ISGB 7943 - INSY 3436 – Programming with Python – 2021 Fall

Project Assignment: Student Query Tool (SQT)

SUMMARY

The overall goal of your SQT program is to read student records from a file, and let the user enter queries in order to see a detail or summary report. The project will need many of the topics covered in class.

The project can be finished in groups or individually. Additional credit will be given for students working individually. If you decide to work in groups, you should coordinate with your group members to meet outside of class time. You should allow for adequate time to discuss, design, code, assemble, refine, and test your program. A group should not exceed 3 members.

PROGRAM INPUTS

The student input file has the following fields:

Student ID #

Last name

First name

Graduating year (e.g, 2021)

Graduating term (Fall, Spring, Summer)

Degree program (e.g., MSBA, MBA, etc.)

This input file has a header record (a first line describing the fields in the file). Each field is separated by a tab. Example files to use (e.g, students.txt) will be posted on Blackboard.

PROGRAM PROCESSING

Your program should read each record of the file once into a data structure (e.g., list, dictionary). The program should keep the instance of the data in memory for the duration of the program, i.e., it should not re-read the data from the file for each user query.

Your program should allow queries to be entered, regarding the student list. Types of queries include:

Display all student records

Display students whose last name begins with a certain string (case insensitive)

Display all records for students whose graduating year is a certain year

Display a summary report of number and percent of students in each program, for students graduating on/after a certain year

If you work in groups, the exact way to get user input and display the results should be decided first before working on individual functions. The user interface should be via the console (screen and keyboard).

The program should anticipate and handle a number of potential errors related to user input or the file data.

Optionally, an additional functionality that you choose can be added to the system. However, priority should be given to creating a basic working system first before enhancing it.

GRADING

All group members of the group will receive the same grade, which will be based on:

Quality of the design

Quality of the code (including logic, error handling, commenting)

Ability to meet the requirements

Additional credit will be given for students working individually

Your final .py file(s) for the program as well as a “Read me” word document for basic instructions need to be submitted to BlackBoard.