Technical Report
Assignment 4: Asynchronous Updates (AJAX)

IAT352: Internet Computing Technologies

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Function Requirements

All the functional requirements are included in this project, as follow:

1. A user can view blogs
    1.1. by timeline/news (displaying all blogs sort by time in descending order)
    1.2. by schools (displaying all blogs posted by users who attended that specific high school)
    1.3. by categories (displaying all blogs categorized in one of the four, None, Design, Media Arts, Interactive System, category.)
    1.4. by hash tags [bonus feature]

2. A user can enlarge the twitter, Flickr, or blog panel in order to view more while viewing a specific member.

3. Blog posts, tweets, and Flickr images refresh automatically in the view-member page.

4. A user can view other members' information, including the members' high school, email address, phone number, and description. He can also select and view a specific member's posts.

5. A users can register an account
    5.1. As visitor
    5.2. As SIAT student / graduate

6. A user can modify his account.

7. All registered members (visitor and SIAT student/graduate) can edit their account information.

8. All registered members can following members and view blogs that posted by the members they are following.

9. All SIAT students / graduates can post a blog. There are title and text fields. They can also categorize a blog and tag it with hash tags.

Design

The purpose of the application is to connect the Simon Fraser University School of Interactive Arts and Technology (SIAT) program faculty members with potential high school students and parents, and integrating social media in the application is essential enhancing visitors' understanding about the SIAT program as well as the members' works and lives. Flickr and twitter are the two social media I decided to integrate.

In order to connect the application with member's tweets and Flick images, the members have to provide the corresponding information to the application somehow. The register and edit account pages are modified and divided into three parts. The first part is the required account information that both visitors and SIAT faculty members have to complete; the second and third parts are for SIAT faculty members to optionally provide more detailed personal information and social media accounts.

As faculty members can optionally provide Flickr and twitter information, this implies that not all members are having their Flickr and Twitter connected to the application. The implemented Flickr and twitter icons will appear on an individual member's page if the corresponding information is provided. Users can click on the buttons and the posts that displayed in the blog content panel by default will change dynamically to display that member's tweets or Flickr images. I tweaked the layout of the application and attempted to provide a consistent design for the tweet, Flick image, and the blog panels. The simplicity of the design makes the application more engaging and welcome than the previous version. In the future, I would also integrate javascript lightbox into the application so that users can effortlessly click and enlarge a chosen Flickr image inside the application instead of having the image opened up in a new tab.

Implementation

This project uses variety of web development technology. Languages, such as HTML, CSS, PHP, JavaScript, are used to develop this system. Beside the presentation layer, a database is designed and built in order to persist data of this system. Queries are generated dynamically according to the client's interactions and customizations to populate dynamic data from the database. AJAX is also implemented to refresh and update users' blogs, tweets, and Flickr images in real-time in order enhance the client's experience of using this system by reducing their frustrations as a click to refresh the system is no longer required.

Two columns, "user_twitter" and "user_flickr", were added to the modified database in order to store the users' social media account usernames in the second iteration. Both twitter and Flickr APIs require the developer's API keys. The "dbinfo" folder is renamed to "config" to store these private data with the database connection private data securely.

In order to keep the project clean and organized, I did not merely implement the twitter and Flickr connection codes in the "view-member.php", and instead I slightly modified it. I created the "view-member-flickr.php" and "view-member-twitter.php" files and have them included in the "view-member.php". I added and $content and $socialMediaName parameters that can be parsed into the "view-member.php" page, and the corresponding page (twitter, Flickr, or none) is included only if it is requested by the user by clicking on the corresponding icons. In this way, the twitter or Flickr screen name parsed into the "view-member-flickr.php" and "view-member-twitter.php" pages can be updated dynamically.

For twitter connection, I used open source codebird. It is fairly easy to implement as the only things to specify are the user's screen name and the number of tweets to fetch from that user to make a call. The data is returned in JSON and by using the json_decoder codebird function and I initially used a simple for loop to retrieve and display date and tweet content. However in the final interaction, I converted the retrieved JSON object to XML document instead of displaying directly from JSON, as my client requested.

It is similar for Flickr connection, however the parsed social media name parameter is used to dynamically generate a URL that is used to make a call to flickr requesting for a specify member's image data returned in an XML format,

on the fly. **The xml is read by the** simplexml_load_file function. With the use of a for loop and two functions [photo_url() and flickr_page_url()] the Flickr images are displayed in the application. (Note: the photo_url() function is used to generate a thumbnail image and the flickr_page_url() function is used to generate an original size image that the user will be directed to if the thumbnail image is clicked)

AJAX is also implemented so that blog posts, tweets, and Flickr images are refreshed automatically. JavaScript is used in order to do this.