Lab 14

Instructions: Complete the steps below. Be sure to show your code to one of the lab TAs before you leave, so that you can receive credit for this lab. You must also upload a copy of all your source code (.java) files to the link on Blackboard by **11:59 PM on Wednesday October 21, 2020 for L01, L02, L03, L05 and by 11:59 PM on Tuesday October 20, 2020 for L06, L07, L08 and L09**.

1. In business applications, you are often asked to compute the mean and standard deviation of data. The mean is simply the average of the numbers. The standard deviation is a statistic that tells you how tightly all the data are clustered around the mean in a set of data. Compute the standard deviation of numbers. Please use the following formula to compute the standard deviation of n numbers.

$$mean = \frac{\sum_{i=1}^{n} x_i}{n} = \frac{x_1 + x_2 + \cdots + x_n}{n}$$

$$standard\ deviation = \sqrt{\frac{\sum_{i=1}^{n} (x_i - mean)^2}{n-1}}$$

   To compute the standard deviation using the above formula, you have to store the individual numbers using an array, so they can be used after the mean is obtained.
   Your program should contain the following methods:
   /** to compute the deviation of double values**/
   public static double deviation(double[] x)
   /** to compute the mean of an array of double values**/
   public static double mean(double[] x)
   write a test program that prompts the user to enter 10 numbers and displays the mean and standard deviation, as presented in the following sample run:
   Enter 10 numbers : 1.9 2.5 3.7 2 1 6 3 4 5 2
   The mean is 3.11
   The standard deviation is 1.55738

2. Write a method that returns a new array by eliminating the duplicate values in the array using the following method header:
   Public static int[] eliminateDuplicate(int[] list)
   Write a test program that reads in 10 integers, invokes the method, and displays the distinct numbers separated by exactly one space. Here is a sample run of the program:
   Enter 10 numbers: 1 2 3 2 1 6 3 4 5 2
   The distinct numbers are: 1 2 3 6 4 5

Grading Guidelines: This lab is graded on a scale of 0-6 points, assigned as follows:

- **0 points:** Student is absent or does not appear to have completed any work for the lab
- **2 point (2*1):** Student has written the program, but it has errors.
- **4 points (2*2):** Student has written the program it compiles without error, but it does not produce the correct output.
- **6 points (2*3):** Student has written the program and it compiles and runs correctly, without any errors.