**CMPE 1666- Fall2022**

**Practice Question for Lab Exam 2-**

You have been provided with a starter application containing the controls below. The form also contains an Open File Dialog.

Graphical user interface, application, Word

Description automatically generated

In the Form class, include the definition of a **Student** struct, having as members a student’s first name, last name and marks (a double). The struct must also contain a constructor with parameters for each member as well as a **ToString()** method that returns a string for easy display in the format shown in the list boxes. The Form class must also declare a list of **Student** structs and create the list object in the Form constructor.

You have been provided with 2 files containing, respectively, the first names and last names of students.

The “**Load Students**” button handler must load the information from the files into a list for first names and another list for last names. For each student, the program will generate a marks value to 2 decimal places in the range of 0-100. Marks need not be unique. It will then construct a student struct with each first name, the corresponding last name and marks add the struct to the Student List belonging to the Form class. It must finally display the student id and the marks in the leftmost list box

In your program include a method **BubbleSortRanking()** that sorts a list of **Student** structs on descending order of marks and a method **BubbleSortAlphabetical()** that sortsa list of **Student** structs in ascending order of last names.

The “**Sort Students**” button handler must sort the student list (or a copy of it) either in ascending order of last name or in a ranking order (based on marks, with the highest marks at the top), depending on the radio button selected. The sorting must use the methods developed above.

The “**Display Students**” handler must list the students based on the radio button selection.

**All displays in list boxes must be in the format given in the sample run and must be performed by the DisplayInListBox() method described below.**

The skeleton of a helper method **DisplayInListBox(List<Student> Std\_List, ListBox LB)** has been provided. You must implement this method, so that when it is called it clears the list box (passed as its second parameter) and displays the information of each student from the provided list (the first parameter) in the format shown in the sample run. You must use the **ToString()** method of the **Student** struct.

**Sample Run:**

Graphical user interface

Description automatically generated