HOWARD UNIVERSITY

**DEPARTMENT OF SYSTEMS AND COMPUTER SCIENCE**

**SPRING 2025**

***Large Scale Programming***

***Due: Tuesday, April 8 th by 8PM***

Use your IntegerSet from assignment #5, create the appropriate JUnit test cases to thoroughly unit test your implementation. As a reminder, below are the public methods that you should write JUnit tests for.

public class IntegerSet {

private List<Integer> set = new ArrayList<Integer>();

// Clears the internal representation of the set

public void clear() {…};

// Returns the length of the set

public int length() {…}; // returns the length

/\*

\* Returns true if the 2 sets are equal, false otherwise;

\* Two sets are equal if they contain all of the same values in ANY order.

\*/

public boolean equals(IntegerSet b) {…};

// Returns true if the set contains the value, otherwise false

public boolean contains(int value) {…};

// Returns the largest item in the set; Throws a IntegerSetException if the set is empty

public int largest() **throws IntegerSetException** {…};

// Returns the smallest item in the set; Throws a IntegerSetException if the set is empty

public int smallest() **throws IntegerSetException**;

// Adds an item to the set or does nothing it already there

public void add(int item) {…}; // adds item to s or does nothing if it is in set

// Removes an item from the set or does nothing if not there

public void remove(int item) {…};

// Set union

public void union(IntegerSet intSetb) {…};

// Set intersection

public void intersect(IntegerSet intSetb) {…};

// Set difference, i.e., s1 –s2

public void diff(IntegerSet intSetb); // set difference, i.e., s1 - s2

// Set complement, all elements not in s1

public void complement(IntegerSet intSetb) {…};

// Returns true if the set is empty, false otherwise

boolean isEmpty();

// Return String representation of your set

public String toString() {…}; // return String representation of your set

}

Your JUnit test class should be named IntegerSetTest to be consistent with standard Java naming conventions. In addition, each method should be named in the format of testXXXX. For example, if testing the equals(Boolean) method it would look like …

public class IntegerSetTest {

…

@Test

@DisplayName("Test case for equals")

public void testEquals() {

// JUnit test case(s) for equal

}

…

}

You should sufficiently test each public method, you will be graded on **how robust** your JUnit test cases are. In addition, note that methods largest() and smallest() potentially throw an exception if invoked and your IntegerSet is empty. You are to add to add exception handling to these methods and write JUnit test cases to test the exceptions.

Finally, create a new package, org.howard.edu.assignment6 and copy all your work from assignment5 into your new package. Your test cases and source code can all be in the same package.

As always, is it preferred that all questions be posted to Piazza so that all can benefit.

A screen shot of a computer

AI-generated content may be incorrect.