**CS A250 – Programming Exam 1: Doubly-linked Lists**

|  |
| --- |
| **SAVE FREQUENTLY** |

**How to turn in your exam:**

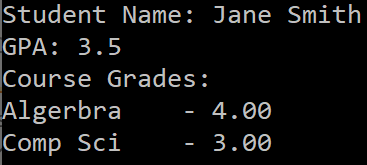
1. Write the **name header** in the **EnrolledStudent.h, EnrolledStudent.cpp and Main.cpp** files.
2. Create a **folder** named **LastName\_FirstName\_A250\_PE2 \_MWPM**
3. Copy and paste the **EnrolledStudent.h, EnrolledStudent.cpp and Main.cpp** file into the newly created folder.
4. **Zip the folder**
5. **Submit**

|  |
| --- |
| **IMPORTANT -** Please note the following:   * Your project **must** compile to be graded. * Turn in a "**clean**" implementation; if your code is messy (poor indentation, unnecessary spacing, etc.) and does not conform to **readability** standards, you will lose points. * Do **NOT** add additional member variables to the class. * Write your code where indicated *without* moving items around. * Points for this exam also include **following** **instructions** and **paying attention to detail**.   **Other details:**   * Do **not** use a **return** statement in a **void** function. * Do **not** use the **break** and **continue** statements. * **No** need to write any comments. * The exam is worth **35 pts:**   + 1 pt. for the name header   + 3 pts. for readability |

The project contains the following files:

* **Main.cpp**
  + To **test** your functions
  + You will write code to sort and print the vector of EnrolledStudent objects as requested in the file.
* **Student.h**
  + You do not need to alter this file.

Add the following:

* **Create a Class called EnrolledStudent which inherits from the class Student. (use separate compilation and name the files EnrolledStudent.h and EnrolledStudent.cpp)**
  + The class has one additional private Member Variable called courses.
    - A **map**
      * The key is a string, the name of a course
      * The value is a double, the grade for that class
  + **Include the** **Default Constructor**
    - Initializes the members from the Student Class to the same values as in the Student classes Default Constructor.
    - Initializes the new member variable to be and empty map.
  + **Include an Overloaded Constructor that has two formal parameters**
    - The last name as a string to initialize the last name.
    - The first name as a string to initialize the first name.
    - All other members are initialized the same as the default.
  + **Define a member function called addClass that has two formal parameters**
    - A string - the course name.
    - A double - the course grade.
    - Adds a course to the map, courses.
  + **Define a member function called getGPA**
    - Returns the average grade for all the courses.
  + **Overload the less than operator as a member function**
    - Returns true if the calling object’s **Last Name** comes before the other EnrolledStudent alphabetically.
  + **Overload the insertion operator**
    - If we have an EnrolledStudent es; then for cout << es;
    - The output should appear as you see below.
    - 
* **In the Main.cpp file where indicated add code to the main function.**
  + **Follow the instructions given**
  + **Write your code in the areas specified**