Criterion A: Planning

Defining the problem

My client is a guidance counsellor at my school called Ms xx. She wants to use a more simpler and user-friendly timetable program to generate the timetables of high school students in our high school [1]. Although there is already an existing student timetable database program that the school uses to generate student timetables, she is interested in more student timetable programs because the existing program does not have some key features [1]. The student timetable program that my client wants is a program that generates a semestered timetable for a particular high school student with each semester consisting of 4 subjects. This program will possibly be used when our school switches from a quadmester schedule into a semestered schedule after the pandemic is over.

My advisor is a first-year computer science student at the University of Waterloo. He is an IB alumnus who is very knowledgeable in computer software and Java. Since I specialize in Java as well, I believe that he would be a great advisor for me during the progress of my project. My advisor also graduated from my school, so he would be knowledgeable about the courses that I want to include in my student timetable program.

Word Count: 199

[1] refer to Appendix A: "1st conversation with client"

Rationale for solution

My proposed solution is to create an Object-Oriented program using Java. I will be using the *Eclipse* IDE to code my solution because *Eclipse* is very helpful at pointing out errors in a program and proposing ways to resolve these errors.

The main reasons I chose to use Java are because:

- My computer science courses in school mainly teach Java
- I have 4 years of experience in Java. This experience mainly comes from solving competitive programming problems and game development

- Java provides many useful built-in classes, such as buttons, text fields, and menus
- Java provides a user-friendly interface
- Instances of the RandomAccessFile are easy to implement, allowing for the saving of the student's and teacher's information when the user exits the program.

I had a conversation with my advisor about the tools that I should use in my solution and the general layout of my solution [2]. In my solution, I will allow the client to add students and teachers. I will not be using a website because the user should be able to use the program without access to the internet by storing the data locally. A history page will be provided to allow my client to recover from making mistakes. For example, if a student is accidentally removed, that student can be added back into the database by looking at the student's info on the history page.

Word Count: 228

[2] refer to Appendix A: "1st conversation with advisor"

Success Criteria

1. Program will have a user-friendly login screen and allow the user to create only one account
2. Upon rebooting the program, all previous data that has been entered for the students and teachers will be saved
3. Adding a student to the program is done successfully
4. The editing of the student's completed and current courses are done successfully. For example, if a student does not have the prerequisites for a particular course, it is not possible for them to select that course
5. Generation of the student's timetable is done randomly
6. Sorting the list of students alphabetically is done successfully
7. Deletion of a student from the database is done successfully
8. Contact information for students and teachers are successfully displayed
9. Adding a teacher to the program is done successfully
10. Sorting the list of teachers is done successfully
11. Deletion of a teacher from the database is done successfully

12. History page correctly displays the history of actions that the user has taken
13. Warning messages are displayed for incorrect actions that the user has taken
14. The program should be simple to use
15. The program will cite all background images that are taken from the internet and used in the solution