The objective of this lab is to:

1. Understand and practice structured data representation.
2. Practice good coding conventions e.g commenting, meaningful variable and functions names, properly indented and modular code.

Instructions!

1. This is a **graded** lab, you are strictly **NOT** allowed to discuss your solutions with your fellow colleagues, even not allowed asking how is he/she is doing, it may result in negative marking. You can **ONLY** discuss with your TAs or with me.
3. Strictly follow good coding conventions (commenting, meaningful variable and functions names, properly indented and modular code.
4. Save your work frequently. Make a habit of pressing **CTRL+S** after every line of code you write.
5. Beware of **memory leaks** and **dangling pointers**.

Task 01: [15 Marks]

1. Write a program that uses a structure named *MovieData* to store the following information about a movie:

   Title
   Director
   Year Released
   Running Time (in minutes)

   The program should create two *MovieData* variables, store values in their members, and pass each one, in turn, to a function that displays the information about the movie in a clearly formatted manner.

2. Modify the program you have written in task 1 such that MovieData structure includes two additional members that hold the movie's production costs and first-year revenues. Modify the function that displays the movie data to display the title, director, release year, running time, and first year's profit or loss. To complete this task you have to implement following two functions:

```
a) void inputMovieData (MovieData &mv);
b) void displayMovieData (MovieData mv);
```

Task 02: [15 Marks]

Write a program that stores a team of score players where the team has 12 players in it. Create a structure that stores following data about a soccer player:

Player's Name
Player's Number
Points Scored by Player

To store all players of the team, the program should keep an array of 12 of these structures. Each element is for a different player on a team. Write a function that populates the array of structures in a function by user given data for each player. It should then show a table that lists each player's number, name, and points scored. The program should also calculate and display the total points earned by the team. The number and name of the player who has earned the most points should also be displayed.
To complete this task you have to implement following functions:

PopulateArray – to populate the array of structures by user provided data.
DisplayScoreBoard – to display the name, number and score of each player.
FindTopScorer – this function should return the player with highest score.

Call each of these functions in *main( )* to demonstrate your work.

Input Validation: Do not accept negative values for player's numbers or points scored.

Task 03: [15 Marks]

Write and program that should create a structure to store following data about a student.

Name
rollNo
Date of birth
Number of courses the student is studying
Marks of all courses the student is studying
CGPA

Date of birth of the student should be of type DATE, therefore you should implement another structure to represent the date of birth. Marks of student should be stored in an array where size of array should be given by the user. Create 3 variables of type Student in the *main( )* function. Identify any student who is going to dropout due to low CGPA (consider the bare minimum CGPA to continue is 2.5).
Minimum marks to pass a course are 50. Display all the failed courses for each student.

Input Validation: Do not accept negative values and values greater than 100 for marks of each course. Do not accept CGPA greater than 4.00 and less than 0.00