Least Squares

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Least Square Lines Equation - Text File I/O

Suppose we have a text file (which I supplied named **data.txt**, and a second test file named: another_test.txt) that has the following table:

Temperature (celsius)	Resistance (ohms)
20.0	761
31.5	817
50.0	874
71.8	917
91.3	1018

Write a Java console application, that does the following:

1. Prompt the user for the name of the text file

2. Opens the text file and reads in the ordered pair data (which is stored in the text file in the format of: xxx.xxxxx yyy.yyyy where there is a space between the numeric values and a carriage return/line feed after the last numeric value on each line).

3. While looping through the read ordered pairs, have variables for the following:

    1. keep count of the number of ordered pairs processed

    2. sum of the x values

    3. sum of the y values

    4. sum of the square of the x values

    5. sum of the products of x and y

4. After the ordered pairs have been read in, close the file.

5. Compute the regression coefficients **m** and **b** for the equation of the least squares line equation, where **m** is the slope and **b** is the y-intercept.

$$slope = \frac{\sum xy - (\sum x)(average\ of\ y)}{\sum x^2 - (\sum x)(average\ of\ x)}$$, you can find the y-intercept by

subtracting from the average of y, the product of the slope and average of x.

6. The output to the terminal screen must be: **Equation of least squares line: y = 3.33658x + 700.82837**

7. The data file named another_test.txt, should have the output to the terminal screen: **Equation of least squares line: y = -0.07926x + 754.90472**

This assignment is due through the Assignment Submission tool, no later than 4/26/2017 at 11:59PM, Early Bird Bonus submission before 11:59PM on 4/18/2017.