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

public class BulgarianSolitaire {
    public static void main(String[] args) {
        int n = 15;
        ArrayList<Integer> piles = new ArrayList<Integer>();
        int num = n;
        while (num>0) {
            int pilesize = random(1,num);
            piles.add(pilesize);
            num-=pilesize; }
        int perfectn = 0;
        for(int i=1; n!=0; i++) {
            n-=i;
            perfectn++; }
        while (doneCheck(piles, perfectn)==false) {
            newRound(piles); }
        System.out.println(piles); }

    public static void newRound(ArrayList<Integer> piles) {
        System.out.println(piles);
        int size = piles.size();
        for (int i=0; i<size; i++) {
            piles.set(i, piles.get(i)-1);
        }
        for (int i=size-1; i>=0; i--) {
            if (piles.get(i)==0)
                piles.remove(i);
        }
        piles.add(size);
    }

    public static boolean doneCheck(ArrayList<Integer> piles, int perfectn) {
        boolean done = true;
        if (piles.size()==perfectn) {
            for (int i=0; i<perfectn-1; i++) {
                for (int q=i+1; q<perfectn; q++) {
                    if(piles.get(i)==piles.get(q)) {
                        done = false;
                    }
                }
            }
        }
        else
            done = false;
        return done;
    }

    public static int random(int low, int high) {
        Random rand = new Random();
        return rand.nextInt(high-low+1)+low;
    }
}

```