**Report of Monitoring Lab 1**

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**Task**

0. Read the input data into labview and draw a chart of these data

1. Square each value of the data set

2. Compute the mean of all squared values

3. Determine the number of data records

4. Determine the mean of all squared values

5. Determine the number of values that are bigger than the mean

6. Determine the number of values that are smaller than the mean

7. Write all results to dataout.dat

**Data input**

* Delete the words on the top to make sure the data starts from the first row.
* Using ***File path control*** to get file path; using ***Read from spreadsheet file*** to read data.
* Using ***Index Array*** and create ***constant*** 0 on the left to get the array of the data.

**Data processing**

* Using ***Array Size*** to get the size of the array.
* Using ***Waveform Chart*** to draw a chart of the data.
* Using ***Square*** to get the squared the data.
* Using ***Mean*** to get the mean value of the squared data
* Using ***Greater?*** and ***Less?*** to get the bigger or smaller squared data with comparison to the mean value, then using ***Boolean To (0,1)*** and ***Add Array Elements*** to count the number of these values

**Data storage**

* Using ***Build Matrix*** to build a matrix for storing the output results (x^2, mean, numbers of >mean, numbers of <mean)
* Using ***Write To Spreadsheet File*** to output the results, change the format to %f in order to make the output results look tidy
* Run the project, choose the file directory and output the results