07.08 Assignment Instructions

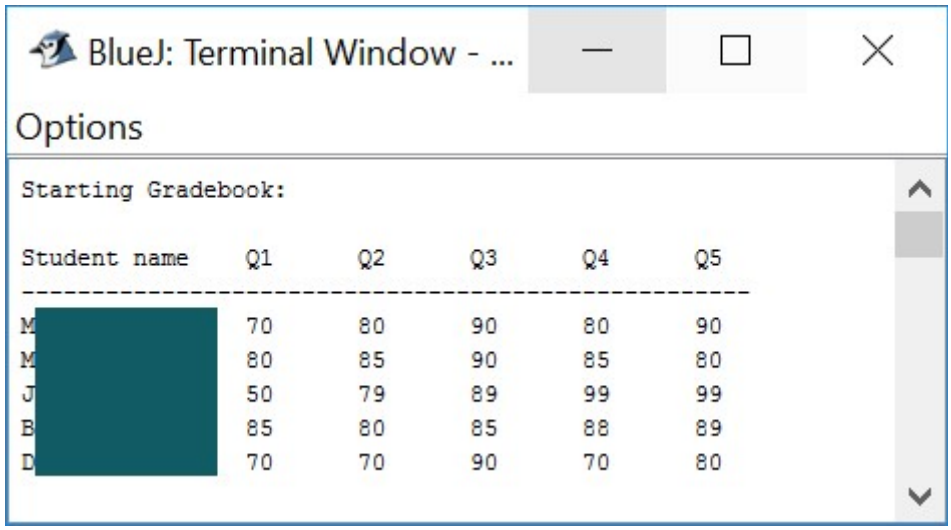
Instructions: For this assignment, employ all the standard algorithm methods. You will be making a grade book program similar to one an instructor might use. The grade book will include students and their grades. The program will traverse, replace, insert, and delete items within the grade book.

1. Create a folder called 07.08 Assignment in your Module 07 Assignment folder.
2. Create a class to define a student object.
    a. Instance variables are needed for the student name and five quiz scores.
    b. A constructor is needed to provide a way to define a student object and initialize the quiz scores.
    c. Methods are needed for the following:
        i. a method that takes in a quiz number as input and then returns the appropriate quiz value
        ii. a method that sets a quiz score based on inputing a quiz number and new quiz score
        iii. a method to get the name of a student
        iv. a method to set the name of a student
        v. a `toString()` method that prints the name of the student along with the quiz scores
3. Create a client class to test your student object.
    a. Start with five students in your class. Use a data structure to organize the students. You may choose to use either an array or an `ArrayList`; there is no need to do two versions of the program. Each student will have a first and last name and five quiz scores. The class will grow, so allow for at least 12 students.
    b. Create methods for the following tasks. Remember to make sure your methods handle there being null elements in the data structure.
        i. traverse through the data structure and print each element in a neat table format.
        ii. replace a student's name with a new one.
        iii. replace a student's quiz grade with a new one. It should replace only one quiz grade, as indicated by the quiz number, when it is called. It will have the data structure, quiz number, and new quiz score as input.
        iv. replace a student with another one. It will have the data structure, name to replace, new student name, and quiz scores as input.
        v. insert a new student before another student in the data structure. It will have the data structure, name to find, new student name, and quiz scores as input.

vi. delete a student by finding the student name. It will take the data structure and name to find as input.

4. Test your methods by calling each at least once to demonstrate all of your algorithms. The output needs to be clearly labeled as to the change performed. Display the grade book after each change. This will allow you or anyone else to verify the changes were done properly. The output should be similar to that shown below:

Expected Output: This is a sample of the expected output. The details will vary based on design choices you make while completing the project.



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