Criterion A: Planning

**Defining the problem**

The client Mr. xx works as a dorm parent in an international boarding school. Every dinner, he has to carry a paper sheet to sign in every student to keep in track that they are all there. With other prefects, we notice that it is very inconvenient and a waste of paper to sign in students with a sheet every day. Moreover, it will be a waste of space to keep piles of sign in sheet to see the record of how many times the students have been late for at the end of the school year. With a chance to solve real problem with my knowledge in computer science, I decided to create a program with a user interface that can let students sign in with computer and keep the late data digitally.

I went to Mr. xx to be aware of what kind of features are needed for this sign-in program. Xx told me that he wants to use key fob as a media for student to sign in; however, as he understands that requires a program that connects to other peripheral devices, xx told me to let student input their student ID number to as the input to sign in.

I asked my computer science teacher about this idea and he agreed. Therefore, I decided to help xx by creating a sign-in software.

After talking to xx about what he is looking forward to this software, we agreed to create a program with three sections: for students to sign in, for dorm parents to access student’s accumulated late times, and for dorm parents to change student’s information. The list of students who are absent from the dinner after the end of sign-in section will be returned for dorm parents to see who is late.

Following my computer science teacher’s advice, I created a flow chart before actual coding to have a clearer picture of my software.

**Rationale for the proposed solution**

Java is the computer language that my school teaches, so I decided to use Java to write the program. Java allows me to make a user interface that will satisfy my client without over challenging my ability in coding. Moreover, java can be run on every platform which is an advantage if other dorm parents use platforms other than OS. Xx does not have any basic computer science skill, so it is better to make the program easy to manage and use. To give the most comfortable interface, Java gives the best solution by having the ability to create controls with ActionListener, JLabel, JButton, JTextField, and so on. As the program needs to be initiated with every student’s information first, I need to create a Student class to hold the information. It is also possible that with Scanner, I can then scan through a student.txt to input the parameters to create a Student object and store each Student object in a HashMap. Moreover, the student list and accumulated late time should be saved in file.

**Stating success criteria**

* The program should have three buttons/options on the home window: 1st -for students to sign in; 2nd – for dorm parents to get accumulated late times; 3rd – for dorm parents to change student information
* The program allows students to sign in by inputting student ID number
* If an invalid number is inputted, info message will appear on the screen
* The program allows xx to see a new window with a list of students who are absent when end the sign-in program
* The program allows xx to modify student’s information
* Xx can share to program with other dorm parents who are on duty that day
* There will be s student data base created by teacher to input as the information hold in Student class before the program starts
* The program allows the student’s accumulation late time digitally and easy to access and share among dorm parents

• In case of data entry errors, info messages will appear on the screen.