

A Test Program

LISTING 2-2 A program that tests three core methods of the class ArrayBag

```
/**
 * A test of the methods add, toArray, and isFull, as defined
 * in the first draft of the class ArrayBag.
 *
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 */
public class ArrayBagDemo1
{
    public static void main(String[] args)
    {
        // a bag that is not full
        BagInterface<String> aBag = new ArrayBag<String>();

        // tests on an empty bag
        testIsFull(aBag, false);

        // adding strings
        String[] contentsOfBag1 = {"A", "A", "B", "A", "C", "A"};
        testAdd(aBag, contentsOfBag1);
        testIsFull(aBag, false);

        // a bag that will be full
        aBag = new ArrayBag<String>(7);
        System.out.println("\nA new empty bag:");

        // tests on an empty bag
        testIsFull(aBag, false);

        // adding strings
        String[] contentsOfBag2 = {"A", "B", "A", "C", "B", "C", "D"};
        testAdd(aBag, contentsOfBag2);
        testIsFull(aBag, true);
    } // end main
}
```

```
// Tests the method add.
private static void testAdd(BagInterface<String> aBag,
                           String[] content)
{
    System.out.print("Adding to the bag: ");
    for (int index = 0; index < content.length; index++)
    {
        aBag.add(content[index]);
        System.out.print(content[index] + " ");
    } // end for
    System.out.println();

    displayBag(aBag);
} // end testAdd

// Tests the method isFull.
// correctResult indicates what isFull should return.
private static void testIsFull(BagInterface<String> aBag,
                               boolean correctResult)
{
    System.out.print("\nTesting the method isFull with ");
    if (correctResult)
        System.out.println("a full bag:");
    else
        System.out.println("a bag that is not full:");

    System.out.print("isFull finds the bag ");
    if (correctResult && aBag.isFull())
        System.out.println("full: OK.");
    else if (correctResult)
        System.out.println("not full, but it is full: ERROR.");
    else if (!correctResult && aBag.isFull())
        System.out.println("full, but it is not full: ERROR.");
    else
        System.out.println("not full: OK.");
} // end testIsFull

// Tests the method toArray while displaying the bag.
private static void displayBag(BagInterface<String> aBag)
{
    System.out.println("The bag contains the following string(s):");
    Object[] bagArray = aBag.toArray();
    for (int index = 0; index < bagArray.length; index++)
    {
        System.out.print(bagArray[index] + " ");
    } // end for

    System.out.println();
} // end displayBag
} // end ArrayBagDemo1
```