Lab 11

Instructions: Complete the steps below. Be sure to upload a copy of all your source code (.java) files to the link on Brightspace by its deadline, so that you can receive credit for this lab.

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 reverse that reverses the array passed in the argument and returns this array. Write a test program that prompts the user to enter 10 numbers, invokes the method to reverse the numbers, and displays the numbers.
   NOTE: Please do not create a temporary array in the reverse method. Use the original array (array in the argument.) and reverse it.

Grading Guidelines:

- **0 -** The student did not attend the lab,
- **3 -** The solutions are complete OR the student spent the entire lab solving the required lab problems (in this case, the students may not arrive at the lab after the lab started and may not leave until the lab ends).