19.02 Assignment Instructions

Instructions: For this assignment, you will utilize assertions and then throw the proper exceptions. You will need to correctly perform the tests and then appropriately handle errors, if they occur. The scenario is student data in which their first and last names must be provided along with valid assignment scores.

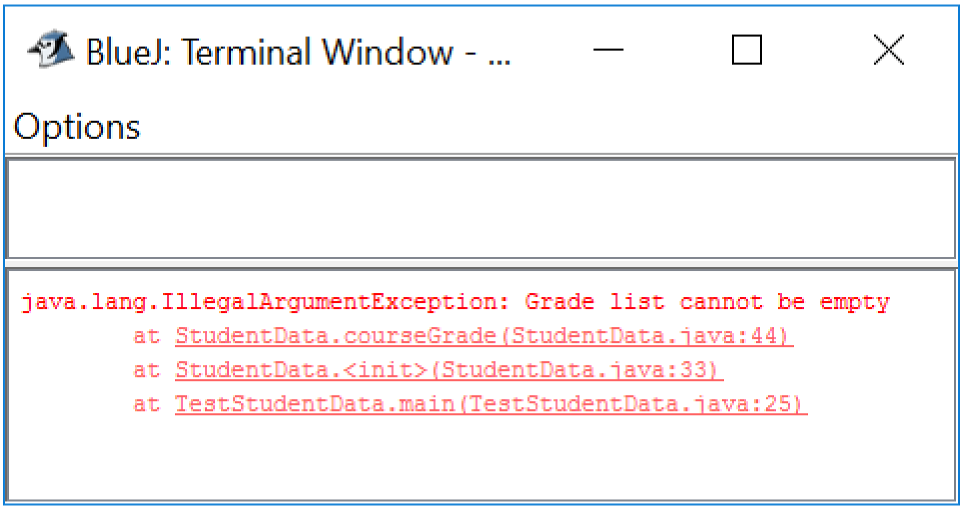
1. Create a new project called **19.02 Assignment** in your Module 19 assignments folder.
2. Create an implementation class to define a student's data.
    a. establish instance variables for the student's first name, last name, assignment scores (use an array), and letter grade
    b. set up a constructor to initialize all the instance variables
    c. create appropriate get and set methods and a `toString` method that returns a `String` with all of a student's information
    For example:

```
Benjamin  Grimm  -  B:  89.50  78.00  95.00  63.50  94.00
```

3. In the implementation class, include a method to determine the letter grade based on a collection of scores in an array.
    a. This method will take one array of floating point numbers as the parameter.
    b. A `String` representing the letter grade will be returned.
    c. The letter grade is determined by averaging the scores in the array and assigning a letter grade based on the result.
    d. Throw an illegal argument exception if the array of scores is empty.
4. Modify the constructor to ensure all initial values for an object are valid. Test each assentation and throw exceptions accordingly.
    a. a student's first name cannot be empty
    b. a student's last name cannot be empty
    c. initialize the instance variable representing the letter grade by calling the method to determine the course grade
5. Test your program and make sure all the methods and exception throws work properly. Clearly document each method call and what it is testing. Since only one error can be tested at a time, comment out the ones not being used while testing others. Be sure to show successful results along with code that will throw exceptions.

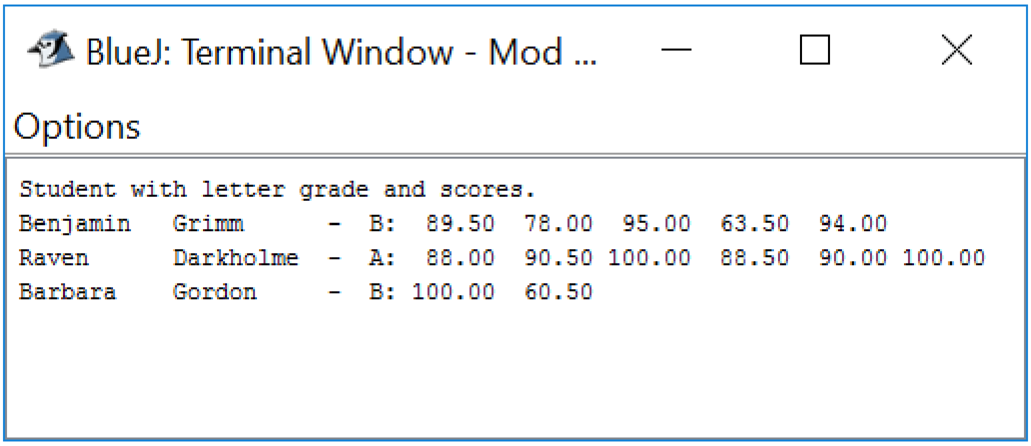
Expected Output: This is a sample of the expected output. The details will vary based on design choices you make while completing the project.

Example that throws an exception for the assignment scores array being empty:



```
java.lang.IllegalArgumentException: Grade list cannot be empty
        at StudentData.courseGrade(StudentData.java:44)
        at StudentData.<init>(StudentData.java:33)
        at TestStudentData.main(TestStudentData.java:25)
```

Example where all method calls are successful:



```
Student with letter grade and scores.
Benjamin   Grimm      - B:  89.50  78.00  95.00  63.50  94.00
Raven      Darkholme  - A:  88.00  90.50 100.00  88.50  90.00 100.00
Barbara    Gordon     - B: 100.00  60.50
```

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