COS126 Array Activity - Section 1.4

Complete the program so it can take an unspecified number of command-line inputs, store them in an integer array, and compute their sum. The program will then output a random index calculated using the inputs as frequency counts. (Web Exercise 1.4.2)

```
 1 /*************************************************************************
 2  *  Login, etc:
 3  *  Compile: javac DiscreteDistribution.java
 4  *  Execute: java DiscreteDistribution freq0 freq1 freq2 . . .
 5  *
 6  *  Reads in an array of N frequency counts from the command line,
 7  *  and prints out i with probability proportional to the ith
 8  *  frequency count.
 9  *
10  *  // six equally likely events
11  *  % java DiscreteDistribution 1 1 1 1 1 1
12  *  3
13  *
14  *  % java DiscreteDistribution 1 1 1 1 1 1
15  *  0
16  *
17  *  // six events, one 3x more likely than the others
18  *  % java DiscreteDistribution 1 1 1 1 1 3
19  *  5
20  *
21  *  % java DiscreteDistribution 1 1 1 1 1 3
22  *  2
23  *
24  *  % java DiscreteDistribution 1 1 1 1 1 3
25  *  5
26  *************************************************************************/
27
28 public class DiscreteDistribution {
29     public static void main(String[] args) {
30
31        // read in N frequencies.  store in integer array.
32        int N = ____________________________;
33        ____________[] freq = __________ int[___];
34        for (_____________________; ___________________; __________) {
35            freq[_____] = Integer.parseInt(___________________);
36        }
37
38        // compute total count of all frequencies
39        int total = ______;
40        for (int i = 0; i < N; i++) {
41            total += _________________________________;
42        }
43
44        // generate random integer with probability proportional to frequency
```

```
45        int r = (int) (total * Math.random());   // integer in [0, total)
46        int sum = 0;
47        int event = -1;
48        for (int i = 0; i < N && sum <= r; i++) {
49            sum += freq[i];
50            event = i;
51        }
52
53        System.out.println(event);
54    }
55 }
```