Criteria A: Planning

Defining the Problem

My client is Kelly Hsu, the president of the United States Academic Decathlon Club (a.k.a. QHAPPY) in my school. USAD is a competition that tests students in 10 subjects. In a team, there are Varsity, Scholastic, and Honor academic groups. Each group could only be consisted of 2-3 students.

Every year since September when the guiding materials are released, the club would start to prepare for the competition until February of the next year through reading the resource guides, taking quizzes, and holding knowledge bowls. Kelly establishes a point system to motivate members with rewards for the leaders of the scoreboard. For club members, scoring the highest in a quiz would gain them 5 points, while finishing a resource guide would earn themselves 3, and winning a knowledge bowl would grant them 8 (see in Appendix_1(Interview).m4a).

However, currently, such a scoring system is still being operated by hand. Therefore, Kelly asked me to develop a digital system for it. In addition, Kelly also asked me to further implement an overall club management application so that she as the president could also manage the clubs through the system in terms of assigning academic groups, adding new members, and starting a new season and that the members of the club could view and update their real-time learning progresses and rankings (see in Appendix_1(Interview).m4a), while the team leaders should have access to all his/her

members' progresses. Being the technician in the club, I decided to help her out. For this project, my advisor is Mr. Sandeep Raut, my Computer Science teacher.

The Rationale for the Proposed Solution

I decided to help with Kelly as I have also been a member of the USAD club and enjoyed how the club could bring an eye-opening learning experience with the different subject I could study. I want to help Kelly to better run the club and spread this joy of learning.

I plan to use Java as the main language and my chosen IDE is NetBeans because this IDE contains a very user-friendly GUI design procedure. There are many ready-to-use components that is easy for the programmer to operate with and for the users to understand the functions of, which is very helpful in trying to program a system.

Java is also the coding language that I am the most familiar with. My work efficiency would be boosted significantly when coding with Java.

Additionally, I could use the embedded SQL functions through NetBeans. SQL commands are effective in storing and viewing real-time data. Since this project would require data storage, including points & learning progress, etc., this feature could be highly helpful. I would also have no need to install additional software for SQL to function, making the software more accessible.

Lastly, Java could also be effective because it would showcase all the problems in a stream of code for designers, making it easy to spot errors and debug and helping programmers to avoid wasting too much time on optimizing algorithm.

Success Criteria

1. The login window should be able to differentiate team leaders, team members, and administrators, and lead the users to their corresponding windows;
2. The administrators could create new accounts for new team members, manage the teams, and assign team leaders. An error message should pop up if the team or one of its groups has too much students;
3. Administrators could add a new test/knowledge bowl and input the result into the system, while the system would grant corresponding points to the members with the highest point;
4. On a team leader's window, the student may be able to view all of his/her team members' progresses;
5. Both the students and the administrators should be able to view real-time rankings;
6. Students could update their current progresses on reading the resource guides. The administrator should be able to click into a tab that can show each student's progress;
7. Club members' overall progress in reading the resource guides should be

presented in their window;

8. Proper error messages would pop up where necessary (e.g., the students are stating that they are reading onto a page number that exceeds the total page number, login failed, etc.)

Word Count: 489

Appendix

APPENDIX_1_Initial_Interview.m4a