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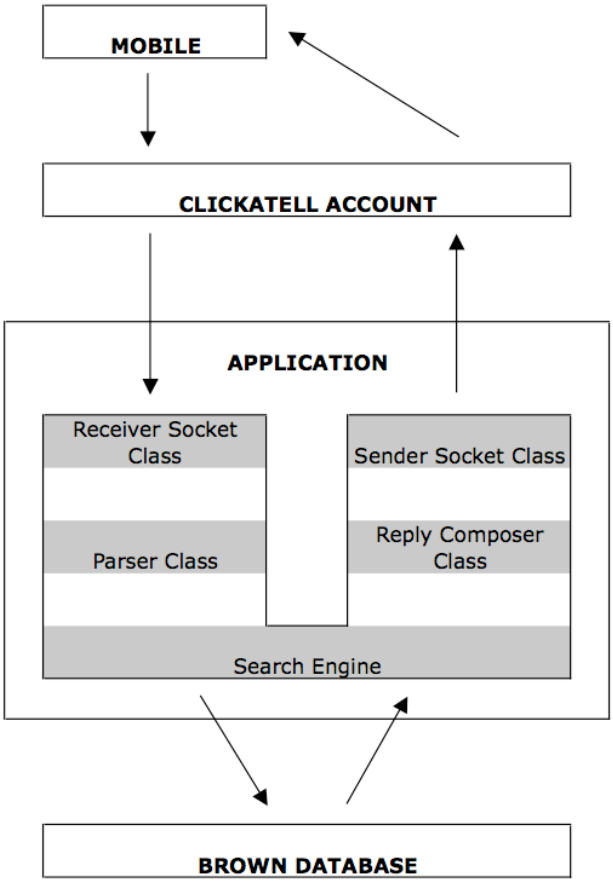
CS 190 – Project Specification Document

Brown SMS People Finder

1. Description

The SMS Brown Directory Search is a service that allows users with a mobile phone to access and search Brown's people database the same way they can through the Brown website's search field. This service would be useful whenever access to the internet is difficult. For example, a student on a trip can find a professor's phone number by sending a text message with the professor's name to the Brown SMS number, and call the professor to ask for an extension. When a mobile user sends a text message to the designated number, an SMS gateway company forwards the contents over a protocol of our choice to our application. This application, which is the central part of the project, is responsible for parsing the message, searching the brown database, and sending the matches back to the mobile user through the same SMS gateway.

2. System Model Diagram



3. Component Description

- Receiver Socket Class: This class is exclusively responsible of listening on a specified port for a connection. Once a connection is opened between our application and the SMS gateway, this class will read the received message and store it in a string object to be passed to the parser.
- Parser Class: This class parses the message from the mobile. It there are multiple words in the message, it will separate them and create a linked list.
- Search Engine: This class receives the keywords from the parser and searches the Brown directory for matches. For each match, it creates an object containing all of the person's information.
- Reply Composer Class: This class receives the match objects from the search engine class, and creates a single string consisting of the full reply message formatted properly.
- Sender Socket Class: This class takes the reply string and converts it into a buffer. It opens a socket connection with the SMS gateway and sends the reply out.

4. User Interface Diagram

NA

5. User Interface Description

The user interface of this application is simply the message field of any mobile phone, which accepts plain text, as well as presentation of the received reply message.

6. Non-Functional Requirements

- Based on experience with similar services, I believe realistic performance goal would be to have a maximum delay of 2 minutes between the time a search message is sent from a mobile phone until he time the corresponding reply is received.
- In addition to minimizing frequency of crashes, redundancy should be implemented. Possibly set up a backup server or design an assistant application that reboots the server in case of failure.
- Provide a website with thorough instructions of use of SMS server.
- Despite our efforts, a substantial degree of reliability and performance depends on the components in the line of communication that are outside our control, such as the Brown directory, the SMS gateway, and the mobile user's service provider.

7. Updated Requirements

- High Priority
    - Mobile user can search for multiple keywords
    - Application can return multiple matches

    - Format of the reply SMS is easy to understand
    - A mobile user can send a predefined keyword to receive instructions for using the service

- Medium Priority
    - Application somehow has the ability to recover from a crash. This could be implemented as a separate program that can kill and restart the main application if it determines that it has crashed

- Low Priority
    - Mobile user can request an advanced search, corresponding to the advanced search on Brown's website
    - Application employs a non-blocking architecture, meaning that it can process multiple requests at once