GENN004 Spring 2020 Final Assessment
Research Project # 2
Students Management System
Submission deadline is 31-May-2020 10:00 AM.

Design and implement a system to manage students' courses and grades. The program manages tables of courses, students' GPAs, and current semester grades. The students' info is based on the three tables described below. The data in the tables can be either entered manually by the user or loaded from existing Excel files. The user can use the data in these tables to generate more tables and output them either on the screen or as Excel files. The tables are:

- Table 1 contains three columns (all numbers): Course ID, number of credit hours, and max grade.
- Table 2 contains three columns (all numbers): Student ID, old cumulative GPA (decimal), and number of completed credit hours.
- Table 3 contains four columns (all numbers): Student ID, Course ID, coursework grade, and final exam grade. One student can have multiple rows for the different courses he registered for this semester.

The program should show the user the main menu of operations to choose from through the menu item number. After the user completed one of the operations, the program should return back to the main menu until the user chooses to exit the program:

1. Add a row to the data in table 1 containing the three elements (Course ID, number of credit hours, and max grade) by asking the user to enter these values.
2. Add a row to the data in table 2 containing the three elements (Student ID, and old cumulative GPA, and number of completed credit hours) by asking the user to enter these values.
3. Add a row to table 3 containing the four elements (Student ID, Course ID, coursework grade, and final exam grade) by asking the user to enter these values.
4. Load a table. If the user chooses this option, he should be asked through sub-menu whether he wants to load table 1, 2, or 3. Then, he will be prompted for the file name; i.e. the program should take the name of the file as an input from the user.

5. Save a table. If the user chooses this option, he should be asked through sub-menu whether he wants to save table 1, 2, or 3. Then, he will be prompted for the file name; i.e. the program should take the name of the file as an input from the user.

6. Display a table. If the user chooses this option, he should be asked through sub-menu whether he wants to display (print out on the screen) table 1, 2, or 3.

7. Compute a table for the GPAs of each course for each student during the current semester. GPA table contains Student ID, Course ID, and student's grade in this course.

8. Compute a table for the new cumulative GPAs of all students based on the old cumulative GPA and the grades of the current courses they are registered in. The new cumulative GPAs contains Student ID, old cumulative GPA, old number of completed credit hours, new cumulative GPA, and new number of completed credit hours. You have to explain in your report how you calculated the new GPA.

9. Compute a table showing how many students were registered per course this semester. This table contains Course ID and total number of registered students.

   For options 7, 8 & 9, the user should be asked whether he wants the table displayed on screen or written to an Excel file. If the user chooses to write it to a file, the program should take the name of the files as an input from the user.

10. Exit the program.

Report:

You will need to write a MS-word report and submit it with your code. The report should contain the following:

1. Project title, Full Name, ID, and email.

2. Screenshots for your running program for main menu, sub-menus, and menu items. The other menu items should still be running correctly, as we will test them.

3. The used method to calculate the new GPA.

Submission Instructions:

a. The project should be done individually. No groups allowed. Each student has to submit one project. To know which project to submit, execute the following command in the command window: rem(student_ID, 5) +1

b. **Plagiarism** is completely prohibited. If any part of your code is copied from the internet or a colleague, you will get zero in the project.

c. You have to divide your program into modules. In other words, each task (menu item) should be in a separate function.

d. Use xlsread and xlswrite for reading and writing to files.

e. Do not use any Matlab built-in function except for those given in lectures or specified explicitly in the instructions.

f. Use meaningful names for your functions and variables.

g. Your code should be neat and well indented (use Ctrl+A then Ctrl+I).

h. The grade will be divided on the above tasks based on their complexity.

i. OPTIONAL: It is encouraged but completely optional to use Matlab GUI. You can learn about GUI through YouTube videos. One tutorial can be found through this link https://www.youtube.com/watch?v=cl0AcnN3Bmk

j. Each student must pass this project as one of the main requirements to pass the course.

k. Submission of the project will be through Google classroom. You have to follow very carefully the following submission instructions:

   i. Submission deadline is 31-May-2020 10:00 AM. No project will be accepted after this deadline. **Do not wait until last minute to upload. You can upload any time before 31-May-2020 10:00 AM.**

   ii. Submission is accepted only via the project assignment on the Google classroom. No emails! No Messages!

   iii. Each students has to submit

      1. A MS word report. It has to have your Project title, Full Name, ID, and email.

      2. Matlab code files. Each file has to be uploaded separately as Matlab ".m" file. The first line of each file has to have your Project title, Project #, Full Name, ID, and email.

      3. A sample of each file saved through your project.