2E3 Tutorial 4

1. Extend the C++ header file (Student.h) provided in this week's Tutorial to include a student's firstname and surname (and you can reduce the size of the Labs array to 3 for convenience), and provide the following methods in Student.cpp:

   - The Student() constructor should set all marks to 0 and studentID is set to be numStudents. The constructor should then ask the user to input the first name and surname of the student. Then, finally, numStudents is incremented.
   - The readMarks() method should print the student's name and ID, then ask for each of the lab marks in turn followed by the exam mark. All marks should be out of 100 (if not, keep asking until there is a valid answer.
   - The printFinalGrade() method should print the student's name and ID, then calculate and print the student's final grade.
   - Provide two simple getter methods to return the last name and the student ID of the student.

   Test your class by writing a main program (e.g., Lab3.cpp) to declare a Student s0, then call the methods to read his marks and print out his final grade.

   Note: use string data type for first name and last name. In order to use string, you need to add **#include <string>,** *then you can use cin and cout as with any other variable.*

2. In the same project, add a C++ header file (Module.h) for a class Module which is used to hold an array of type Student of size 5. Define the following:
   - A method to read all student marks
   - A method to print all final Grades
   - two find methods: `int findByName(string); string findByID(int);` which return the matching ID or string, respectively.

   Implement the methods in Module.cpp *(note, you don't need to provide a constructor… the default constructor will be called automatically and that will call the Student constructor 5 times*).

   In your main program (Lab3.cpp):
   - create a Module object, m0 -- (this will automatically cause the constructor of Student to be called 5 times, thus reading in all names and assigning their IDs)
   - Pick one of the names you entered, and find and print that student's ID
   - Pick one of the IDs of the other students, and find and print that student's name

You have one week to complete this program, and the marks will be assigned as follows:

This week – Week4:
0 = did not attend lab
1 = attended the lab session

Max = 1 point

Next week – Week 5:

0 = did not attend lab
1 = attended the second (marking) lab session but have very little working code or the code does not compile. **Your code MUST compile in order to get a mark higher than 1**
2 = correct definition and implementation of the Student class
4 = correct definition and implementation of the Rectangle class
2 = correct implementation of the main program

Max = 9 points

Overall maximum for two labs together= 10 points

The program needs to be DEMONSTRATED for marks to one of the demonstrators before the end of your lab session next week (Week 5) AS WELL AS SUBMITTED ONLINE through Blackboard.