January 23, 2017

Purpose: Write a Java program that generates 100 random numbers between 1 and 100 using Java Library's Random class to generate the numbers. Min, max, mean, and standard deviation is displayed.

Sample outputs:

min: 1
max: 99
mean: 50.0
Std dev: 36.0

min: 2
max: 100
mean: 55.4
Std dev: 43.6

min: 1
max: 100
mean: 46.7
Std dev: 33.3

Analysis:

This homework took me the weekend to do. Friday and Saturday, I was going over Java since I know C/C++ from computer engineering. However, switching majors, I must now learn Java. I see the similarities but I had a difficult time trying to find a best way to do this project. I have a strong feeling I could had gone about this with creating different classes for min, max, mean, and std dev and then plugging them in to the main function to have the code be concise and readable. I also understand my standard deviation is inputted wrong. I was having a difficult time with that and I spend most of my time trying to fix it, however this is the best I could do.

```
import java.util.Random;
public class RandomNumbers{
   public static void main (String[] args){
   Random GenNum = new Random();
   int number, min=0,max=0;
   float sum=0, mean=sum/100;
   double std=0, difference=0,root=0,sum2=0,variance=0;

        for(int counter=1; counter<=100; counter++){
          number = 1+GenNum.nextInt(100);
          System.out.println(number + " ");

         //finding the min
          if( counter == 1 )
             min = number;
         else
          if (number < min)
             min = number;
        //finding the max
          if(number > max)
             {
             max = number;
             }
        //finding the sum to use in the mean
          sum+=number;
         //finding the mean
          mean=sum/100;
                 //the start of finding the std dev
                 for(int i=1; i<=100; i++){
                 difference=number-mean;
             }
          }
     // continue of finding the std dev
      for (int a=1; a<=100; a++){
      root= Math.pow(difference,2);
        }
      for(int b=1; b<=100; b++){
      sum2+=root;
      }
     variance=sum2/100;
     std= Math.pow(variance,0.5);
 // Printing out
  System.out.printf(" min: %d\n max: %d\n mean: %.1f\n Std dev: %.1f\n", min, max, mean,
std);
}
}
```