

```

import java.util.ArrayList;
import java.util.Random;

public class ArrayListExercises {

    public static void main(String[] args) {
// You do not need to handle the User Interface (UI).
// Instead you can run the JUnit test cases found in ArrayListExercisesTests.java
    }

/**
 * Removes all of the strings of even length from the given list
 * @param listOfStrings the list of Strings (list can be empty)
 * @return the given list with all even length strings removed
 */

/**
 * Models/simulates the game of Bulgarian Solitaire.
 * @param numCards the number of cards to start with; n must be a triangular
number (a triangular
 * number is a number that can be written as the sum of the first n positive
integers).
 */

    public static void bulgarianSolitaire(int numCards) {

// Check if given number of cards is triangular
int n = (int) Math.sqrt(2*numCards);
System.out.println(numCards);

if (n*(n+1)/2 != numCards) {
System.out.println(numCards + " is not triangular");
return;
}

    ArrayList<Integer> deck = new ArrayList<Integer>();
int location = 0;
while(numCards > 0) {
    Random randy = new Random();
    int number = randy.nextInt(numCards) + 1;
    deck.add(location, number);
    location = randy.nextInt(deck.size());
    numCards = numCards - number;
}
}

```

```

ArrayList<Integer> idealDeck = new ArrayList<Integer>();
for(int i = 1; i <= n; i++) {
    idealDeck.add(i);
}

System.out.print("Initial Configuration: ");

int count = 0;

while(!deck.equals(idealDeck)) {
int x = deck.size();
for(int i = 0; i < deck.size(); i++) {
    System.out.print(deck.get(i) + " ");
    if(deck.get(i) < 2) {
        deck.remove(i);
        i--;
    }
    else
        deck.set(i, deck.get(i) - 1);
}
deck.add(x);
System.out.println();
count++;
}
System.out.print("Final Configuration: ");
for(int i = 0; i < idealDeck.size(); i++) {
    System.out.print(deck.get(i) + " ");
}
System.out.println();
System.out.println("Number of Shuffles: " + count);
return;

}
}

```