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CSC 2300

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**Random Numbers**

This project was relatively simple. I created an array and input the randomly generated numbers into it. It took me a little bit to figure out how to get the minimum, which was done by setting the minimum to 100, and then checking to see if the value was less than the minimum, and if it was, then the value became the new minimum. I did the same thing for the maximum, just switching the max to 0 in the beginning and making the comparison a “greater than” as opposed to a “less than”. I ran into no troubles calculating the mean. I then moved on to standard deviation, which took me the longest to figure out mainly because I had a couple steps mixed up and I forgot to square the total sum. Overall, the project took me between 45 minutes and an hour to complete. I got help from Stack Overflow on the math functions used in standard deviation.

**RandomNumbers.java**

**import** java.util.Random;

**import** java.lang.Math;

**public** **class** RandomNumbers {

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

//creating array

Random rand = **new** Random();

**int**[] arr = **new** **int** [100];

**int** n;

//creating array of random objects

**for** (**int** i = 0; i < 100; i++){

n = rand.nextInt(100)+1;

arr[i] = n;

//System.***out***.println(n);

}

//finding the minimum

**int** min=100;

**for** (**int** i = 0; i < 100; i++){

**if**(arr[i] < min)

min = arr[i];

}

System.***out***.println("Minimum is: "+min);

//find the maximum

**int** max = 0;

**for** (**int** i = 0; i < 100; i++){

**if**(arr[i] > max)

max = arr[i];

}

System.***out***.println("Maximum is: "+max);

//calculating the mean

**int** sum = 0;

**for**(**int** i = 0; i < 100; i++){

sum = sum+arr[i];

}

**double** mean = sum/100;

System.***out***.println("Mean is: "+mean);

//calculating standard deviation

**double** subAvg=0;

**double** sumSD=0;

**for** (**int** i = 0; i < 100; i++){

subAvg=arr[i]-mean;

subAvg = subAvg\*subAvg;

sumSD=sumSD+subAvg;

}

sumSD=sumSD/100;

**double** sd = Math.*sqrt*(sumSD);

sd = Math.*round*(sd\*10)/10;

System.***out***.println("Standard Deviation is: "+sd);

}

}

**Sample Output**

Minimum is: 2

Maximum is: 100

Mean is: 50.0

Standard Deviation is: 26.0

Minimum is: 1

Maximum is: 100

Mean is: 52.0

Standard Deviation is: 29.0

Minimum is: 1

Maximum is: 98

Mean is: 49.0

Standard Deviation is: 30.0