**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]:**

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| 1. **ReadDataFromFile(). This global function will load all the data from file. To read static data in start of the file, call static function 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 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 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   1. **SearchStudentsByKeyWord(). This function will take a c-string and return all the students (EvalReport\*\*) having that substring in their firstname, lastName or RollNumber.** 2. **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   1. **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.** 2. **PrintAll(). Same PrintAll (used in exercise 3) will now print the sorted list** 3. **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.

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| **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 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** |

**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.