First Iteration Plan: mycheapfriend.com

COMS 4156: Advanced Software Engineering

Team: CheapSkates

Team Members

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The **Cheapskates** from **MyCheapFriend.com** will lend you our **Fir** if you give us back feedback next week.

2. Requirements:

Functional Requirements

1. Accounts (High)
    a. Administrative and regular users.
2. Messaging (High)
    a. E-mail and text message based UI.

Non-Functional Requirements

1. Security (High)
    a. Very simple. Address Parsed from the text or email.
2. Compatibility (High)
    a. Messages must be readable on different kinds of cell phones.
3. Usability (Medium)
    a. Easy to read.

Use Cases

The Almanac is a system for settling small debts amongst friends. The following use cases will describe the complete functionality of the system as well as rank different features in terms of their importance.

Account Management (high)

1.1) Creating an account

In order to bill friends, you need to create an account. Creating an account involves texting new_account@mycheapfriend.com. new_account@mycheapfriend.com responds with a unique e-mail address to text to and use as a security token. The text looks like this, "your unique address is <gop1bi@mycheapfriend.com> Please add it to your address book (as CheapFriend?)". The authenticates users against their unique e-mail address and treats their phone number as a unique user-id.

1.2) Changing a Password

If your password has been compromised or you want to change your security token for any other reason, you can text reset_pass@mycheapfriend.com from the cell phone that is associated with the account. The old security token will be marked, "disabled" internally and any e-mails to its address will respond with an error telling the user to update their security token or e-mail reset_pass@mycheapfriend.com.

1.3) Unsubscribing from MyCheapFriend.com

If you are either a user who wants to disable your account, or a bill-ee who does not want to receive any notifications from mycheapfriend.com, any text to unsubscribe@mycheapfriend.com will add the reply-to address to a block list and will not contact them again.

1.4) Re-subscribing from MyCheapFriend.com

If you would like to re-enable access to MyCheapFriend.com after unsubscribing, a text to resubscribe@mycheapfriend.com will remove you from the block list.

Billing a friend (high)

2.1) Requesting a bill

2.1.1) Identifiers

The system uses various ways to parse unique friends from your text message. They are listed below:

2.1.1.1) The Cell phone identifier

In a message, when referring to another user, you may use a straight cell phone number. The following regex will validate a cell phone number. In our first version, we will only validate 10-digit cell phones numbers. \d{10}|(\D?\d{3}\D\d{7})|(\D?\d{3}\D\d{3}\D\d{4})

2.1.1.2) nicknames / adding and changing them

Each user will have his/her own table of nicknames associating self-assigned nickname strings with their friends' cell phone numbers. Attaching a nickname to a friend's cell phone number involves e-mailing your unique e-mail address a message with a cell phone number (validated with the regex above) and a nickname (validated with the following regex). Any subsequent texts with a single cell phone number and a single nickname will result in a reassignment of that nickname. [a-zA-Z]{2,2}[a-zA-Z0-9_-]{1,8} validates a nickname.

Note nicknames are at least 3 chars long. Nicknames are stored in a case-insensitive manner, so a cell phone number associated with "Jacob" will be able to be referred to as "jAcOb" or any other permutation.

2.1.1.2.1) nickname misses

Whenever a text is received with a nickname not in the nickname table, the text will be rejected and an error message will be returned, giving the malformed / unassociated nicknames.

2.1.1.3) Identifier Summary

Henceforth, nicknames and cell phone numbers will be referred to interchangeably as "identifiers".

2.1.2) Requesting a Bill

2.1.2.1) Requesting a bill with a single friend

Billing a friend with a cell phone number involves sending a text to your unique e-mail address with an identifier and an amount (a regex validating an amount is listed below) separated by whitespace. The amount or identifier can come first. "\$?\d{1,4}(\.\d{2})?", is a regex that validates an amount. The largest bill we will accept is $9999.99.

\s*(((identifier)\s+(amount))|((amount)\s+(identifier)))\s* is a regex that validates a bill with a single friend. The length of the entire message must fit in a text message, i.e., 160 chars.

2.1.2.2) Billing multiple friends simultaneously

Billing multiple friends simultaneously involves sending a whitespace delimited list of amount-identifier pairs (also separated by whitespace) to your unique e-mail address. The following regex validates a message billing multiple friends

\s*(bill-with-single-friend)(\s+(bill-with-single-friend))+\s*

Again, the message cannot exceed 160 chars

2.1.2.2) Splitting a bill with multiple friends

If you want to split a bill evenly will multiple friends? Send whitespace-delimited list of identifiers and a single amount to your unique e-mail address. To include you yourself amongst the split, also add the string "me" to the list. This will split the bill one-more way, i.e., if you are billing 4 friends $50 and include "me" in the message, it will bill each friend $10.

\s*(((identifier|me){2,}(amount))|((identifier|me){1,}(amount)(identifier|me){1,})|((amount)(ide
ntifier|me){2,}))\s*

Validates a bill split amongst friends (and/or yourself)

2.2) Receiving a bill

When a friend bills you, you receive a text that tells you "Your cheap friend #{friend's nickname followed by cell phone # or just cell phone if you haven't assigned friend a nickname} just said that you owe them 20 bucks. If this is true, reply "Y" to this text. Otherwise, ignore this message." Note: The grammar mistake "them" is a purposeful substitution for "him/her".

2.2.1) Accepting a bill

A note about all of the following situations: MyCheapFriend.com will stagger all billing requests from different users by 2 hours. It will cancel and compound billing requests from a single user. For instance: If I bill Jacob twice within 24 hours, and he doesn't reply to the first message, the second message will include the sum of the two bills. If I bill Jacob once and Rina bills Jacob immediately after mine, Rina's message to Jacob will not be delivered to him for 2 hours after mine is delivered.

2.2.1.1) For non-registered users

A non-registered user can also accept a bill by replying "Y", however, our system will send an additional message asking for the user to register. Something like: "Try out the greatest service ever - mycheapfriend.com; reply "R" to activate your account". If the user decided to accept the invitation, the process will be identical to 1. Creating an account.

2.2.1.2) For registered users

Nothing special for registered users, a simple "Y" reply will do the magic.

2.2.2) Rejecting a bill

If no "Y" is sent back, after waiting for 24 hours (or for the next message from mycheapfriend.com to come through, that is, a minimum of 2 hours), our system will send a "Request refused: #nickname/phone number #amount" message back to your friend, who claimed that you owed him/her money, he may harass you again by replying "Y" if he insists.

Settling a bill (high)

3.1) Settling a bill by the bill-er

After the user's friend pays him/her back, he sends a message with an identifier and a negative amount to clear the bill. Note: A user might also use this to offer money to his/her friends.

3.2) Settling a bill by the bill-ee

If a user bills a friend who owes him/her money, and that bill is accepted, any balance between the two users is settled before a new "debt" is accrued. i.e., if I owe Rina $5 and I bill her $3, then I still owe her $2. If I then bill her $5, she then owes me $3

Bill report (medium)

A user can check the status of all pending bills by texting "REPORT" to his unique email address.

Web Interface (low)

If we have the time, an alternate web-interface will be created. Users will not be able to create an account from the web interface, but will be able to log-in with their cell-phone# and unique identifier. From the web interface, they will be able to create and settle bills as well as check on all pending and completed bills.

3. Work Breakdown

1) Set Up Version Control

    We are using Google code for this part. A repository has already been set.

2) Set up domain name

    Michael Glass already has a domain name set for the assignment (mycheapfriend.com)

3) Initial planning
    a) Write Project Concept

        It was already submitted.

    b) Write 1st Iteration Plan

        It is currently in progress. All members are working on it.

4) Get acquainted with EJB
    a) Write EJB Toy

        We will write a very basic Toy system. The system will show minimal message communication between two users. One pair will work on this system while the other comes up with the interface skeleton for our real system.

    b) Explain Toy to rest of users (pair-to-pair)

        After we have a working toy system and the interface ready, the two pairs will educate each other on the work they have done.

5) Interfacing and testing
    a) Write interface & tests for message parser / from/t…

        Some of this will be done, when the other pair is implementing the toy system.

    b) Backend interfaces / tests
        i) Write interface & tests for User object
        ii) Write interface & tests for User's nicknames
        iii) Write interface & tests for backend object

        The work will be divided among the team, the schedule section of this report shows how it will be done.

6) First Iteration 1st project report

The team will write the report for the work done so far.

7) Implementation
   a) Implement parser
   b) Implement user object
   c) Implement user's nicknames
   d) Implement backend (bill object)

Again the work is going to split and the actual functionality will be built to complete the system proposed.

8) First Iteration 2nd Project report

The 2nd report for the 1st iteration will be done by the entire team.

9) Figure out emailing
   a) Figure out EJB email sending { specifically to SMS email addresses, i.e., 6462294050@vtext.com }
   b) Figure out EJB email receiving / parsing
   c) Integrate with backend

At this point, we have the system setup to work with the text messages, now we want to include the e-mailing functionality to the system.

10) First Iteration Final Report

The team will write the final report for the first iteration. The team will also prepare for the demo for the 1st iteration.

11) Code Inspections

Get the code ready to be inspected for the teaching staff.

12) 2nd Iteration Plan

The second iteration starts here.

13) Refactoring

We might want to do the code refactoring, for simplicity and removal of redundancy. Here, we will also need to change the security implementation for the system to make it more secure.

14) 2nd Iteration Progress Report

Write the 2nd iteration progress report.

15) Deploy to internet

Now that the system is ready, we can deploy it to the net, for actual usage.

16) JSP / HTML Front end
   a) Login user html front-end
   b) Bill history html front-end
   c) New bill html frontend

Now that we have the text message and email capability working, for the ease of usability, we can have a web based front end, that might provide a bit extra power to the users, and some extra functionality, regarding their accounts.

17) 2nd Iteration Demos

Get ready for the final presentation.

18) 2nd Iteration Final Report

Write the final report that might include all the work done.

4. Component Framework

Everything is still the same, except for two changes. We have decided to use Net Beans IDE instead of Eclipse IDE and for web interface; we will use JSP rather than PHP.

5. Schedule

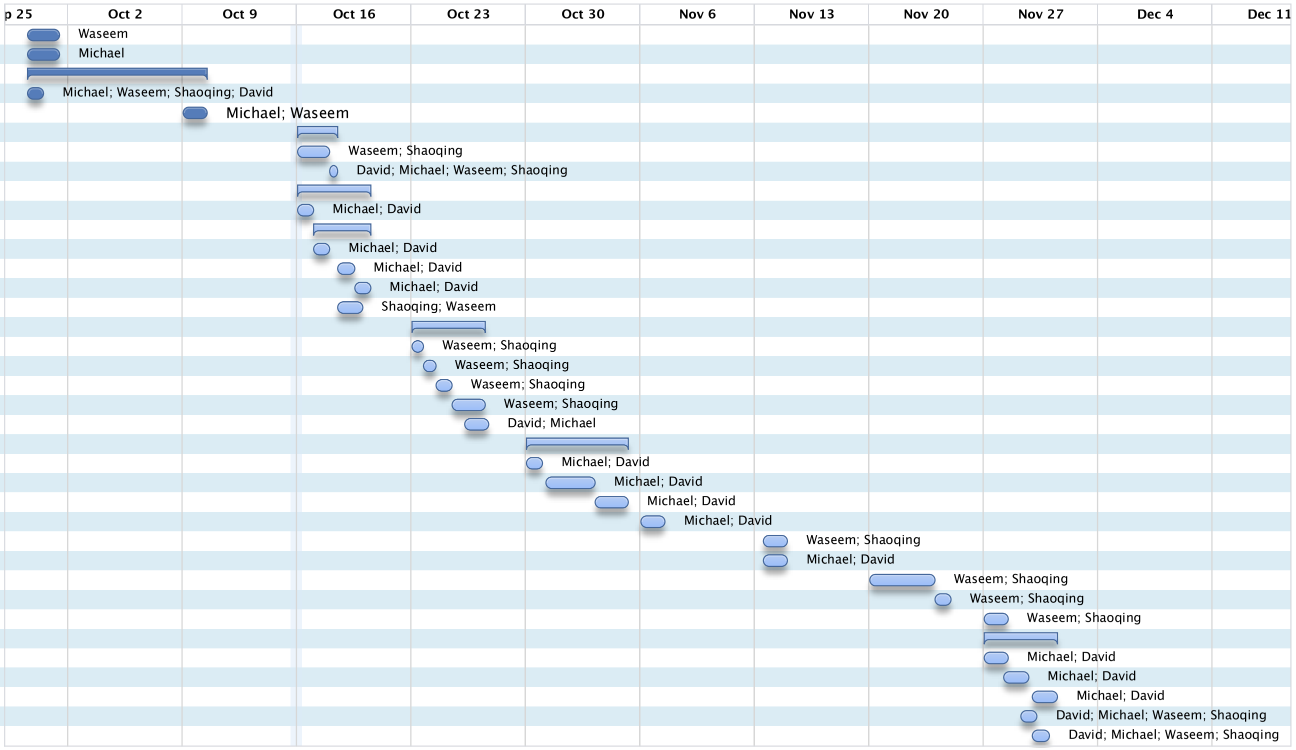
The schedule is attached on the next page.

6. Controversies

There are no controversies among the team at this point.

THE END

Task	Effort
• 1) Set Up Version Control	2h
• 2) Set up domain name	2h
• **3) initial planning**	7h
• 3.1) Write Project Concept	4h
• 3.2) Write 1st Iteration Plan	3h
• **4) get acquainted with EJB**	6h
• 4.1) Write EJB Toy	4h
• 4.2) Explain Toy to rest of users	2h
• **5) interfacing and testing**	1d
• 5.1) interface & tests for message parser	2h
• **5.2) backend interfaces / tests**	6h
• 5.2.1) for User object	2h
• 5.2.2) for User's nicknames	2h
• 5.2.3) for backend object	2h
• 6) First Iteration 1st project report	3h
• **7) implementation**	1d 1h
• 7.1) implement parser	1.5h
• 7.2) implement user object	1.5h
• 7.3) implement user's nicknames	2h
• 7.4) implement backend (bill object)	4h
• 8) First Iteration 2nd Project report	3h
• **9) Figure out emailing**	1d 4h
• 9.1) figure out ejb email sending	2h
• 9.2) figure out ejb email receiving	6h
• 9.3) integrate with backend	4h
• 10) First Iteration Final Report	3h
• 11) Code Inspections	3h
• 12) 2nd Iteration Plan	3h
• 13) Refactoring	1d
• 14) 2nd Iteration Progress Report	2h
• 15) deploy to internet	3h
• **16) JSP / HTML Front end**	1d 1h
• 16.1) login user html front-end	3h
• 16.2) bill history html front-end	3h
• 16.3) new bill html frontend	3h
• 17) 2nd Iteration Demos	4h
• 18) 2nd Iteration Final Report	4h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