Introduction to C/C++
Comp 295
Spring 2023

Department of Computer Science
Forman Christian College University

Lab 7
Classes

Question #	Total Marks
Question 1	-
Question 2	-

In Lab Problem

Question 1.   Point Class

Consider the Point class discussed in the lecture. Write a non-member function named **getFurthesetPoint** that takes an array of Point objects and its size; and that returns the Point object that is farthest from the origin among all the Point objects in the array. Test you function by writing a main program that reads a size from the user, creates a dynamic array of Points of size given by the user, sets the x and y coordinates of each of the Point object in the array to some random float in the range [-3.0, 5.0), prints each Point object in the array and its distance from the origin, calls the function to compute the furthest point from the origin, and finally prints the furthest Point object and its distance from the origin.

Question 2.   Course Class

Member Variables:
- name (string), **[make sure to #include <string>]**
- test (float value between 0.0 and 20.0 inclusive),
- midterm (float value between 0.0 and 30.0 inclusive),
- final (float value between 0.0 and 50.0 inclusive) and
- letterGrade (char)

Member Functions:

- Default constructor: Assigns 0 for all the assessments and empty string ("") for name. Also set the letter grade to 'F'.

- Non default constructor: that takes only one string argument. This constructor must assign the string argument to the name member variable and assign 0 for all the assessments. Also set the letter grade to 'F'.

- Non default constructor: that takes a string and three float arguments for the assessments. This constructor must assign the name and the assessments the values of the arguments. Also set

  the letter grade according to the scheme: [90, 100] = 'A', [75, 90) = 'B', [60, 75) = 'C', [50, 60) = 'D' and [0, 50) = 'F'.

- Getters for each member variable. (**getName**, **getTest**, **getMidterm**, **getFinal**, **getLetterGrade**)

- Setters for each member variable. Do not have a setter for the letter grade because it is set in the constructors. (**setName**, **setTest**, **setMidterm**, **setFinal**). However, each setter of the assessments must modify the letter grade when you call the setter to reflect the change in the total course mark.

- Print member function to print the name, assessments and the letter grade.

Now, write a main program to test your Course class. In your main program create at least three Course objects and construct objects using any of the three constructors provided. Finally print the course objects to the screen using your print member function.