

UNIVERSITY OF WEST LONDON

# Engineering Software 2

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*Assignment*

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## Introduction

The task for this assignment was to make a conversion program in lab view that would convert the values of the resistor from a Star resistor formation to a Delta resistor formation and vice-versa. By plotting the formulas of conversion in lab view and using a lab view case structure to switch between one and the other. The outcome for this assignment is to test the abilities of the student of using lab view and how they understand the software and also how they are able to make a flowchart explain what they did on the software.

## Flowchart

In figure 1 is shown a flowchart of the lab view program for the conversion of Star resistor formation to Delta and vice-versa. This flowchart starts with the user entering the inputs and then choosing which formation they want to do operations for, if they want to do operation from star to Delta the user will have to choose the yes path and for Delta to star the no path after choosing the path they will have to enter the inputs needed to do the operations for that path. Then the user will have to choose which variable they want to do the operation for then after the calculation the result is shown as an output ending the flowchart.

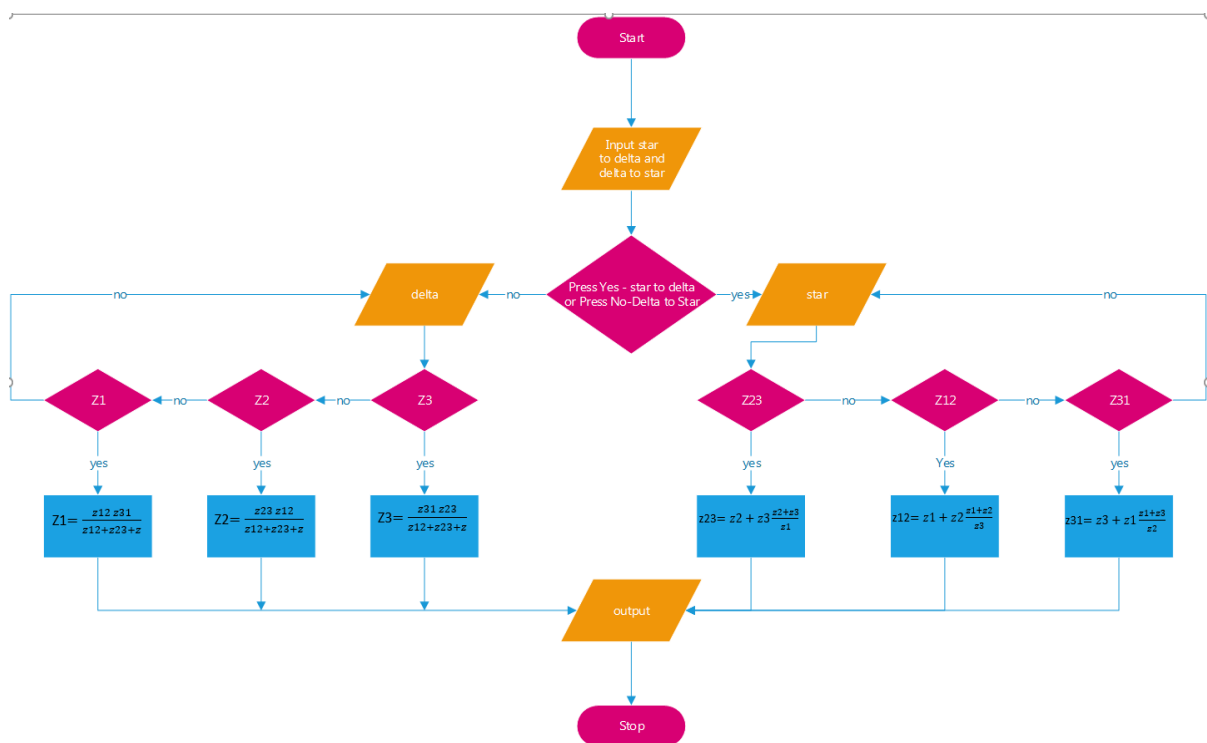


Figure 1

## Lab view program

Figure 2 shows the frontal panel of a Labview program. For this program, it was used three Enums the first of which lets the user choose which conversion they want execute then depending on which conversion they choose they will use either the Enum for delta results or the Enum for star results to choose which operation to execute. Then after entering the three input the needed for the operation choose in numerical controls under the conversion chosen, then by running the simulation the result for the variable chosen will be displayed in the result numerical indicator.

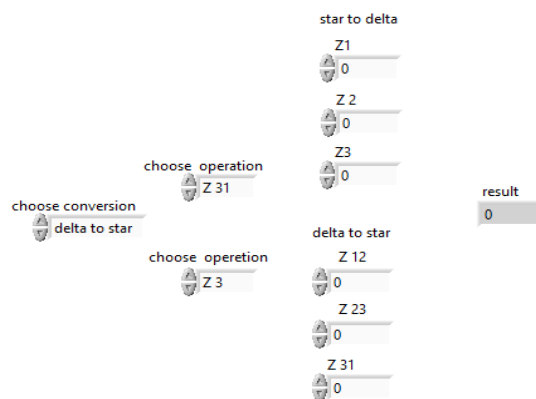


Figure 2

In figure 3 and in figure 4 shows the Block Diagram of a Labview program. In figure 3 are shown six input, of which only the first three are in use in this case. Two Enums, that execute a case within a case to let the user choose between two conversions of which delta to star is the one in use in this figure and other Enum lets the user decide on the operation to execute inside of the case. The result operations are sent to a single output for it to be displayed in the frontal panel

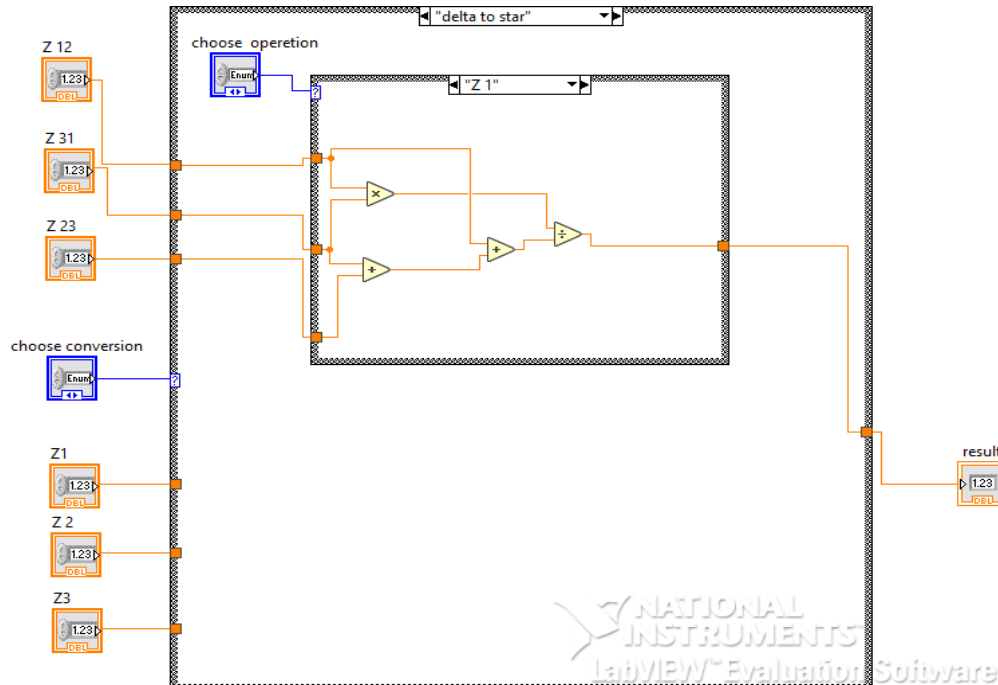


Figure 3

Figure 4 shows a similar layout but in this figure is shows the layout of the other conversion, Star to Delta, which uses the other three inputs shown in the previous figure and a different Enum to choose the star to delta operations to execute inside the case.

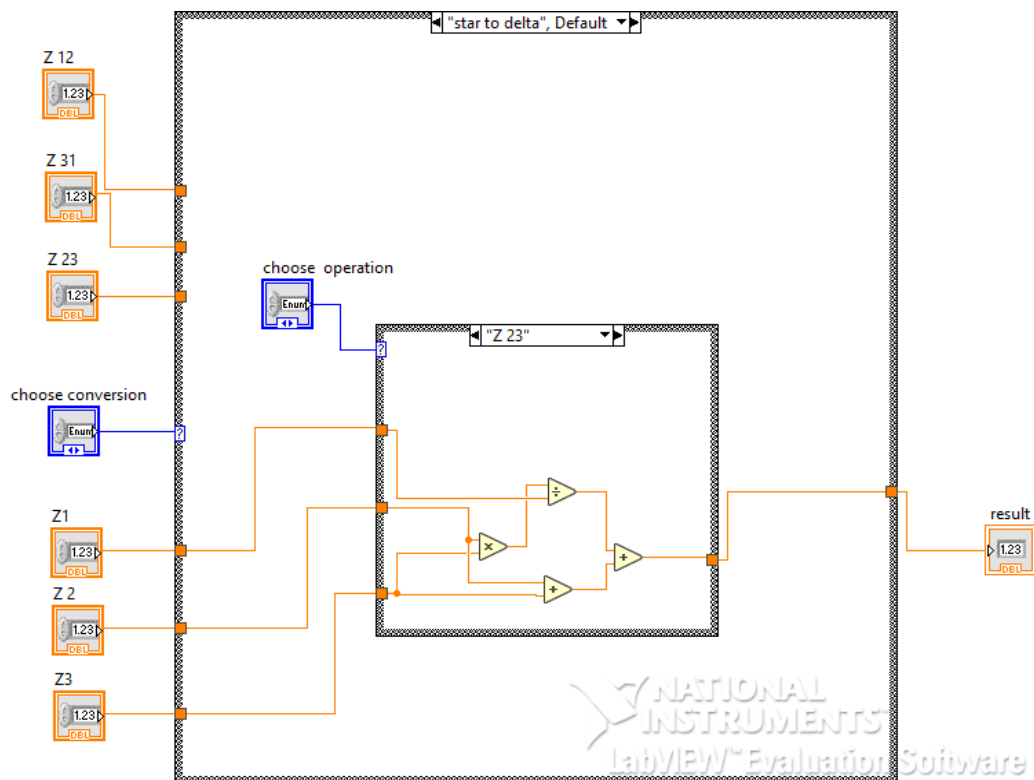
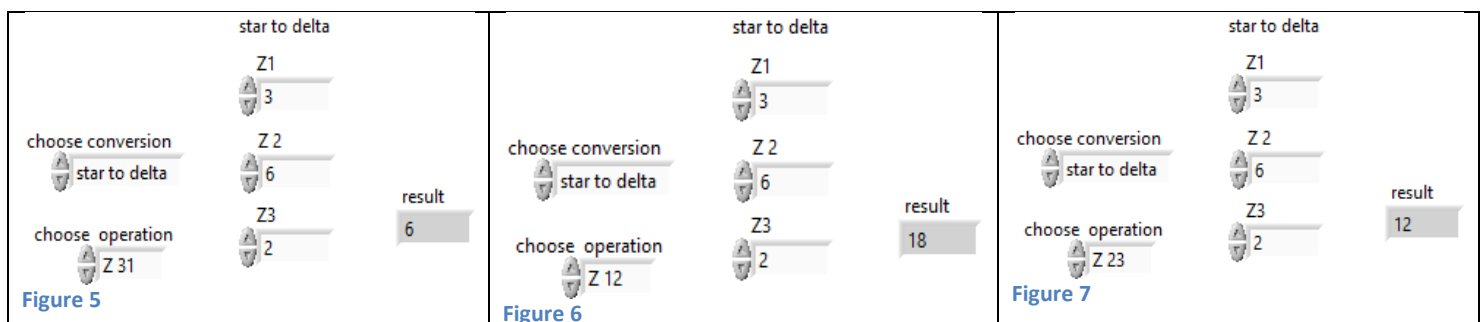


Figure 4

## Testing

In figure 5, 6 and 7 show the testing of all the operations for the Star to Delta conversion .the testing by giving values to all the variables and running the simulation then after the result was shown the same equation with the same variables were used in a calculator to cross-check the results. In all three cases, they were as expected.



In figure 8, 9 and 10 show the testing for testing for all the operation for the Delta to Star conversion. The testing method used was the same use for the operation star to Delta and the results of this operation were as expected.

