<u>Criterion A: Planning</u>

<u>Defining the problem:</u>

Mr. Brock is in charge of the student volunteers inside a school. The volunteers are mainly divided into: peer helpers, marketing helpers, and PE helpers. The peer helpers are students who have been studying in the school and are familiar with how the school operates, and new students will be assigned to them for assistance in order to adapt faster. The marketing helpers' responsibility is to take the visitors for a tour of the campus. The PE helpers are students who help with conducting sports events or activities.

Both the students and the visitors need to fill out a paper form in order to sign up for any of the three activities or send requests. The form from volunteers contains information such as name, age and gender, while the applicants need to fill out information such as identity and their needs. All the papers are directly sent to Mr. Brock for arrangement, whose job as a coordinator is to check all the requests and applications that he receives and do the pairing.

Mr. Brock is having trouble coordinating the forms that he received due to the inefficiency of the current system. For example, finding a peer helper for a new student requires him to fetch a helper in the same grade and have the same subject as the new student; a visitor needs to be paired with a marketing helper who shares the same free period and speaks the same languages, etc. Pairing volunteers and tasks is therefore a tedious and time consuming work since everything is on paper, and Mr. Brock has to either memorize or leave them spread out on the table. Thus, Mr. Brock frequently has a pile of unprocessed papers on his table, which makes it really untidy, and both the volunteers and the applicants have waited for a long time to be paired up. Sometimes papers get lost as well.

Mr. Brock wants a computer system that could organize applications and volunteers, and moreover accelerate the pairing process. Buying a ready-made system does not work because it is hard to find an existing system that could fulfill such a specific requirement, and it could be expensive.

Word count: 361

Rationale for the proposed solution:

I will be creating a Java program on NetBeans as a solution to Mr. Brock's problem. The advantage of using Java is that it is free and platform-independent, while NetBeans is a software with various functions very useful for designing the system. Java is also the language that I'm most skilled in so it is the optimal programming language for me.

This computer system will be much more efficient compared to Mr. Brock's current method of work. The data is stored electronically in the database so it doesn't take any physical space, while data stored in the computer system is no less compared to recording on paper. Meanwhile, the pairing process will become significantly more efficient since Mr. Brock doesn't need to read on paper anymore because the computer system will display everything, and it is very quick to switch to someone else's data compared to constantly flipping through paper materials. Mr. Brock can also use the filtering function to match the volunteers and applicants even faster. The matching results will be stored in the database after Mr. Brock presses a button. All these features make the computer system a much better organized method.

Word count: 194

Success criteria:

The program should contain:
1. An interface to login as a coordinator and the homepage is loaded. The homepage allows the coordinator to access the panels mentioned in the following points by integrating buttons and menu items
2. A panel that allows the coordinator to add a volunteer, and their basic information including but not limited to name, email address and grade level
    a. The panel should also classify the volunteers as peer helpers, marketing helpers and athletes. The page should include functions below:
        i. Peer helpers: subject strengths
        ii. Marketing helpers: available time slots, known languages
        iii. PE(athlete) helpers: what they can help with the sports events
    b. There should be a penal to allow the coordinator to change the information of a volunteer or delete a volunteer

3. A panel that allows the coordinator to add a new student of the school, including but not limited to information such as name, age, grade level and subject weaknesses

      a. A panel that allows the coordinator to edit or remove a student from the new student list

4. A panel that allows the coordinator to add data of visitors. The panel should include the visitor's name, phone number / email address, the required time period, the language they speak, etc.
   a. A panel that allows the coordinator to edit or delete an application if a visitor wants to make changes or cancel their visit
5. A panel that allows the coordinator to add a new sports event into the system, including what the sport is and number of volunteers needed for each section of the event
   a. A panel that allows the coordinator to edit or remove an event if any changes take place

6. A panel that allows the coordinator to select any applications and fetch the eligible volunteers. The panel saves the pairing if the coordinator presses a button to save
   a. A panel that allows the coordinator to check all the matching, mark a pair as complete, and modify or cancel the pairing if there's any adjustment or mistake
7. A panel to produce reports on the tasks done by the volunteers, for example, how many students a peer helper helped, how many tours did a marketing helper take, etc.
8. Appropriate error messages should be displayed whenever needed (for example, when the coordinator attempts to save invalid data such as a name containing numbers, the system should prevent the coordinator from doing so)