The American University in Cairo
Computer Science & Engineering Department
CSCE100109 – Fundamentals of Computing I
Spring 2022– Assignment 7

1. Using classes, write a C++ program that uses a class called Course, that class contains two quizzes scores each out of 15, 3 midterm test scores out of 10, and 1 final test score out of 50, a function to calculate the percentage s/he got in the course. And another function to transform this percentage to a letter grade as follows:
   A: above 92%
   A-: 85% to 92%
   B+: from 80% to 84%
   B: from 75% to 79%
   B-: from 70% to 74%
   C: from 64% to 69%
   D: from 59% to 63%
   F: lower than 59%

   You should use a constructor function that could take the values of all tests as parameters. In the main function, you will also create an object of this class and ask the user to input the values of the tests through setter functions, then you will display the letter grade s/he received by calling the required function.

2. Design a class **Circle** that is used to represent circle objects. The circle class should have the following data members

   - X-coordinate of center of circle
   - Y-coordinate of center of circle
   - Radius of circle
   - Area of Circle (A = pi*r*r)
   - Circumference *(C = 2*pi*r)*

   - Design a constructor for the class to create an object of class circle with the given parameters (Area and Circumference cannot be passed during construction)
     - X-Coordinate, Y-Coordinate and Radius
   - Design Set Functions for all three variables
     - X-Coordinate, Y-Coordinate and Radius

- Design ComputeArea() and ComputeCircumference() which compute values for area and circumference of the circle
- Design Get Functions for the two variables
    - Area and Circumference

3. Create a program called problem3.cpp that creates a class called student. Each student has a name (string), an age, a gpa, and an honor status that is either true or false. The constructor of the class initializes the class's object with the students name, age and gpa. There is a function also called void setGPA(float x), and float getGPA(). The first one sets the GPA of the student to a specific value, and the other returns the GPA of the student. The honor status is defined as true if the gpa is greater than 3.4 and false otherwise. Finally, create a function that takes a student object as a parameter, it checks whether the student honor status is true or not and outputs a congratulations message (with or without honors).

   This is a sample usage of the class in main:

   Student s ("John", 3.9, true);

   s.setGPA(3.5);

   cout << s.getGPA();