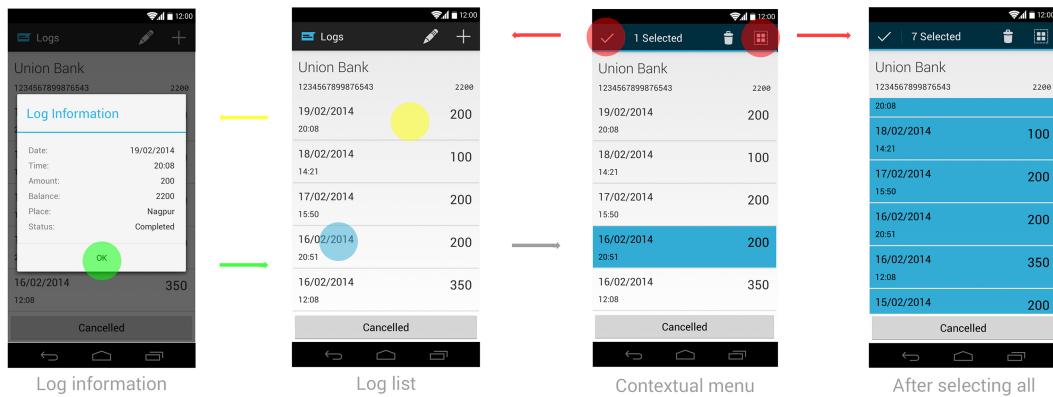


Figure 7: Process of selecting all the logs

TASKS AND MILESTONES

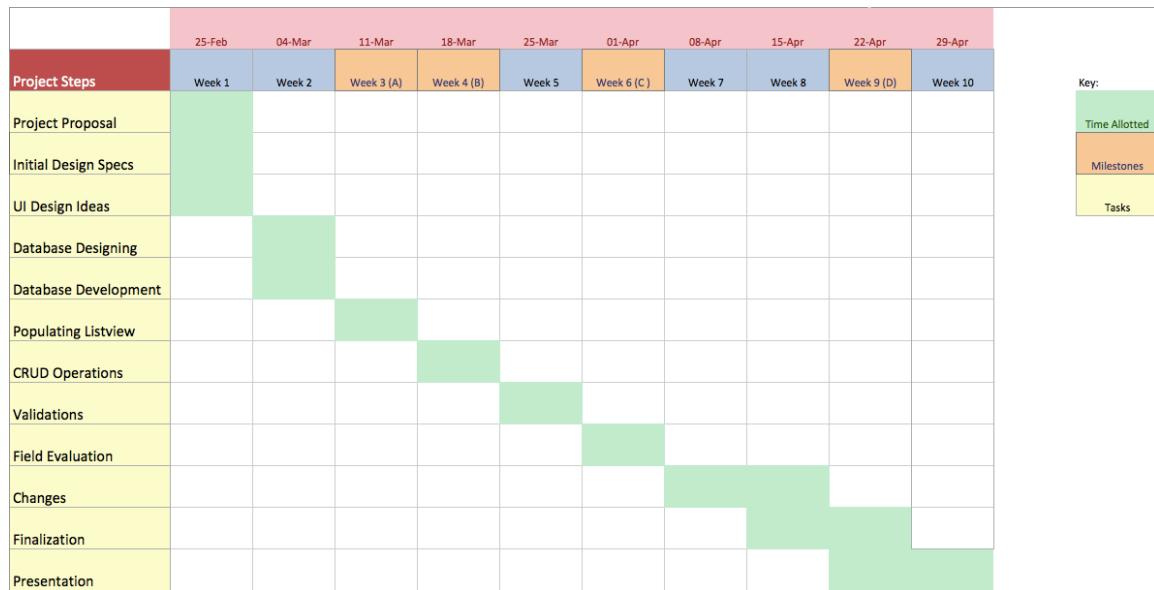


Figure 8: Gantt chart

Tasks

- (1) Databases are working and visible from the App in the form of a list view.
- (2) We can perform basic Create, Read, Update and Delete operations from the app.
- (3) The data is validation before being inserted.
- (4) App would be finalized.

REFERENCES

Related Work: Papers from ACM Library

Francesco Buccafurri, Gianluca Lax(2011). Implementing disposable credit card numbers by mobile phones. In Proceedings of the Electronic Commerce Research, Volume 11 Issue 3 (September 2011)

Ian Molloy, Jiangtao Li, Ninghui Li(2007). Dynamic virtual credit card numbers. In Proceedings of the 11th International Conference on Financial cryptography and 1st International conference on Usable Security (Springer - Verlag Berlin, Heidelberg 2007). FC'07/USEC'07

Saleh Alfuraih, Richard Snow(2004). Location of trusted email for prevention of credit card fraud in soft-products e-commerce. In Proceedings of the 4th WSEAS International Conference on Applied Informatics and Communications (Stevens Point, Wisconsin, USA 2004). AIC'04

Chiun-Sin Lin, Gwo-Hshiung Tzeng, Yang-Chieh Chin(2011). Combined rough set theory and flow network graph to predict customer churn in credit card accounts. In Proceedings of the Expert Systems with Applications: An International Journal, Volume 38 Issue 1 (January 2011).

Chieh-Yuan Tsai, Jing-Chung Wang, Chih-Jung Chen(2006). A change detection model for credit card usage behavior. In Proceedings of the 5th WSEAS International Conference on Computational Intelligence, Man-Machine Systems and Cybernetics.(Stevens Point, Wisconsin, USA 2006). CIMMACS'06

Related Work: Existing Product / App

Coin

Coin works using a patent-pending magnetic strip that changes on demand. The device ships with a small reader you use to scan cards into the Coin mobile app, which then syncs with the device itself over Bluetooth Low Energy (BLE). Coin's battery lasts two years, the company says, and powers a tiny display that shows the last four digits of the card you've currently chosen to use, as well as its expiration date and CVV. Since Coin stays in constant contact with your phone using the same BLE tech that powers syncing with a phone, if you leave it behind at a restaurant, your phone will alert you once you walk away.

Credit Card Manager

Calculates the interest for your credit card bills

Credit Card Lite

Enter any credit card no. & it will tell you:

1. Whether or not it is valid by using luhn's algorithm
2. Country where the card was issued
3. Name of the entity that issued the card
4. Type of the card (i.e. debit/credit)
5. Entity's office number

Credit Card Scanner

You can scan credit card information. You can also save your credit card information to your email / SD card. This can be used for net banking when required
