CS115 Introduction to Programming in Python

Midterm Exam (20%)

Note: you may ONLY use functionality covered in CS115

1. Download the file, `student.txt`, from Moodle and review the data in the file.

2. In the file `LabMidterm_<your_student_id>.py`, complete the following:

    a. Create a function, `read_student()`, that takes a file pointer/reference as a parameter. The function will read the information about each student in the file into a `dictionary` where the keys are the departments, and the values are a **list** of students in the given department (`list` of `tuples`). The information about each student is stored in a `tuple` containing (surname, GPA). **NOTE:** students in the file may have more than one name but only the surname and gpa will be stored. The function should *return* the dictionary.

    b. Create a function, `find_average()` that takes a dictionary and a department as parameters and *returns* the average GPA for the given department.

    c. Create a function, `rem_stu()` that takes a dictionary and a surname as parameters, and removes all students with the given surname from the dictionary.

    d. Create a function, `print_stu()` that takes a dictionary as a parameter, and prints the information in the dictionary in the following format.

```
Department: ECON
        ('Alpaydin', 1.2)
        ('Gündogdu', 4.0)
        ('Koca', 2.5)
        ('Var', 2.9)
Department: IR
        ('Atil', 2.1)
        ('Hammoud', 1.7)
        ('Ince', 2.0)
        ('Kaptan', 3.5)
        ('Kestir', 3.8)
        ('Kolayli', 2.8)
        ('Naghiyeva', 3.8)
        ('Ok', 3.2)
```

3. Write a program that uses the functions above and does the following: **(see sample run on next page)**
    a. Reads the data from the file `students.txt` into a dictionary.
    b. Finds and displays the average GPA for the IR department.
    c. Displays the dictionary as shown in the sample run below.
    d. Inputs surnames from the user and removes the student(s) with the given surname. Your program should continue to input surnames until the user enters 'quit'.
    e. Display the updated dictionary.

4. When you are finished make sure to save your work and upload your solution to Moodle. You should **ONLY** upload `LabMidterm_<your_student_id>.py` and you should *not* zip/compress your file.

Sample Run:
```
The average gpa of IR department is: 2.8625000000000003
Department: PSYC
        ('Akçam', 3.9)
        ('Deveci', 2.9)
        ('Kumman', 2.9)
        ('Madenoglu', 3.1)
        ('Yeltekin', 1.2)
Department: POLS
        ('Aksel', 2.78)
        ('Erserçe', 3.0)
        ('Gülle', 2.7)
        ('Gungor', 3.1)
        ('Has', 1.97)
Department: ECON
        ('Alpaydin', 1.2)
        ('Gündogdu', 4.0)
        ('Koca', 2.5)
        ('Var', 2.9)
Department: IR
        ('Atil', 2.1)
        ('Hammoud', 1.7)
        ('Ince', 2.0)
        ('Kaptan', 3.5)
        ('Kestir', 3.8)
        ('Kolayli', 2.8)
        ('Naghiyeva', 3.8)
        ('Ok', 3.2)

Enter surname of the student to be removed (quit will stop):Atil
Enter surname of the student to be removed (quit will stop): Koca
Enter surname of the student to be removed (quit will stop): quit
Department: PSYC
        ('Akçam', 3.9)
        ('Deveci', 2.9)
        ('Kumman', 2.9)
        ('Madenoglu', 3.1)
        ('Yeltekin', 1.2)
Department: POLS
        ('Aksel', 2.78)
        ('Erserçe', 3.0)
        ('Gülle', 2.7)
        ('Gungor', 3.1)
        ('Has', 1.97)
Department: ECON
        ('Alpaydin', 1.2)
        ('Gündogdu', 4.0)
        ('Var', 2.9)
Department: IR
        ('Hammoud', 1.7)
        ('Ince', 2.0)
        ('Kaptan', 3.5)
        ('Kestir', 3.8)
        ('Kolayli', 2.8)
        ('Naghiyeva', 3.8)
        ('Ok', 3.2)
```