CS190 Project Requirements Proposal

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1   Project Name

The name of the project is Birch. It is not an acronym for anything. Rather, it is a play on Pine and Elm, two popular email clients on Unix systems.

2   Background

This project seeks to address the following two major problems:

- There is a general lack of GUI-based mainstream email clients on Unix systems. While this can be attributed to the general culture of Unix users, newbies getting started on such systems will find it intimidating to have to use a completely unfamiliar interface to such basic functionality as sending and receiving email. In addition, experienced users will find the features of GUI-based email clients useful, such as being able to view more than one message simultaneously in multiple windows.

  In order to appeal to both new users and experts, such email client will have to seek a reasonable middle ground between the text-based, keyboard-driven interfaces, such as that of Pine, and the gratuitous use of WIMP-based interface seen in the current Microsoft and Netscape email clients.

- The mailbox folder paradigm used in most popular mailers today encounter problems when used in conjunction with the filtering mechanism available in many email clients. Usually, filtering works by moving messages that fit certain conditions into another mail folder. This scheme breaks down when a message meet the condition of several filters simultaneously. For example, a message from John Doe regarding the CS190 project may fit the filters "all mail from John@doe.com", "all messages with cs190 in the subject", and "all messages in the past two days". In such cases a copy of the message will be created in all folders that the message needs to be rerouted to.

  An approach that is being taken by several recent email clients is to treat the user's mailbox as one large database. Users will specify filters that will display all messages that meet the filter condition. In addition, users can cross-reference a single message from several filters, and be able to combine existing filters to create a new filter.

3   Data Flow

An extremely simple diagram demonstrates the data flow in the program. As stated, the user's mailbox is treated as one large database from which the user can send and receive mail. The large

database is labeled in the diagram as the "repository." The box outlining the repository indicates the application of filters to the database.
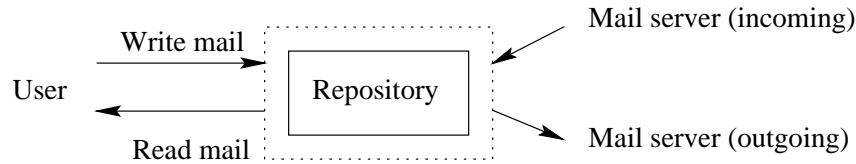
4 Project Requirements

The following is the proposed set of requirements that this project will meet. Each item is followed by its priority.

4.1 Basic Email Functionality

- Edit and view messages (high)

- Send and receive messages, interacting with the popular protocols for sending and receiving email. Unix mailspool, Sendmail, POP and SMTP seem like good minimal choices to support, although this issue needs further investigation at this point. (high)

- Save messages and mailbox to disk (high)

- Allow users to import existing mail files or make the mailbox file format compatible with popular email software (mid-low)

- File attachments (low)

- HTML mail (when Hell freezes over)

4.2 Filters and Message Display

- Filter messages according to user-defined conditions and list the messages (high)

- Allow the user to combine multiple filters (high)

- Sort messages in order of date, subject, author, etc. (mid)

- Let the user define priorities for sort order. ex: first sort according to date, then subject, then, author, etc. (mid)

- Support message threading. Can be simulated through filters? (low)

4.3 User Interface

- Present a minimal GUI to the functionality listed above (high)

- Offer extensive keyboard shortcuts for expert users (high)

- Offer keyboard shortcuts that are compatible with existing software, or allow the user to define their own keyboard shortcuts (mid)

- Allow the user to customize their GUI (low)

- Offer alternative GUI that is compatible in appearance and function to other popular mailers such as Netscape mail (low)

5 Hardware and OS Requirements

- Solaris on the UltraSparc in the Sun Lab and the CS department machines

- TCP/IP connection

- Memory and storage requirement is yet to be determined, but it will run on the machines in the Sun Lab.