Exercise 10-5: Reading and Analyzing Data from a File in LabVIEW

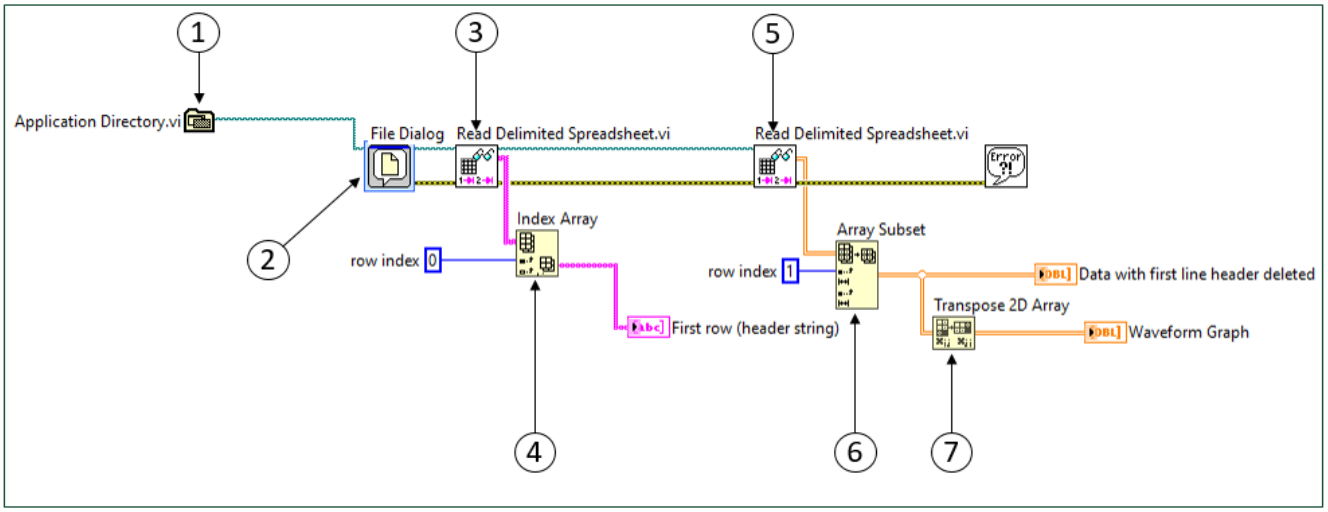
Goal

- Read and analyze data from a text file in LabVIEW.

Instructions

1. Examine the text file containing the data that we want to read into LabVIEW.
   - Open and examine the following text file: `C:\Exercises\LabVIEW Core 1\Read Delimited File\Acquired Data (NChan NSamp).txt`.
   - Notice that the first row is a header.
   - Notice that the text file contains four columns of data. Each column represents a different channel.
2. Open the following project: `C:\Exercises\LabVIEW Core 1\Read Delimited File\Read Delimited File into VI.lvproj`.
3. From the **Project Explorer** window, open the Read Delimited File into VI.

4. Examine the block diagram.



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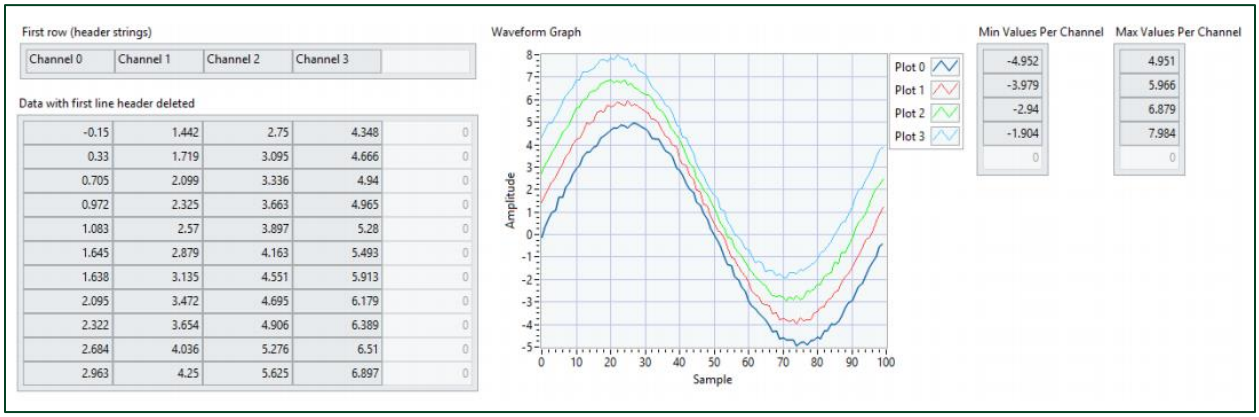
1. **Application Directory VI** – Returns the path to the directory containing the current project (`.lvproj`)
2. **File Dialog Express VI** – Displays a dialog box with which a user can specify the path to a new or existing file or directory.
3. **Read Delimited Spreadsheet VI (string)** – Returns the contents of the delimited text file as a 2D string array.
4. **Index Array function** – Extracts the first row, which contains a string for each column header.
5. **Read Delimited Spreadsheet VI (DBL)** – Returns the contents of the delimited text file as a 2D DBL array.
6. **Array Subset** function – The first line in this tab-delimited text file is a header. Use this function to remove the first line, so that the array output contains only the numeric data.
7. **Transpose 2D Array** function – Transposes the 2D array. The output 2D array contains one row for every channel.

Note: If you wire a 2D DBL array to a graph, the graph will interpret each row of the 2D DBL array as a separate plot, which is why you must transpose the 2D array in this VI.

5. Examine the functionality of the VI.
   - Run the VI.
   - In the file dialog box, navigate to the following text file: `C:\Exercises\LabVIEW Core 1\Read Delimited File\Acquired Data (NChan NSamp).txt`.
   - Use Highlight Execution and probes to examine the functionality of this VI.

Your Turn

1. Open and examine the following text file: `C:\Exercises\LabVIEW Core 1\Read Delimited File\Acquired Data (NChan NSamp).txt`.
2. Modify the block diagram to process the multi-channel data that this VI has read from the text file.
   - Display the minimum and maximum values of each channel.
   - Your front panel should look similar to the following figure.



End of Exercise 10-5