Criteria A – Planning

A1. The problem

Ms. Szeto, a high school economics teacher in Hong Kong, is the client. She is presently a teacher of economics who teaches five classes to students in grades 10 to 12. She needs help with collecting and analyzing the assignments that students submit. Many of the students she teaches frequently turn in late assignments. Additionally, it is tedious and difficult to analyze student performance and then present it to each student individually. She hopes there is a tool that can address all these issues at once and help all her colleagues with similar issues.

After several consultations, I found that the online homework system that she was using had limited ability to analyze student performance, so I suggested developing a new system. Unlike the one that she was using, the new system not only provides a place for teachers to assign and gather students' work but also enables in-depth evaluation and analysis to be conducted. Students can view their performance in their work intuitively by using charts and diagrams. Additionally, to address Ms. Szeto's need, the system can send notifications to students to remind them to turn in their work on time.

A2. Justification for solution

To enable efficient analyzing, the system will utilize tags effectively. Teachers and students can identify and categorize different question types based on their personal preferences. The analysis carried out in accordance with the selected tags will be presented using charts. In this way, the main goal of the system can be fulfilled successfully.

PHP is the system's back-end programming language. It is preferred for the situation for several reasons. Most importantly, PHP has a sizable community that greatly supports and advances the system's development. Development complexity is significantly reduced as a result. In addition, my advisor knows PHP better than other languages. Thus, PHP enabled my advisor and I to communicate more effectively, which decreased the time needed for development.

The system's framework is decided to be CodeIgniter. The MVC-based system, in addition to having community support, allows for a high degree of encapsulation and ease of maintenance because "Model," "View," and "Controller" are each separate from one another.

A3. Successful Criteria

- **All Users**
  1. All users are able to log in with their Google accounts

- **Teachers and Students**
  2. The system can recognize which classes the user is in
  3. To-do list is correctly shown, and rows can be clicked to redirect user to the corresponding page
  4. All charts and analyses are correctly presented and up-to-date
  5. Custom tags can be attached to questions
  6. Charts and analyses can be customized by selecting tags

- **Teachers**
  7. Teacher can create and assign work to student
  8. Teacher can assess student's work, post marking scheme and give comment

- **Students**
  9. Student can work on and submit the assignment that is assigned
  10. Student can access the marked assignment, posted marking scheme and comment
  11. If student fail to submit their work on time, student will be reminded

- **Admin**
  12. Admin can add/remove users and classes
  13. Admin can add/remove students and teachers to/from a class