**Outstanding Issues and Further Improvements**

Here we will lay out some of the issues that were not completed during the Spring 2017 semester, as well as provide some suggestions on future work to be done.

**Outstanding Issues**

The primary focus of the semester was to get the website migrated onto PHP and MySQL, so that it could be deployed using a MAMP/WAMP/LAMP stack architecture. In this regard, we were mostly successful, though it took basically the entire work period to do so, and not all pages were successfully finished.

The below outstanding issues are listed in general order of importance from the developer’s perspective, but Dr. Patel/stakeholders would have final say in which of these issues are of the most importance.

1. Finish the three pages that were not fully implemented. These should not actually take that long. You can check the code for what existed on the Google App Engine in the previous version file tree. Use those to guide how the HTML should be in the PHP files, and update the conditionals to be handled by PHP. New functions will need to be added to the functions.php file to handle retrieving data from the database. Most of the existing pages on the site should be able to give examples of how this can be done.
   1. review\_my\_questions.php
   2. review\_new\_questions.php
   3. review\_old\_questions.php
2. Create a page to review flagged questions in the database. In fact, getting some clear requirements of what pages are needed and what functionality they might need would be a good idea.
3. Thoroughly test the site on mobile. This can be done from Google Chrome by inspecting the page, then clicking the Toggle Device button. This should have been a higher priority for us, but like I said, the PHP migration was long and difficult.
4. Fix an issue with the Flag Question button. The button is disabled if a user already flagged the question they are on, but the disable icon does not show when the mouse hovers over the flag button.
5. Implement the ability to delete a category on the review\_categories.php page. The database has been set up with back up tables, but the delete functionality was not hooked up to the site. Note – because of foreign key constraints, deleting a category will mean deleting all quizzes for that category, all questions for those quizzes, all answers for those questions, all records of answers from the user log, etc.
6. Test the ability to add images to questions. This functionality was implemented for profile, but not tested for questions.

**Further Improvements**

Here are some suggestions of ways to improve the site.

1. Update all alert popup windows to have a similar look and feel to the modals used for the other popups in the page. For example, when you change a password, this is what you see. but it would be nice to see a modal popup that matched the aesthetic style of the page better.
2. Along the same lines as number 1, make the more generic buttons on the site look better. These include the start quiz button on the select quiz page and all of the buttons on the manage users page.
3. Improvements to the user account system
   1. Password recovery functionality.
   2. Email user to verify they created an account.
   3. Ability to view other user’s profiles.
4. Test and improve all validations done on the page. There is basic validation performed used Javascript on most of the forms on the site, and it works ok, but it needs thorough testing and there is much room for improvement.
5. Prevent possibility of email spam by constant flagging of questions of issuing of bug reports.
6. Change the admin\_email\_addresses table to a more generic admin\_settings table. You can just store key-value pairs for some admin settings in this table. This is currently what it is doing, but the only things it stores are email addresses.
7. Examine the possibility of moving some of the database functionality out of functions.php and into stored procedures on the database. For example, instead of building a query in the PHP function, you could have a stored procedure build the query and return the data. The advantage to this is that you would be able to update the application without redeploying PHP code. The function would simply call the same stored procedure.
8. Remove inline stylings from some of the PHP functions that build HTML. See navbar, dropdown and play button functions in functions.php. We removed nearly all of the inline styles from the PHP code and separated to their own CSS files. Note – some of the Javascript code does manipulate styles, so inspecting the page will still show some of them as being inline.
9. General updates to UI to improve looks, streamline responsiveness, make the look more coherent in general.
10. Handle cases where the answers are too long to fit neatly in the answer bubbles. We were able to get text to wrap, but still doesn’t look fantastic.