**User Instructions**

**Introduction**

This program runs a small database of student and administrator data. A user first logs in as either a student or an administrator with a username, or ID number, and a password. A student can view their student data including their name, enrolled courses, exam grades, and GPA. An administrator can view all the students’ data as well as add new students, edit student data, and delete students.

**Login Window**

At the login window, users enter their username and password and log into their account. The window automatically detects whether the username is a student or administrator. While the password can be any sequence of characters, the username can only be a number, with the student username in the range 10000 to 19999 and the administrator username in the range 90000 to 99999.

**Student Window**

Students do not have many options available. When a student logs in, the student can see their student ID and a grid of courses and exam grades. Each row holds a course, and each column holds an exam grade. The student can also view their GPA that is determined from their exam grades. To log out and return to the login window, the student should click “Done.”

**Administrator Actions**

Administrators have more options available. When an administrator logs in, a window appears with a list of all the saved students, displaying their student ID numbers and their names. At this window, the administrator can click “Add Student” to create a new student. The administrator will next enter the new student ID, password, and name. The ID cannot be an already existing ID and must be a number in the range 10000 to 19999. The administrator will next click “Add Student” to save the new student and return to an updated student list. To log out and return to the login window, the administrator should click “Done.”

At the student list, the administrator can click any student ID or name to display the student data. This window is similar to the window that students view. The administrator can then click “Edit” to edit the student data. The administrator will next modify the student name, password, courses, and grades, but the ID number is fixed. The course and grade data have to be entered in a specific manner; the course name cannot contain spaces, the name and grades are separated by spaces, and each course is separated by a line. For example, if the requested courses are Physics with a 98, 85, and 78, as well as College Algebra with an 89 and 100, the administrator should enter:

Physics 98 85 78

CollegeAlgebra 89 100

The administrator will now click “Save” to update the student and return to the student viewing window. To delete the student, the administrator should click “Delete,” which will delete the student from the records and return to an updated student list. To return to the student list, the administrator should click “Done.”

**File Details**

Student and administrator data are stored in text files in folders names “Students” and “Administrators” respectively. These folders should not contain any other files other than the .txt files for the students and administrators, even hidden files.

In the “Students” folder, each student is stored in a .txt file named after their ID number in the range 10000 to 19999. The first line in the file contains the student’s password, the second line contains the student’s name, and the remaining lines contain the course and grade data. Each line in the course data contains each course, the course name does not contain spaces, and the course name and grades are separated by the ‘$’ character as a delimiter. For example, for a student with the ID “105934”; password “morefish812”; name “Bob Barry”; course “Physics” with grades 98, 87, and 78; and course College Algebra with grades 89 and 100, the file is saved as “105934.txt” and contains:

morefish812

Bob Barry

Physics$98$87$78

CollegeAlgebra$89$100

Similar to students, in the “Administrators” folder, each administrator is stored in a .txt file named after their ID number in the range 90000 to 99999. These files hold much less data than student files, as each administrator file only stores the administrator password in the first line.