

Project 1 – Grade Report (Part B)

For this part of the project, you are asked to implement the class **Student**, which **derives** from the class **Person**.

Add to your project the **Student.h** and **Student.cpp** files and replace your **Main.cpp** with the new **Main.cpp** file => To import these files to your project, see instructions on the reference, **How to Create a Class in Visual Studio 2017**, slides 8-12.

Member variables already declared:

- An **int studentID** that stores the ID of a student.
- An **int numberOfCourses** that stores the number of courses the student has taken this semester.
- A **Boolean tuitionWasPaid** that determines whether the tuition was paid.
- A **vector coursesEnrolled** that stores objects of type **Course**.

You will need to implement the following **member functions**:

Student Class	
Default constructor	Initializes all member variables, except the vector (the vector class has its own constructor that initializes any vector that is declared; therefore, you do not need to explicitly initialize a vector, just like a string).
Function setStudentInfo	<p>Parameters (in this order):</p> <ul style="list-style-type: none">• A string storing the first name• A string storing the last name• An int storing the id number• A Boolean storing a value that determines if the tuition was paid• A vector storing objects of the class Course <p>Call the parent function setName to set the first and last name of the student. Set all member variables to the given values passed by the parameters.</p> <p>NOTE: You can get the number of courses using the function size of the STL vector class, but you need to cast it to an int.</p>
Function getID	Returns the student's ID number.
Function getNumberOfCourses	Returns the number of courses the student was enrolled in.
Function getCreditsEnrolled	<p>Returns the total number of credits the student is enrolled in.</p> <p>The vector stores objects of class Course, which have information on the number of credits of each course. You can retrieve that information to calculate the total number of credits.</p>

Function isTuitionPaid	Returns true if the student paid the tuition.
Function isEnrolledInCourse	<p>Parameter: a string storing a course number.</p> <p>Returns a Boolean value that determines whether the student is enrolled in the given course.</p> <p>Do NOT traverse the vector if the student was not enrolled in any courses. Use an IF/ELSE statement.</p>
Function getGpa	<p>Calculates and returns the semester GPA.</p> <p>Use a switch statement instead of IF/ELSE to process all grades.</p>
Function billingAmount	<p>Parameter: a double storing the tuition rate.</p> <p>Calls the function getCreditsEnrolled to calculate the total billing amount and returns the result.</p>
Function printStudentInfo	<p>Calls the parent's printName function and uses the member variable studentID to print the student's information in this format:</p> <p style="text-align: center;">studentID – Lastname, Firstname</p>
Function printStudentInfo (overloaded)	<p>Parameter: a double storing the tuition rate.</p> <p>Prints student's information in the format shown below.</p> <p>Note that there are two cases: show the grade if the tuition was paid, show a message and *** if the tuition was not paid.</p> <pre> Student Name: Parker, Pete Student ID: 654321 Number of courses enrolled: 4 Course No Course Name Credits Grade CSC150 ComputeSci 4 A CHM348 Chemistry 4 A ENG101 English 3 B BIO234 Biology 4 A Total number of credit hours: 15 Current Term GPA: 3.80 _ _ _ _ _ </pre>

Student ID: 654321
Number of courses enrolled: 4
Total credits: 15
Tuition was paid.
Peter is enrolled in CSC150
Peter is not enrolled in BI0111
Total GPA: 3.80
Total amount paid: \$750.00
Change student's name...

Print student's new name...
Parker, Pete

Print all information:
654321 - Parker, Pete

Print grade report:
Student Name: Parker, Pete

Student ID: 654321
Number of courses enrolled: 4

Course No	Course Name	Credits	Grade
CSC150	ComputeSci	4	A
CHM348	Chemistry	4	A
ENG101	English	3	B
BI0234	Biology	4	A

Total number of credit hours: 15
Current Term GPA: 3.80

Student ID: 345678
Number of courses enrolled: 3
Total credits: 11
Tuition was not paid.
Lex is not enrolled in CSC150
Lex is enrolled in HIS101
Total GPA: 4.00
Total amount due: \$550.00

Print all information:
345678 - Luthor, Lex

Print grade report:
Student Name: Luthor, Lex

Student ID: 345678
Number of courses enrolled: 3

Course No	Course Name	Credits	Grade
CSC201	ComputeSci	4	***
HIS101	History	3	***
BI0234	Biology	4	***

Total number of credit hours: 11
*** Grades are being held for not paying the tuition. ***
Amount Due: \$550.00

Press any key to continue . . .