**PART A**

My client has recently founded a math club. As president of our school’s math club, he has a lot of members who rely on him to take care of their educational needs. Aydin has information about each student, including grades, exam scores, his own comments, etc. However, we have discussed that this information is vast and hard to keep organized. He has a binder that contains information on all his students, but it’s difficult for him to find the information he needs on any given day. Due to this, he often has trouble creating lessons that cater to the needs of all his students. This problem is exacerbated by the continued growth of the math club.

After discussing, the client has decided that he’d like an application that helps to keep track of information about his students, like proficiency in certain subjects and the classes they’re taking. He also wishes to be able to keep track of personal information as well. He wants to be able to go in and edit information about the students, as well as print reports containing all the information about a certain student. The reports should also allow him to include a personal evaluation. Furthermore, they should be well formatted and easy to understand, as he will be sharing them with students and parents. He should also be able to sort students by subject, scores, and other criteria. Lastly, he would like it to be on his laptop, as that is where he does most of his work.

Rationale:

The client and I have decided that a desktop application that includes an extensive database is the best way to meet the client’s needs. Considering the amount of information my client has, a well-organized database is the best way to meet his needs. We believe it would be best if this application is written primarily in Java. Java is a language that works well on desktops and has many frameworks useful for creating and managing databases. Additionally, Java is object-oriented. This is useful as we can create a class called “students” and give them attributes like grades, names, etc. This will make it easier to organize the program and manage complexity.

To create the databases, we will primarily be using Hibernate, an Object-Relational Mapping library. It not only offers some vital query mechanisms but is also very compatible with SQL. SQL will also be a significant part of the project, as it is a language well-suited to creating databases. Additionally, its fast query processing will allow my client to retrieve information on his students more efficiently, giving him the ability to spend more time creating lessons and helping his students.

For the GUI, I will use Swing, a GUI widget toolkit for Java. Swing is relatively simple to use and is useful in developing lightweight desktop apps. Additionally, The GUI created by Swing is simple, reliable, and easy to understand. We will also use AWT, as it provides additional features and is also compatible with swing, as they’re both Oracle-created Java databases.

**Word Count: 505**