Object Oriented Programming (BCS-2B, BCS-2D, BCS-2E)
Assignment 6 - Flex Evaluation Report

You are required to implement Evaluation Report module for Flex in which you are given students' data (in the end of this file) and this module will provide following functionality:

Note: Data file contains student's roll number, name, assignments and quizzes marks only.

Required Output [10 Marks for exact flow only. Do not ask user for any input]:

1. **ReadDataFromFile(). This global function will load all the data from file. To read static data in start of the file, call static function(s) / method(s) of class that will set all this data.**
2. **UpdateStatistics(). This global function will update all the statistics i.e. Total, Min, Max, Average of all the quizzes and assignments.**
3. **PrintAll(). This global function will take the pointer to list and print following list.**

```
-----------------------------------------------------------------------------------------------------------------
//(At runtime we are just printing already saved statistics.)
                Q1      Q2      Q3      Q4      A1      A2      A3      A4
Total:          14      10      10      10      45      53      50      55
Maximum :        14      10      10      10      45      53      50      55
Minimum:        2       0       0       0       0       0       0       0
Average:        10      5       6       8       36      35      27      25
-----------------------------------------------------------------------------------------------------------------
//Add column "total" in the following list
Roll No.        Name            Q1      Q2      Q3      Q4      A1      A2      A3      A4      Total
14L-4159        Tahir Ali0      0       0       0       10      11      14      19
14L-4222        Muhammad Ali 6          3       10      10      36      34      27      53
14L-4241        Waleed Amjad 8          0       0       3       0       22      0       0
14L-4290        Burhan Tahir    14      3       0       10      43      22      35      49
14L-4401        Hassan Sohail   14      0       0       8       30      20      15      48
14L-5867        Saad Ali6       8       10      0       0       36      0       52
14L-5868        Nisar Haider    0       5       10      10      0       21      0       52
15L-4014        Neeha Batool    14      5       10      10      43      49      50      53
15L-4019        Abubakar Javed 10       5       5       10      45      50      43      25
15L-4023        Saad Sultan     14      5       10      10      43      51      48      55
15L-4028        Hassaan Elahi   10      8       0       10      45      52      50      55
15L-4048        Kamal Subhani   10      10      10      10      45      53      37      52
15L-4050        Saad Ahmed      10      3       0       5       32      28      15      51
15L-4068        Usman Usman     2       0       0       8       39      19      0       43
15L-4083        Zaid Tariq      14      10      0       10      43      48      50      48
15L-4084        Abdullah Siddiqui       14      10      10      10      43      53      48      55
15L-4091        Saif ullah      14      5       10      0       41      22      34      55
15L-4102        Hashir Baig     14      5       10      10      45      52      48      55
15L-4137        Usama  Jawad    2       5       0       10      45      36      38      45
```

15L-4149	Haris Muneer	14	10	0	10	16	53	34	47	
15L-4164	Humna Gul	6	5	0	8	45	47	33	55	
15L-4166	Talha Zubair	14	8	10	10	45	53	48	55	
15L-4184	Suleman Uzair	14	3	10	10	43	51	48	55	
15L-4186	Hammad Farooq		14	3	10	10	43	53	23	55
15L-4193	Faizan Ahmed	10	3	0	8	27	18	9	25	
15L-4204	Tarviha Fatima	10	3	0	8	43	32	32	53	
15L-4205	Haziq Farooq	6	10	10	10	41	36	25	49	
15L-4210	Saboor Elahi	14	3	10	8	45	53	33	45	
15L-4221	Muhammad Taha		8	10	10	10	43	53	48	53
15L-4228	Taha Shahid	10	0	10	8	39	11	18	29	
15L-4237	Zaki Ahmad	2	0	0	3	15	30	15	53	
15L-4248	Usama Akram	2	0	0	0	0	0	0	44	
15L-4254	Hamza Majeed	4	0	0	5	0	0	0	47	
15L-4255	Jamal Butt	6	8	0	8	38	14	29	45	
15L-4257	Sharjeel Mansha		10	8	0	10	43	41	26	48
15L-4261	Suleman Khalid	10	10	10	10	43	48	50	44	
15L-4262	Rimsha Rimsha	6	3	10	0	41	46	0	37	
15L-4264	Ali Nuaman	10	10	10	10	45	37	34	55	
15L-4265	Noor Ahmed	14	10	10	10	43	53	48	53	
15L-4281	Hamza Shariq	14	10	10	10	45	53	50	50	
15L-4292	Farhan Shoukat	14	10	10	10	43	51	38	55	
15L-4308	Arham Fatima	10	0	0	0	41	31	0	54	
15L-4314	Khadija Asim	2	0	0	8	18	36	0	51	
15L-4321	Muhammad Awais		8	3	10	10	41	31	45	55
15L-4322	Abdullah Khan	14	3	10	8	43	12	22	53	
15L-4323	Hassaan Maajid	10	5	10	10	39	8	0	53	
15L-4327	Hanan Mehmood		10	9	0	10	45	37	18	52
15L-4352	Osama Osama	14	3	0	8	41	17	17	53	
15L-5449	Anas Javed	10	0	0	8	29	21	23	50	

4- SearchStudentsByKeyWord(). This function will take a c-string and return all the students (EvalReport) having that substring in their firstname, lastName or RollNumber.**

5- PrintAll(EvalReport). This function will print the records returned by above function, SearchStudentsByKeyWord. For example, if user gives "43" as keyword, following records will be filtered and displayed.**

Roll No.	Name	Q1	Q2	Q3	Q4	A1	A2	A3	A4	Total
15L-4308	Arham Fatima	10	0	0	0	41	31	0	54	
15L-4314	Khadija Asim	2	0	0	8	18	36	0	51	
15L-4321	Muhammad Awais		8	3	10	10	41	31	45	55
15L-4322	Abdullah Khan	14	3	10	8	43	12	22	53	
15L-4323	Hassaan Maajid	10	5	10	10	39	8	0	53	
15L-4327	Hanan Mehmood		10	9	0	10	45	37	18	52
15L-4352	Osama Osama	14	3	0	8	41	17	17	53	

6- **SortListByTotal(). This global function will sort the list by total. We are changing original list. We are not making a separate copy of array for sorted list.**

7- **PrintAll(). Same PrintAll (used in exercise 3) will now print the sorted list**

8- **PrintDetailView(const char* rollNo). Takes a roll number and returns the information of that student if it exists. (Example output given below).**

```
-----------------------------------------------------------Sorted List---------------------------------------------
//Here you will print above list including (column) Total but this time it will be sorted by total marks.
/*
Both of these swapping should work in your code:
EvalReport temp = list[i];
List[i] = list[j];
List[j] = temp;

EvalReport temp;
temp = list[i];
List[i] = list[j];
List[j] = temp;

*/
---------------------------------------------------Student Information-------------------------------------
Enter Student Roll Number: //Hard code roll number 15L-1234 in your driver function
Student not found


---------------------------------------------------Student Information-------------------------------------
Enter Student Roll Number: //Hard code roll number 15L-4023 in your driver function

Student Information:
```

Following output is just sample. You have to PrintDetailView **in the format you see your marks in flex**. It displays obtained, total, max, min, average marks for all the assignments and quizzes. We are not keeping weightage.

```
Roll No:                15L-4023
Name:                   Saad Sultan
Quizzes Marks:
                        Q1:        14/14
                        Q2:         5/10
                        Q3:         10/10
                        Q4:         10/10
Assignment Marks:
                        A1:         43/45
                        A2:         51/53
                        A3:          48/50
                        A4:           55/55
Total:                                nnn/nnn
```

Data File (Copy paste following data in your "**gradesheet.txt**" file. Follow this file name in your code to avoid any inconvenience during evaluation) Comments are given to explain the file format, you may remove them. Don't forget to submit your .txt file with assignment.

```
49 //Total Students
4 //Total Quizzes
4 //Total Assignment
14 10 10 10 //Quizzes Total Marks
45 53 50 55 //Assignments Total Marks

//Marks Detail:

Mahad Atif 22L-4951 0 0 0 0 10 11 14 19
Hibah Naeem 22L-7803 6 3 10 10 36 34 27 53
Razan Usman 23L-0516 8 0 0 3 0 22 0 0
Muhammad Rahim 23L-0518 14 3 0 10 43 22 35 49
Fatima Kashif 23L-0534 14 0 0 8 30 20 15 48
Manal Asif 23L-05386 8 10 0 0 36 0 52
Haleemah Zaheer 23L-05540 5 10 10 0 21 0 52
Saad Waqar 23L-0561 14 5 10 10 43 49 50 53
Ibrahim Khan 23L-057310 5 5 10 45 50 43 25
Zain Ul 23L-0578 14 5 10 10 43 51 48 55
Ashar Ali 23L-0615 10 8 0 10 45 52 50 55
M Khizar 23L-0627 10 10 10 10 45 53 37 52
Omer Farooq 23L-0641 10 3 0 5 32 28 15 51
Zainab Saad 23L-0646 2 0 0 8 39 19 0 43
Armaghan Atiq 23L-065514 10 0 10 43 48 50 48
Muzammil Aleem 23L-0673 14 10 10 10 43 53 48 55
Saad Ullah 23L-0695 14 5 10 0 41 22 34 55
Aneeza Kiran 23L-070714 5 10 10 45 52 48 55
Abdullah Chouhan 23L-0713 2 5 0 10 45 36 38 45
Zara Hassan 23L-0716 14 10 0 10 16 53 34 47
Muhammad Shaban 23L-07686 5 0 8 45 47 33 55
Abdul Maheman 23L-0775 14 8 10 10 45 53 48 55
Muhammad Haris 23L-0807 14 3 10 10 43 51 48 55
Bilal Razzaq 23L-081214 3 10 10 43 53 23 55
Shaheryar Amir 23L-0828 10 3 0 8 27 18 9 25
Abdul Ahad 23L-0831 10 3 0 8 43 32 32 53
Obaid Ullah 23L-0832 6 10 10 10 41 36 25 49
Soban Shahzad 23L-0847 14 3 10 8 45 53 33 45
Muhammad Qudama 23L-0852 8 10 10 10 43 53 48 53
Zaina Azmat 23L-0867 10 0 10 8 39 11 18 29
Esar Fatima 23L-0888 2 0 0 3 15 30 15 53
Abdullah Kamal 23L-0898 2 0 0 0 0 0 0 44
Faiq Saeed 23L-0905 4 0 0 5 0 0 0 47
Zayan Ahmed 23L-0951 6 8 0 8 38 14 29 45
```

```
Mihammad Ali 23L-0953 10 8 0 10 43 41 26 48
Muhammad Rohan 23L-0963 10 10 10 10 43 48 50 44
Hafiz Sachal 23L-0973 6 3 10 0 41 46 0 37
Abdul Moeez 23L-0989 10 10 10 10 45 37 34 55
Abdullah Ijaz 23L-100014 10 10 10 43 53 48 53
Farah Munawar 23L-1010 14 10 10 10 45 53 50 50
Faheem Sarwar 23L-3010 14 10 10 10 43 51 38 55
Muhammad Umer 23L-3038 10 0 0 0 41 31 0 54
```

Important:

- Submit only one running .cpp file and your data file “GradeSheet.txt” (one **RUNNING** file YourRollNumber_A3.cpp that contains the class, its implementation and the driver Program). **Do not submit .rar or .zip files.** There will be negative marking for submission of whole project.
- Distribute your program into functions/tasks properly.
- Best apply all the programming concepts/practices to implement this module.
- There shouldn’t be any memory leakage, dangling pointers or runtime exception. There will be marks deduction per exception/error.