

The gradebook was a simple exercise to have the students work together and brush off their basic C++ knowledge. Three main thrusts of improving the gradebook would be to have it tied to a database, which most likely be the same database the software it is incorporating into would be using; error handling; and incorporate a student id to each record. This would greatly improve the gradebook.

Tying the gradebook to the database which the software uses, would allow the algorithm to more consistently store data and retrieve data. It would allow also allow the users and administrators of the software to compile the data across students and classes to use in analysis of the classes and the student's performance. Students would be able to track their progress through each class quickly and easily. The database would be able to facilitate the calculated columns which would reduce the memory used. Time analysis could be used to ensure that each interaction with the database is optimized.

Error handling would be needed to improve the performance of the algorithm. The ability of the algorithm to deal with incorrect entries better and advise the user of the error would be beneficial. A hash table with error codes and error messages could be used to quickly pull up the correct message. It would be a great time saver.

A student id tied to each record would allow for the quick searching of a particular student's record. This would improve the gradebook and allow it to be used by multiple students and instructors also. Another hash table or map could be used to record the location of each student's record. The algorithm would be able to pull up the pertinent information and be able to return results efficiently.

These improvements would allow the gradebook to have an expanded use and widened audience of users. The improved gradebook would allow the students and instructors to be able to track the student's performance more succinctly to improve and attain a higher grade. The university would benefit from this communication with higher pass rates in key courses which had struggled previously without the communication.