Lab Objectives: Tuples, Dictionaries, Lists

[Q1A] Write a python program that will use 3 dictionaries one to to store student ids (keys) and for each student, a list of course code, grade pairs (tuple), one that stores course codes and their credits, and one that stores letter grades and their points. You should define the following functions:

1. **calculateGPA ():** Takes 3 dictionaries as parameters 1) stores the student id/course grade lists, 2) Stores course codes (key) and credits (value) and 3) stores letter grades (key) and their points (values). The function should calculate the GPA for each student in the dictionary, by looking up the credits/grade points in the associated dictionaries. The function should write each student id and gpa to an output file. gpa.txt.
2. **findMinGpa () :** Takes a file name as a parameter and finds and returns the id and gpa of the student in the file with the minimum gpa.

3. **printDictionary():** takes a dictionary of students/courses as a parameter, and displays the students in the dictionary as shown in the sample run.

[Q1B]

4. **Write a python script that stores a dictionary containing student ids (keys) and a list of course code and letter grade tuples (values). Your program should do the following:**
    a. Read the file student_data.txt, course_data.txt and store the id of each student and their list of courses/grades in the in the dictionary.
    b. Displays the student and courses using the appropriate function.
    c. Calculates the gpa for all students (writes to file using function)
    d. Finds and displays the id and list of courses for the student with the minimum gpa.

Sample Run:

Students:

21641234

    CS115 : B+

    ENG101 : A

    HIST200 : A-

21341235

    CS115 : A

    ENG102 : B-

    HIST200 : C+

    MATH101 : B

21451220

    CS115 : C-

    PHYS102 : B+

    HIST200 : C+

    MATH102 : C-

22226549

    CS115 : B-

    TURK101 : A-

    ENG101 : F

    HIST200 : C+

21684592

    CS115 : D

    TURK101 : C

    ENG102 : B

    PHYS101 : B

Student with Lowest GPA:22226549 (2.11)

List of courses:

CS115 : B-

TURK101 : A-

ENG101 : F

HIST200 : C+