Programming Assignment - 2

Due Date : Section 0 - Monday   February   19th , 2018 - No Later than   2:15 pm

Section 1 - Monday   February   19th , 2018 -   No Later than   3:45 pm.

Section 2 - Monday   February   19th , 2018   - No Later than 5:15 pm.

Using C++ , design an   Abstract Data Type   class named **MyGrades**. The class must have the following private members :

- Vectors to hold grades for Programming Assignments and Midterm Exams .
- Programming Assignments will count as 20 % , Exam 1 will count as 20 % , and Exam 2 will count as 25%..

In Addition , the class should have the following seven member functions :

- Set Programming Assignment Grades
- Set test grades
- Show all programming assignment grades and calculating the average.
- Show all test grades
- Show overall grades
- Delete A Programming Assignment Grade
- Delete A Test Grade

Notes :
- Must define a class and its functions, followed by implementation of class functions, and finally followed by main program to run the program. All in one .cpp.
- Programming assignments and test grades must be defined as double. Characters and other form must be rejected.
- Selection must be 1 – 7 and 9 . Otherwise it is rejected.
- Program must continue until the user enters 9 to exit the program.
- Output values must include 2 numeric values after the decimal point.

Validations :

- Only integers are allowed as input values.
- Programming assignment grades are between 0 and 10.
- Only 2 Test grades are allowed to be recorded.
- Test grades are between 0 and 25.

Style Guidelines :

At the beginning of your program (and **before** the #include statement), include the following :

Header comments (file documentation block) should be at the top of each file and should contain: Author / s, Due Date, Assignment Number, Course number and section, Instructor, and a brief description of the purpose of the code in the file. For example :

```
//       Author / s : (Your name / s and serial number / s  here!!) -
//       Due Date  :
//       Programming Assignment Number  2
//       Spring   2018  -  CS 3358  -   Section  Number
//
//       Instructor:   Husain Gholoom.
//
//       <Brief description of the  purpose of the program>
```

Variable names :

- Must be meaningful.
- The initial letter should be lowercase, following words should be capitalized, no other caps or punctuation (i.e. `weightInPounds`   ).
- Each variable must be declared on a separate line with a descriptive comment.

Named constants :

- Use for most numeric literals.
- All capitals with underscores (i.e.   `TX_STATE_SALES_TAX`   )
- Should occur at top of function, or global (only if necessary)

Line length of source code should be no longer than 80 characters (no wrapping of lines).

Indentation :

- Use 2-4 spaces (but be consistent throughout your program).
- Indent blocks, within blocks, etc.
- Use blank lines to separate sections.

Comments for variables :

All variable definitions should be commented as follows:

```
int  gender;     // integer value for the gender,
                 // 1 = Male , 2 = Female ,
```

Rules :

1. Your program **must compile** and run. The program will be tested using the latest version of Codeblocks for windows.
2. Your program must be properly **documented according the style above . See the website for the sample programming style program.**
3. **You can use repetitions , control structures , try .. catch , and switch statements. You are not allowed to use regular arrays nor global variables. You are allowed Only 1 dimensional vector arrays.**
4. You must use the appropriate libraries in writing this program.
5. Must properly format the output by use the appropriate library. See the output below . Also , **Replace my first / last name with your own first / last name.**

6. You must use the following file names :

- **3358_0_LastName_FirstName_PG2.cpp   (Section 0)**
- **3358_1_LastName_FirstName_PG2.cpp   (Section 1)**
- **3358_2_LastName_FirstName_PG2.cpp   (Section 2)**

Where LastName is your Last Name and FirstName is your First Name. For example , the file name should look something like :
3358_0_Gholoom_Husain_PG2.cpp   (not .cbp)

7. You must upload your programs no later than the starting of class time on the due date. **No late assignments will be accepted.**

    Use TRACS to upload your program

8. You must **also** turn in hard copy of your source code no later than the due date / time . Should the hard copy consist of more than one page , then , the hard copy must be **stapled**. if you are unable to turn in a printout during class, you can take the program to the computer science department and hand it to the front desk personal (Comal 211) before the deadline. Make sure that the front office stamps the program. Make sure that include the date and time. Finally ,make sure that they place the program in my mailbox.

    DO NOT slide your program under my office door – It will **NOT** be accepted

The following points will be deducted if :

*   Compilation Errors **,** Incorrect file format such as uploading .cbp   instead of .cpp , missing electronic copy , missing the hardcopy , using .h and .cpp files   **(- 10 points)**

*   Logical Errors   **(at least - .75 point)**

*   Other **(at least .5   points)**   if **any** of the following takes a place :

    *   Unable to read the source code due to unclear printing
    *   **Not using class definition , missing vector arrays or switch statements .. etc.**
    *   Incorrect Output format.
    *   Incorrect program file name.
    *   Hard copy is not stapled.
    *   Incorrect Style **such as but not limited to** Missing Headers , Footers , Comments or Program Documentations , Missing roster number ,   missing section number … etc.

Sample Run

Welcome to My Grades APP.

```
1. Set A Programming Assignment Grade
2. Set A Test  Grade
3. Show All Programming Assignment Grades
4. Show All Test Grades
5. Show Overall  Grades
6. Delete A  Programming Assignment Grades
7. Delete A Test  Grade
9. Exit The Program
```

Enter your choice --->   a

Error *** Incorrect input - You entered a character / s
Enter a Positive Integer

```
1. Set A Programming Assignment Grade
2. Set A Test  Grade
3. Show All Programming Assignment Grades
4. Show All Test Grades
5. Show Overall  Grades
6. Delete A  Programming Assignment Grades
7. Delete A Test  Grade
9. Exit The Program
```

Enter your choice --->   xyz

Error *** Incorrect input - You entered a character / s
Enter a Positive Integer

```
1. Set A Programming Assignment Grade
2. Set A Test  Grade
3. Show All Programming Assignment Grades
4. Show All Test Grades
5. Show Overall  Grades
6. Delete A  Programming Assignment Grades
7. Delete A Test  Grade
9. Exit The Program
```

Enter your choice --->   8

Error *** You entered invalid choice

    1. Set A Programming Assignment Grade
    2. Set A Test Grade
    3. Show All Programming Assignment Grades
    4. Show All Test Grades
    5. Show Overall Grades
    6. Delete A Programming Assignment Grades
    7. Delete A Test Grade
    9. Exit The Program

Enter your choice --->   1
Enter A Programming Assignment grade: a

Error *** You entered a character / s

    1. Set A Programming Assignment Grade
    2. Set A Test Grade
    3. Show All Programming Assignment Grades
    4. Show All Test Grades
    5. Show Overall Grades
    6. Delete A Programming Assignment Grades
    7. Delete A Test Grade
    9. Exit The Program

Enter your choice --->   2

Enter A Test grade: xyz

Error *** You entered a character / s

    1. Set A Programming Assignment Grade
    2. Set A Test Grade
    3. Show All Programming Assignment Grades
    4. Show All Test Grades
    5. Show Overall Grades
    6. Delete A Programming Assignment Grades
    7. Delete A Test Grade
    9. Exit The Program

Enter your choice --->   xyz

Error *** Incorrect input - You entered a character / s
Enter a Positive Integer

    1. Set A Programming Assignment Grade
    2. Set A Test Grade
    3. Show All Programming Assignment Grades
    4. Show All Test Grades
    5. Show Overall Grades
    6. Delete A Programming Assignment Grades
    7. Delete A Test Grade
    9. Exit The Program

Enter your choice --->   6

Enter A Program Grade to be Deleted: 5

Programming Grade Does Not Exist

    1. Set A Programming Assignment Grade
    2. Set A Test Grade
    3. Show All Programming Assignment Grades
    4. Show All Test Grades
    5. Show Overall Grades
    6. Delete A Programming Assignment Grades
    7. Delete A Test Grade
    9. Exit The Program

Enter your choice --->   7

Enter A Test Grade to be Deleted: 2

Test Grade Does Not Exist

```
   1. Set A Programming Assignment Grade
   2. Set A Test  Grade
   3. Show All Programming Assignment Grades
   4. Show All Test Grades
   5. Show Overall  Grades
   6. Delete A  Programming Assignment Grades
   7. Delete A Test  Grade
   9. Exit The Program


Enter your choice  --->     9


Implemented by Husain Gholoom
February - 2018
```

Sample Run

Welcome to My Grades APP.

```
    1. Set A Programming Assignment Grade
    2. Set A Test  Grade
    3. Show All Programming Assignment Grades
    4. Show All Test Grades
    5. Show Overall  Grades
    6. Delete A  Programming Assignment Grades
    7. Delete A Test  Grade
    9. Exit The Program

Enter your choice  --->     1
Enter A Programming Assignment grade:    10


    1. Set A Programming Assignment Grade
    2. Set A Test  Grade
    3. Show All Programming Assignment Grades
    4. Show All Test Grades
    5. Show Overall  Grades
    6. Delete A  Programming Assignment Grades
    7. Delete A Test  Grade
    9. Exit The Program



Enter your choice  --->     1
Enter A Programming Assignment grade:    7


    1. Set A Programming Assignment Grade
    2. Set A Test  Grade
    3. Show All Programming Assignment Grades
    4. Show All Test Grades
    5. Show Overall  Grades
    6. Delete A  Programming Assignment Grades
    7. Delete A Test  Grade
    9. Exit The Program

Enter your choice  --->     5
```

Show Overall All Grades.

My Overall Grades so far are as follows :

Programming Assignment Grades are As Follows
10.00   7.00
Average Programming Assignments Grades is   17.00 Out of 20

No Test Grades are recorded

Overall Total -- >   17.00   out of 20

    1. Set A Programming Assignment Grade
    2. Set A Test Grade
    3. Show All Programming Assignment Grades
    4. Show All Test Grades
    5. Show Overall Grades
    6. Delete A Programming Assignment Grades
    7. Delete A Test Grade
    9. Exit The Program

Enter your choice --->   2

Enter A Test grade: 15

    1. Set A Programming Assignment Grade
    2. Set A Test Grade
    3. Show All Programming Assignment Grades
    4. Show All Test Grades
    5. Show Overall Grades
    6. Delete A Programming Assignment Grades
    7. Delete A Test Grade
    9. Exit The Program

Enter your choice --->   4

Show All Test Grades with Average.
Test Grades are As Follows
15.00

Average Tests Grades is   15.00   Out of   20

    1. Set A Programming Assignment Grade
    2. Set A Test Grade
    3. Show All Programming Assignment Grades
    4. Show All Test Grades
    5. Show Overall Grades
    6. Delete A Programming Assignment Grades
    7. Delete A Test Grade
    9. Exit The Program

Enter your choice --->   5

Show Overall All Grades.

My Overall Grades so far are as follows :

Programming Assignment Grades are As Follows
10.00   7.00
Average Programming Assignments Grades is   17.00 Out of 20

Test Grades are As Follows
15.00
Average Tests Grades is   15.00   Out of   20

Overall Total -- >   32.00 out of 40

    1. Set A Programming Assignment Grade
    2. Set A Test Grade
    3. Show All Programming Assignment Grades
    4. Show All Test Grades
    5. Show Overall Grades
    6. Delete A Programming Assignment Grades
    7. Delete A Test Grade
    9. Exit The Program

Enter your choice --->   2

Enter A Test grade: 22


```
   1. Set A Programming Assignment Grade
   2. Set A Test  Grade
   3. Show All Programming Assignment Grades
   4. Show All Test Grades
   5. Show Overall  Grades
   6. Delete A  Programming Assignment Grades
   7. Delete A Test  Grade
   9. Exit The Program
```

Enter your choice --->   5

Show Overall All Grades.

My Overall Grades so far are as follows :

Programming Assignment Grades are As Follows
10.00   7.00
Average Programming Assignments Grades is   17.00 Out of 20

Test Grades are As Follows
15.00   22.00
Average Test Grades is   37.00   Out of 45

Overall Total -- >   54.00 out of 65


```
   1. Set A Programming Assignment Grade
   2. Set A Test  Grade
   3. Show All Programming Assignment Grades
   4. Show All Test Grades
   5. Show Overall  Grades
   6. Delete A  Programming Assignment Grades
   7. Delete A Test  Grade
   9. Exit The Program
```

Enter your choice --->   6

Enter A Program Grade to be Deleted: 7

7   is Deleted

    1. Set A Programming Assignment Grade
    2. Set A Test Grade
    3. Show All Programming Assignment Grades
    4. Show All Test Grades
    5. Show Overall Grades
    6. Delete A Programming Assignment Grades
    7. Delete A Test Grade
    9. Exit The Program

Enter your choice --->   7

Enter A Test Grade to be Deleted: 22

22   is Deleted

    1. Set A Programming Assignment Grade
    2. Set A Test Grade
    3. Show All Programming Assignment Grades
    4. Show All Test Grades
    5. Show Overall Grades
    6. Delete A Programming Assignment Grades
    7. Delete A Test Grade
    9. Exit The Program

Enter your choice --->   5

Show Overall All Grades.

My Overall Grades so far are as follows :

Programming Assignment Grades are As Follows
10.00

```
Average Programming Assignments  Grades is       20.00 Out of  20

Test Grades are As Follows
15.00
Average Tests  Grades is   15.00  Out of  20

Overall Total  -- >   35.00  out of 40

Overall Total  -- >   35.00   out of 40

    1. Set A Programming Assignment Grade
    2. Set A Test  Grade
    3. Show All Programming Assignment Grades
    4. Show All Test Grades
    5. Show Overall  Grades
    6. Delete A  Programming Assignment Grades
    7. Delete A Test  Grade
    9. Exit The Program

Enter your choice  --->     9


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```