Carlos Filoteo
IS 520

Final Project Write-up

Executive Summary

I wanted to be able to solve a problem that BYU Clubs face due to lack of availability of tools as much as disorganization. During club events, club leaders have to find a way to track who is and isn't a member of their club, and aggregate those numbers in order to know total attendance. Since many clubs have a limited budget, having many "freeloading" participants may prevent them from being able to organize additional events due to lack of funds. Knowing attendance values is as useful to the club itself as it is to recruiters and each department's respective career centers. Unfortunately, BYU doesn't enable this data gathering in any way.
I think this can be solved by automating member check-in during these club activities. My application will allow a club to import their list of club members and check them in; and be able to reach out to gather information from prospective members who are visiting a club event without being a current member in order to send them information about the club such as benefits, upcoming activities, and how to join. I wanted to make the interface as easy to use as possible for club leaders so that they can focus on their roles as leaders, as well as quick in order to field a lot of people effectively. Once all of this data is gathered, it is trivial to aggregate the values and provide them as a report for accountability.

Implementation

The major components of the application that I focused on were:

1. Create Ribbon menu items for easy access to app functions
2. Automatically download CSV file of members
    a. Sign into BYU's central authentication system (CAS)
    b. Navigate to the Club selection page
        i. If an individual is a leader for more than one page, they should be able to select which club list to download
    c. Download membership list as a CSV file
    d. Import the CSV file for use

3. Allow members to check in
    a. Members can search by their Net ID to check in
4. Allow tracking of visitors
    a. Once a Net ID is found, they can register their number of guests or +1s
5. The application will store check in status and number of guests
6. Allow reaching out to visitors in order to persuade them to join the club
    a. Visitors can provide their
        i. name
        ii. net ID
        iii. Email address OR phone number
    b. Send an email or text with club signup information
7. Once check in is complete, provide visual but unobstructive feedback
    a. This was accomplished by creating an popup box that was automatically dismissed after 3 seconds if the user did not close it manually

Learning and Conceptual Difficulties

Problem 1: Obtain CSV file

The data for clubs for the Marriott School is managed independently and is in a separate database. It is accessed by going to marriottschool.byu.edu/clubs/admin and navigating the various menus in order to access. The direct URL for the page that generates a CSV file of club members is marriottschool.byu.edu/clubs/admin/download but by observing the URL, it is not encoded with any values. Instead, the page uses Javascript to create a CSV file that is then downloaded by the browser. This is poor practice and creates a series of pages that are not usable with VBA automation. I spent about 3 total hours trying everything to be able to get the file programmatically. I got as far as being able to authenticate a user, get to the page, and initiate the download, but I could not find any method to access the Internet Explorer controls for the “Save” button. An alternative would have been to scrape the page, except that there were approximately 10 pages, all controlled by internal query parameters what would not have been easy to control.

In order to account for this lack of functionality, I instead implemented an “Import from CSV file” feature so that the list can be downloaded manually and the data can be read into the workbook. This required finding out how to handle importing a comma separated file, which

surprisingly cannot be done with any built in functions. The solution for this was quite simple and very performant with my dataset of ~200 users.

Problem 2: Autocomplete

In web development, a text field that automatically completes when it matches a term in a set is extremely easy. In VBA, not so much. In fact, the only solution I found through research was to use a combobox, something that didn't make a whole lot of sense to me. Once I got that working, I thought it would be great to add a dynamic "welcome" message that included the member's name so that they have visual confirmation that their Net ID is in the system. Designing the interface to do this is a little tricky, but made for a great user experience so that the member knew that they were in fact in the system.

Assistance

I did not receive any major assistance from anyone.

Additional Notes

1. Sending emails/SMS messages requires authentication, and those values have been removed from the worksheet. For testing, you may need to provide your own credentials to a Gmail account.
2. User data was randomly generated by Mockaroo (https://www.mockaroo.com/) and does not contain any real persons' data from any BYU Club.