

## Object Oriented Programming

### Assignment - Students Evaluation Management

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. We are not saving midterm marks.

**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.
- 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.

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**//(PHASE – 2 : At runtime we are just printing already saved statistics.)**

	Q1	Q2	Q3	Q4	A1	A2	A3	A4
<b>Total:</b>	14	10	10	10	45	53	50	55
<b>Maximum :</b>	14	10	10	10	45	53	50	55
<b>Minimum:</b>	2	0	0	0	0	0	0	0
<b>Average:</b>	10	5	6	8	36	35	27	25

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**//PHASE – 1 : 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	3	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	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

```
-----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-----
//PHASE - 1
Enter Student Roll Number: //Hard code roll number 15L-1234 in your driver function
Student not found
```

```
-----Student Information-----
//PHASE-1
Enter Student Roll Number: //Hard code roll number 15L-4023 in your driver function
```

### Student Information:

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:									
14L-4159	Tahir Ali	0	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 Ali	6	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
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
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
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
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	

#### Important:

- Submit only one running .cpp file and your data file "GradeSheet.txt" (one **RUNNING** file YourRollNumber.cpp that contains 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.