Lab 5

Due Date: Oct 2, 2019
Total Points: 15 points
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The purpose of this lab is to practice working with constructors, constants, static attributes, and friend functions.
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In this lab, you will design a *Student* class which has the following private attributes:

        string   name;
        const long   studentID;
        string   major;   //CS, MATH, PHYS…
        string   classification; // graduate or undergraduate
        int   units;   // total units enrolled
        float   tuition;
        static int   totalNumofStudents;
        static int   nextStudentID;

The class should have the following public member functions:

- Student():
  The default constructor sets name to "Unknown", studentID to the value of nextStudentID, major to "CS", classification to "undergraduate", units to 12, and tuition to 0. It also ensures that all static attributes are incremented by 1.

- Student(string theName, string theMajor, string theClassification, int theUnits):
  The second constructor sets the attributes based on what is passed to the function. The value of tuition is set to 0 and studentID is set to nextStudentId. The constructor should increment the values of all static attributes by 1.

- ~Student():
  The destructor must decrement the value of totalNumOfStudents by 1.

- print():
  The print function should print all attribute values (regular, constants, and static).

- setData():
  The getData() function should prompt the user for a student's name, major, classification, and units.

In your main, you should do the following:

- Create an object, student1, which calls the default constructor. Then print the information of student1.

- Create another object, student2, which calls the second constructor and sets the student name to "unknown", the major to PHYS, the studentID to the value of nexStudentID, the units to 0 and the classification to "graduate".
- Use the object student2 to call the setData() function to prompt the user for setting name, Major; classification and units . Input "Julia Robertson" for name, "MATH" for major, "undergraduate" for classification, and 15 for units.
- Print the information of student2.

Notes:

- The value of totalNumOfStudents must be initialized to 0 before creating any object, incremented upon creating each object of class Student (in every constructor), and decremented when an object of class Student goes out of scope (in destructor).

- The value of nextStudentId must be initialized to 10000 before creating any object, and incremented upon creating each object of class Student.

- Any function that does not modify the attributes must be declared as constant

Extra Practice:

Create a C-style (stand alone) function called *setTuition (Student&)* that takes a Student object and sets the tuition of the student. For graduate students, each unit costs $1000. For undergraduate students, each unit costs $700.

Make the *setTuition(Student&)* function a friend of class Student.

In your main program, call the setTuition function and pass student2 to the function to find and set the value of tuition for student2. Then call the function print to display student2's data