INFS3202

Group Assignment

Matthew Langford
43596135

Overview

The Royal Brisbane Women's Hospital Milk Bank is a repository for breast milk that accepts donations from the community to provide milk for babies in situation where their mothers' is not available. An important part of this process is to screen donors for any factors which may cause harm to those receiving their donations, including any medications they may be taking.

Currently this involves searching a physical list of medications approved by the Therapeutic Goods Administration and making a case by case decision on whether not a donation can be accepted.

Aim

The aim of the project was to create web information system that allows staff members at the milk bank to search a medication either by name or ingredient and quickly determine whether or not it has been approved for donations by an administrative user.

Approach

My approach to the project was to use a web interface connected to a database backend containing a current list medications, core information about them (name, dosage, half life, stand down time and ingredients) and whether or not they are approved for donations. This format was ideal for a number of reasons:

- It provides staff access through the familiar platform of a web interface.
- The details stored are limited to only the information pertinent to the Milk Bank.
- It allows staff to quickly make decisions on individual donations.
- New medications can easily be added to the system by both administrators and users.

Implementation

The final design is broken up in to six main sections:

Login

The login page features a link to the account creation page and an input box for a username and password, the values of which are sent to the search page for verification when the user submits them.

Account Creation

The account creation page features a simple form for creating a new account. Users must enter their username, email, password and repeated password and submit these for validation. The system checks to ensure the entered details meets all requirements (unique username, matching passwords, valid email etc.) and adds them to the system if they do. However, new users must be approved by an administrative user before being granted access to the system.

Search

The search page serves two major purposes:

- It performs the initial user validation using the values from the login page creating a new session for the user.
- It provides the main interface for accessing the list of medications.

The search form in the centre of the page uses a live search to poll the database for possible search terms based on its current value. Then when the user submits this form, its value is sent to the results page.

Results

The results page carries over the functionality of the search page, again using a live search and sending the submitted value to a new instance of the results page. It also searches the database and returns any medications matching or similar to any of the search terms and displays these in a table.

Assuming the user's previous search returned one or more results, users can then request any subset of these be listed as approved for use.

Add a Medication

This feature can be accessed by all approved users and gives them a way to add new medications to the system as the become available. A form accepts values for each of the fields in the medications table and inserts these as a new entry in the database. These do not automatically get added to the public list of medications available in the search page, first requiring approval from the administrative user.

Approval

The user and medication approval pages follow largely the same process, providing a list of users/medications that are awaiting approval and allowing the user to approve any subset of these. These pages are only available to the administrative user.

Implementation

The implementation uses a combination of the following technologies:

HTML and CSS

The layout and styling of the page was done using HTML and CSS

SQL

SQL was used to interact with the backend database using 'CRUD'. Prepared statements where used to ensure the database remains safe from SQLi injection attacks.

PHP

The bulk of the functionality was achieved through the use of PHP including the login, user creation and search features. PHP's inbuilt hashing algorithms were used to ensure the security of stored passwords and SESSION and POST variables were used to securely send and store data between pages.

JavaScript

JavaScript was used to implement the live search functionality using AJAX to search for possible results and show them to the user without refreshing the current page. Additionally, the JQuery library was used for some final elements of the styling, fading in the content of each page as it loads giving the overall site a cleaner finish.

Outcome

Overall the result was a success, all of the features outlined in the project proposal and specified by the client were completed, as well as some additional functionality and features.

The main difficulties encountered came when I had to interweave HTML and PHP code and getting the syntax correct. To simplify this, I first wrote the the HTML code separately, then moved it inside the PHP script, making sure to add any necessary escape characters.

Another challenge was writing and testing code in PHP when errors in such code are hard to identify as it is run on the server. To overcome this, I turned on PHP error reporting and used print debugging.

However, there are some items that were overlooked in the project proposal that could have produced a more finished result. The lack of mobile implementation and responsiveness was noticeable and despite not being an explicit request from the client, this would have been an easy improvement to the design.

There were also a number of features not mentioned in the proposal that came up during the development process that were not fully implement due to time restrictions. Most notably, the password reset functionality, which was incorporated into the user creation page design was left unfinished both because of its overall complexity and because of its was not an assessable item. Other items such as a method of removing drugs that have already been approved, a method to remove users and extended capabilities for the administrative user were also left out of the final design.