Neil Rafferty - *B0045175*

Initial Report

Multi-Email Management System

Peer Group: *6*
Mentor: *Dr. Ian McChesney*
Deadline: *Friday the 28th of October 2016*

Content .

Introduction

Email messaging connects over 2.5 billion people world-wide *(Radicati Group Inc., 2015)* and still continues to be the leading method of business communication today *(Radicati Group Inc., 2016)*. However, after continual use an email address will eventually fall into unwanted hands. Third parties who obtain our email addresses can spam us with marketing emails, they can spam us with dangerous phishing and malware attacks, they can build online profiles about us (sharing and selling our information) and they may even have the ability to hack into our accounts.

This project will attempt to address the issue through the development of a new type of email service. The concept behind the service is that it will manage a large amount of email addresses for each user, one per contact. This way the user will have the ability to delete unwanted contacts permanently and identify where third party spammers retrieved their contact information. In addition to this, the service has the potential to increase user privacy and security online. This is because the user would disclose a private username for authentication rather than a public email address and only the domain (which would potentially be utilised by multiple people) would link a users' varied addresses.

Aim

To create an innovative, reliable, secure and user-friendly client/server email service that gives users more control over their contact information than conventional email.

Objectives

- Create a basic client/server email service.
- Alter the service to allow users to manage multiple addresses.
- Add functionality to quickly generate email addresses and link them to a given contact.
- Allow users to report contacts on a public board for a range of offences.
- Add more common email features.

High Level Requirements .

The following requirements have been gathered by using common knowledge of email services, referring to a previous email requirement documentation (Office of Information Technology, 2007) and through brainstorming sessions. The requirements are separated into four categories. The first are the minimum viable product requirements. These requirements are the highest priority requirements because if they are not delivered they will jeopardise the success of this project. The delight requirements, in this case, are all features that revolve around the concept of managing multiple email addresses per user. The additional requirements are common emailing features that are not necessary to implement a MVP. Because they are neither necessary for creating a MVP nor do they revolve around the main concept of the project they will be designated with a lower priority. And finally the non-functional requirements set an extremely low benchmark to ensure that the system operates reliably during the demonstration. Unfortunately, due to the nature of using multiple email addresses using third party email clients will not be possible.

MVP Requirements:

- A user must be able to register on the web site.
- There must be a secure log in capability.
- The application must have a change and recover password capability.
- Users must be able to view received email messages online.
- Users must be able to send emails to any valid email address (this must be from the relative linked email address).
- There must be a contact directory.
- There must be an email generating tool that stores recipient's details (with the linked address) in the contacts directory.
- Users must be able to delete an email address from their collection.
- A user must be able to create multiple email addresses linked to their account.

Delight Requirements:

- Users should be able to flag contacts that have committed range a of offences.
- Smartphone apps could be created to copy a newly generated email address into a users' clipboard.
- A browser extension could be added to automatically enter a new email address into online forms.

- The browser extension could also notify users when they are supplying details to a reported contact.
- A user should be able to unfollow or hide a contact without deleting the linking email address or messages.
- There could be an option to only accept emails from specific addresses or domains within each user address.

Additional Requirements:

- The user should be notified when they receive an email.
- A spam filter could be applied to remove spam from the inbox.
- Emails could be scanned for virus and malware.
- An email search tool could enable users to search through email content.
- Auto respond capability/forward capability.
- The user should be able to send emails to multiple users at once.
- Attachments could be sent using directory selection and/or drag-and-drop capability.
- Attachments could be previewed on the site.
- Two factor authentication could be implemented.
- The web-client should display if the mail has been read or replied too.
- An administrator should be able to ban or delete accounts.
- Administrator actions should be recorded.
- Users should be able to save/delete/send drafts.
- Users should be able to delete emails.
- Contact aliases could be used.
- A calendar/scheduling system could be implemented.

Non-functional Requirements:

- Sent emails should be received within 5 minutes.
- Each user account should store at least 500MB of email information with a set upper limit.
- The email service should support a minimum of 10 users with 10 email addresses each.
- Data must be backed up.
- Server should be hosted on a cloud environment.
- Timeout disconnects of five minutes could be set for idle clients.

Competition

There are many disposable email services online but few of them are tailored towards continued use. Here is an outline of two competing products that were found.

Instant Email Address *(Figure 1)* is an Android app that allows the management of quickly generated emails. Being an android app as opposed to a web-app means that it will only work on the android platform. However, this means that Instant Email Address can make use of push-notifications.

Spamex *(Figure 2)* is hosted on a website and therefore can be accessed on multiple platforms. The website will forward emails received by a users' spamex email addresses to the user's external email address. It will also forward user replies to the original correspondent. However, this means that the email management tool is separate from other email functionality making it inefficient for users.

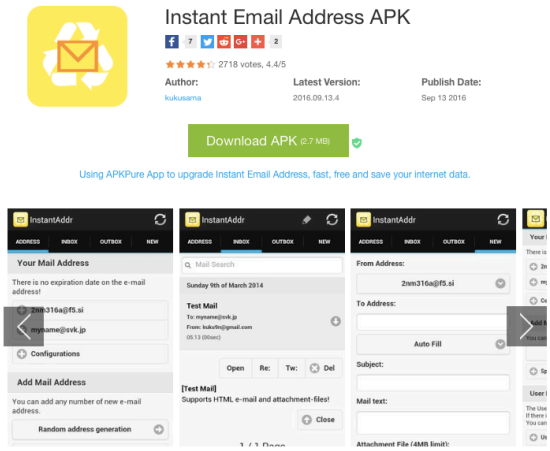

Figure 1: Instant Email Address on the Play Store.

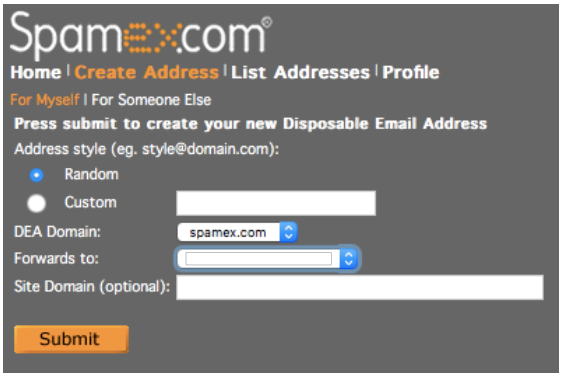

Figure 2: Spamex User Interface.

This project is different from the competition as it forces the linking of contacts with a unique email address supplied to only them. Doing this will afford the project the potential to provide some interesting features. As a side note, spam filtering and features like Outlooks' Clutter and inbox ruling could be considered competition for this project. However, there is no reason why similar features could not be incorporated into a future release of this product, in turn, making it more effective.

Project Life-Cycle

Due to the current lack of technical knowledge with regards to email hosting this project carries a certain level of risk. To reduce this risk and help ensure that a working MVP is produced for the projects demonstration, an incremental software process will be used during development. This will reduce time on spent planning features that may not be implemented within the projects initial time-scale. The spiral methodology was considered and it was therefore decided to prioritise the most risky and essential features. However, a custom life-cycle has been chosen to develop this project *(Figure 3)*. It is similar to scrum, however, it has been created for individual project development.

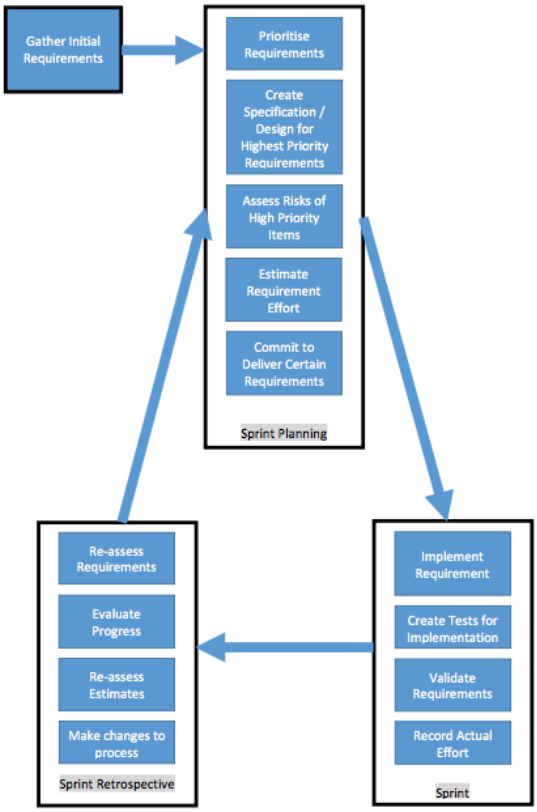

Figure 3: Project Life-Cycle.

Project Plan

This project is going to consist of three or more sprints. Each sprint will last four weeks and will consist of no less than 30 hours of work. The layout of which is shown in figures 3 and 4.

Prioritising Requirements:
Items of work needed to create the MVP will be completed first. Then surveys will be used to gather user delight and annoyance factors towards a feature being delivered and not being delivered respectively. A calculation will then use this information along with the developer effort estimates to assess the priority of the remaining features. This calculation will place more value on the delight and effort factors than the annoyance factor.

Estimates:
Estimates will be made using story points in a Fibonacci sequence in the sprint planning phase. During development estimates may be changed by the developer but a reason will need to be recorded reflecting why. Actual time will be recorded during development and the average amount of time per story point will be recorded at the end of each sprint. This should help the developer decide how much to commit to during the subsequent sprint.

Work Item:
A work item will be created for each requirement being brought into the sprint and backlog. Each work item will outline a more detailed description of the requirement, testing criteria and relevant system and user interface designs. The item will be moved through a Kanban board until it is designated as done. The work item may be altered by the developer at any time as long as the original is recorded with a reason.

At the end of the sprint the developer will make a list of things that went well, went poorly and thinks that could be changed. This will be discussed with the project mentor who in turn will help decide if a change will be implemented or not. The developer may add new requirements to the project. However, these new requirements will need to be of high priority to be brought into the sprint.

Tasks	Start Date	Days To Complete
Sprint 1	10-Nov	28
Sprint 2	13-Dec	28
Sprint 3	10-Jan	28
Sprint 4	07-Feb	28
Sprint 1 - Planning	10-Nov	2
Sprint 1 - Development	12-Nov	24
Sprint 1 - Retrospective	06-Dec	2
Sprint 2 - Planning	13-Dec	2
Sprint 2 - Development	15-Dec	24
Sprint 2 - Retrospective	08-Jan	2
Sprint 3 - Planning	10-Jan	2
Sprint 3 - Development	12-Jan	24
Sprint 3 - Retrospective	05-Feb	2
Sprint 4 - Planning	07-Feb	2
Sprint 4 - Development	09-Feb	24
Sprint 4 - Retrospective	05-Mar	2

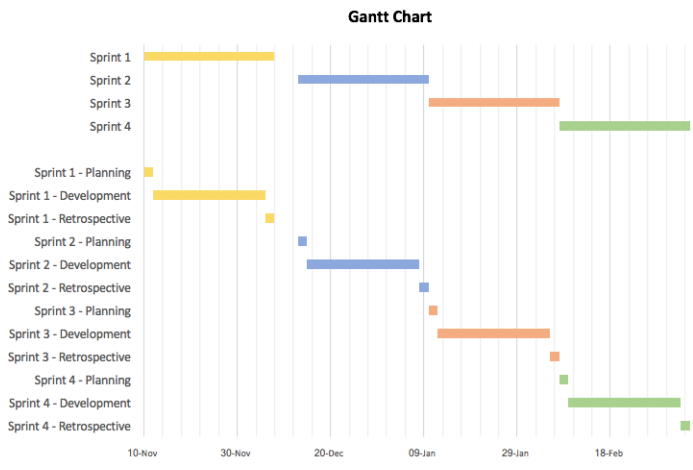

Figure 4: Gantt Chart

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PROJECT RISK ASSESSMENT - HAZARD CHECKLIST – 2015 / 16

School of Computing and Mathematics.

Student Name: (Capitals) **NEIL RAFFERTY**

Student Registration Number:

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Course of Study: **BEng (Hons) Software Engineering**

Name of Supervisor: **Dr Ian Mc Chesney**

Does any of the work carried out by the project result in staff or students being exposed at any time to hazards associated with the following? (Place an 'X' in the appropriate box).

If you indicate **YES** against a category please complete the relevant risk assessment record form from the University Health and Safety site. These should be completed for each hazard identified. All forms and guidance are available via: http://www.ulster.ac.uk/hr/healthandsafety/

NATURE OF HAZARD:	YES	NO
MANUAL HANDLING (Movement of Computers etc.)		X
PORTABLE HAND TOOLS		X
LIQUIDS		X
EXPOSED ELECTRICAL CIRCUTRY		X
NON STANDARD DISPLAY SCREEN EQUIPMENT		X
UNUSUAL WORKING ENVIRONMENT (in terms of temperature, lighting, noise, vibration, seating…)		X
PROJECT ACTIVITY OFF CAMPUS		X
ANY OTHER NOT LISTED ABOVE Please give details below of any other identified hazards _____ _____ _____		X

SUPERVISOR Signature Ian McChesney **DATE:** 27/10/16