Problem #1

Grade Point Average (GPA) Calculation

1. Grade Point Average (GPA) is the weighted average of the grade points obtained of all the courses **passed/completed** by a student.

For example, if a student passes/completes ***n*** courses in a term having credits of $C_1, C_2, \cdots, C_n$ and his grade points in these courses are $G_1, G_2, \cdots, G_n$ respectively then,

$$GPA = \frac{\sum_{i=1}^{n} C_i \times G_i}{\sum_{i=1}^{n} C_i}$$

2. There will be two files as input, namely course_info.txt and student_info.txt. The description and format of the input files are as follows.

   - **course_info.txt**: The first line contains the total number of courses in the semester, ***n (n<=10)***. Each of next ***n*** lines contains courseID **(string: e.g., CSE102)** and credit **(float: e.g., 1.50)** assigned to the course (separated by a tab).

   - **student_info.txt**: Again, the first line contains the total number of students, ***m***. Each of the next ***m*** lines contains studentID **(long: e.g., 1805001)**, obtained grades **(each grade is a float: e.g., 3.75)** in all courses (separated by a tab) specified in *course_info.txt* file above and also in the same order.

3. You need to design two structures to store data from these two files. Name the structures as courseInfo and studentInfo, respectively. Then read data from the files in respective structures. Note that each instance of courseInfo and studentInfo structures contains information of a single course and single student respectively.

4. After you read the data, calculate completed credits and GPA for each student. Remember that, **if a student fails to pass a course, i.e., his obtained grade in the course is 0.0, then that course will not be counted towards the completed credits or GPA calculation.**

5. Write the calculated data in a file named result.txt. The format of the file will be as follows.
   - **result.txt**: For each student, a line contains student ID, followed by GPA and total credits completed. See the supplied sample result.txt file for the given input.

6. While opening a file, check for possible error conditions. And also after processing of a file is done, remember to close it.