

Group Project

There is a file **students.txt** including students' information in the following format :

Name	ID
Tony	1900000000
Kitty	1932000000
Hello	1934055555
Trump	1952222222
Rain	1961111111
.....	

Table 1 Initial contents in students.txt

Assume there is a file to record students' grade for each course. The file has the format as follows:

Name	ID	Grade
Tony	1900000000	A
Kitty	1932000000	B+
Hello	1934055555	A-
Trump	1952222222	D
Rain	1961111111	F

Table 2 Grades for a course

Please develop a system which can read the course grades for the class students so that all the grades are collected in the file **students.txt** in the following format:

Name	ID	C Programming	English
Tony	1900000000	A	B
Kitty	1932000000	B+	A
Hello	1934055555	A-	B-
Trump	1952222222	D	C+
Rain	1961111111	F	C-
.....			

Table 3 Contents in students.txt after course grades are added

After the GPA for each student is calculated. The file **students.txt** will have the format as follows:

Name	ID	C Programming	English	GPA
Tony	1900000000	A	B	3.5
Kitty	1932000000	B+	A	3.67

Hello	1934055555	A-	B-	6.34
Trump	1952222222	D	C+	1.67
Rain	1961111111	F	C-	0.84
.....				

Table 4 File with GPA

System Requirements:

A. To make the program as user-friendly as possible, use the following menu to start.

1. Import grades for a course
2. Delete a course
3. Calculate GPA
4. Export file with GPA
5. Quit

User will choose the functions using the index number:

1: ask user to import a file from which the grades will be added to **students.txt**.

- a) The program should ask the user to input the course name before input the file name. It is assumed that the length of course name is less than 20.
- b) If the course name inputted by user exists in **students.txt**, gives user a warning. User can choose to replace the old grades with new or not. If user choose not to replace, go back to main menu.
- c) If the course name does not exist in **students.txt**, ask the user to give the file name to import.
- d) If it is found that a student ID in this imported file cannot be found in the **students.txt**, do not import and give the warning. Each ID contains 10 digits. It is assumed that each file has been sorted according to ID in ascending order before it is imported.

2: ask user to input the course name to delete. If the course name does not exist in **students.txt**, gives a warning.

3: the system will calculate GPA for each student in **students.txt** and put the GPA in the file too. Keep two decimal points in GPA.

Correspondence table for letters and points

A	A-	B+	B	B-	C+	C	C-	D	F
4	3.67	3.33	3	2.67	2.33	2	1.67	1	0

4: when user has this choice, the system will display a sub-menu.

1. Sorted in ID (ascending)
2. Sorted in GPA (descending)
3. Back to main menu

In this sub-menu, if user chooses 1 or 2, the system will ask user to input a file name to export to. If user chooses 3, system goes back to main menu.

5: Quit the system.

Programming Requirements:

- No global variable is allowed.
- The program should be well structured, including main function and some sub-functions. Each function should target a certain task.
- Any unreasonable input from the users will cause a warning message.

Submission:

- Deadline: 11:55 pm 18 May 2020
- Submission (in a compressed file):
 1. source code
 2. executable file .exe
 3. students.txt
 4. exported text file including grades with GPA in descending order
 5. a file indicating contribution from team member.