

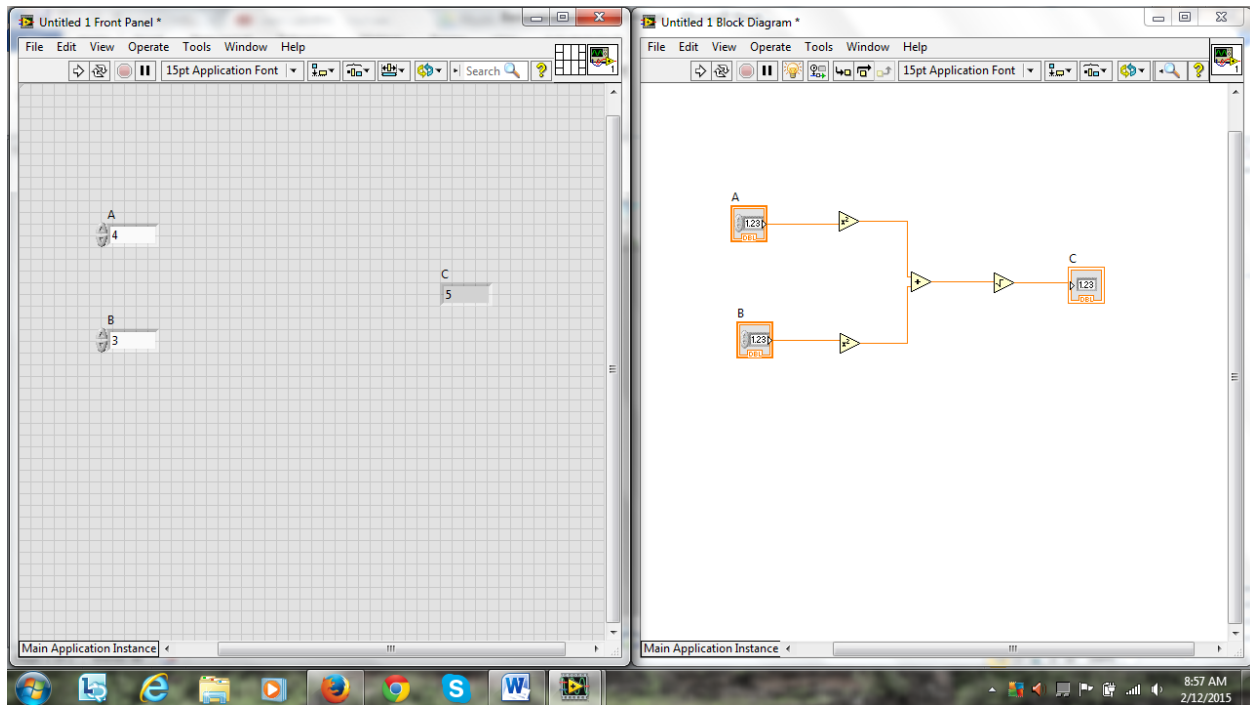
Tutorial: LabVIEW Basics Name(s) Lucia Garay

Start LabVIEW for Education 2010. On the bottom of the “Getting Started” screen, there is a “Teach Me” link. Click there a “Basic LabVIEW” tutorial. Be sure to save your *.VI files for each tutorial and project!!

The link to the Basic LabVIEW: <http://k12lab-support-pages.s3.amazonaws.com/lvbasichome1.html>

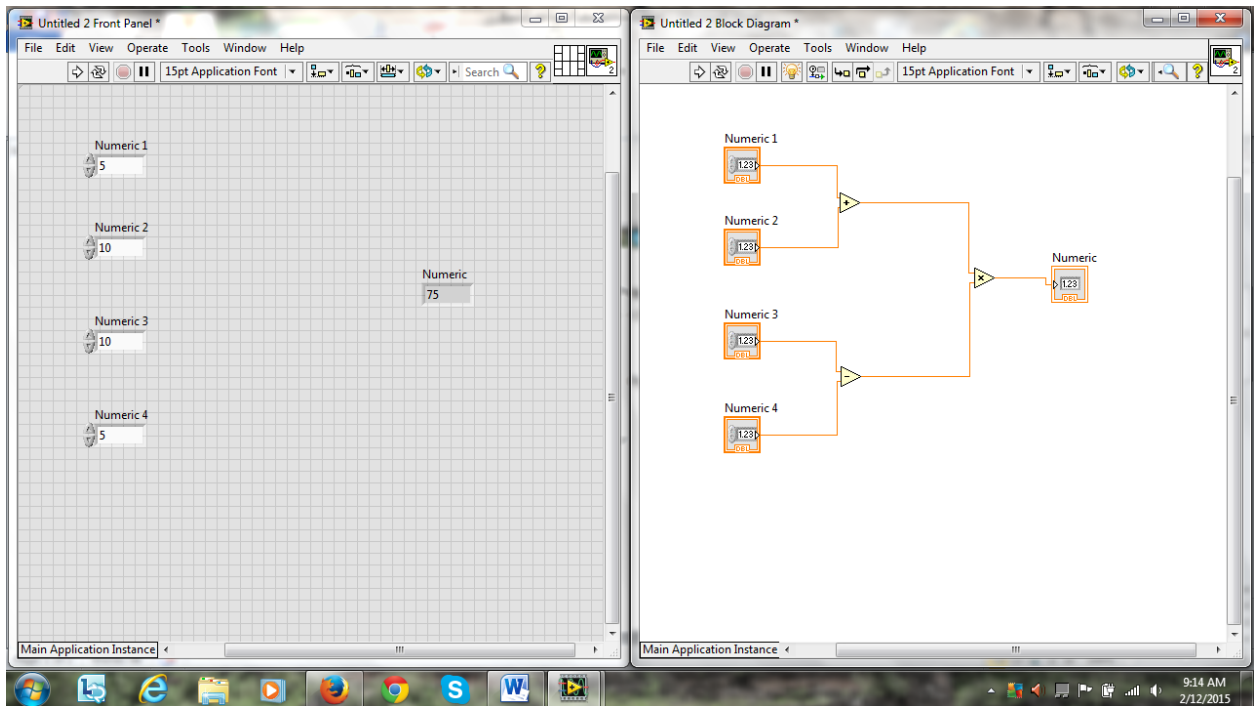
1) Pythagorean Theorem

$$\text{SQRT}(a^2 + b^2) = c$$



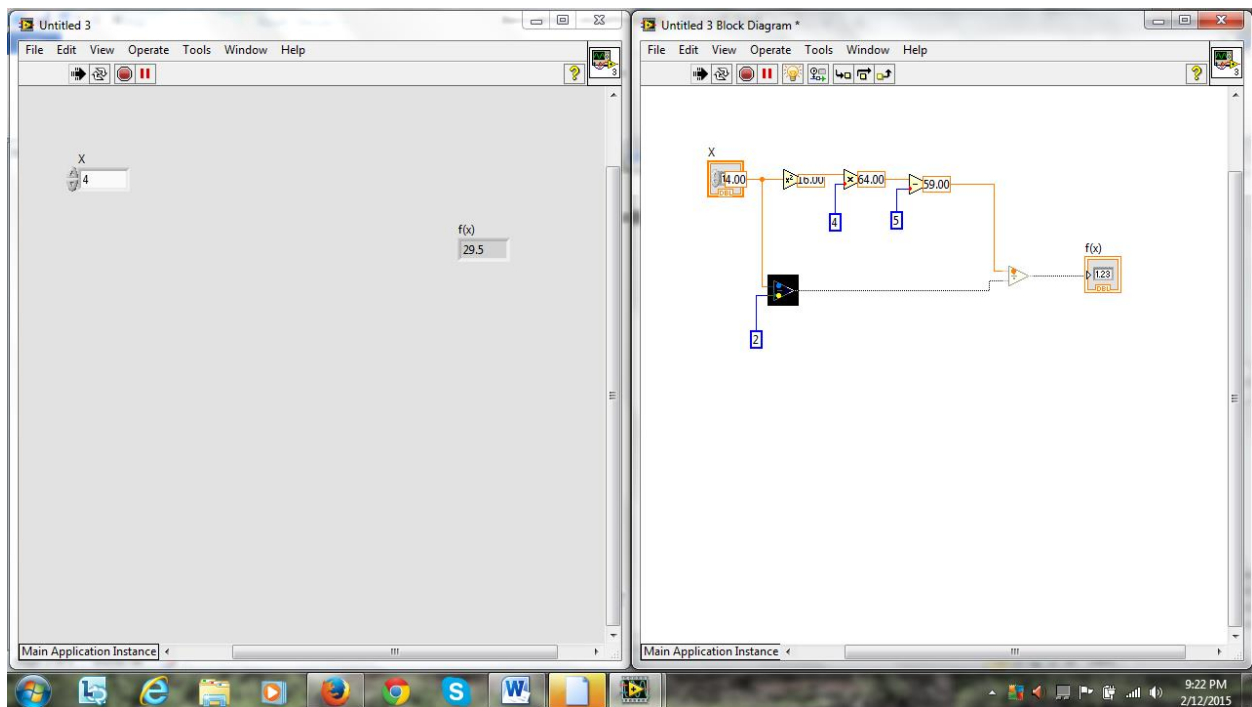
2) Your First LabVIEW Program

$$\text{Result} = (\text{Numeric1} + \text{Numeric2}) \times (\text{Numeric3} - \text{Numeric4})$$



3) Your Second LabVIEW Program

$$Y = (4x^2 - 5)/(x-2)$$



4) Monthly Loan Calculator

The image displays two windows from the LabVIEW software interface for a Monthly Loan Calculator.

Front Panel (Left Window): Shows the user interface with three input fields and one output field. The input fields are labeled "Loan Amount" (value: 25000), "Interest Rates" (value: 7), and "Months" (value: 60). The output field is labeled "Monthly Payment" (value: 495.03).

Block Diagram (Right Window): Shows the underlying logic implemented in LabVIEW. The inputs are connected to mathematical blocks. The logic involves calculating the monthly interest rate (Interest Rates / 12), multiplying it by the Loan Amount, and then using a more complex calculation involving the number of months and the monthly interest rate to determine the Monthly Payment. The final result is displayed in the "Monthly Payment" output field.

The Windows taskbar at the bottom shows the system clock as 10:44 PM on 2/12/2015.

5) Case Structures (Both Cases: True and False)

The image displays two screenshots of a LabVIEW application, illustrating the execution of a Case Structure for calculating the square root of a number.

Top Screenshot (False Case):

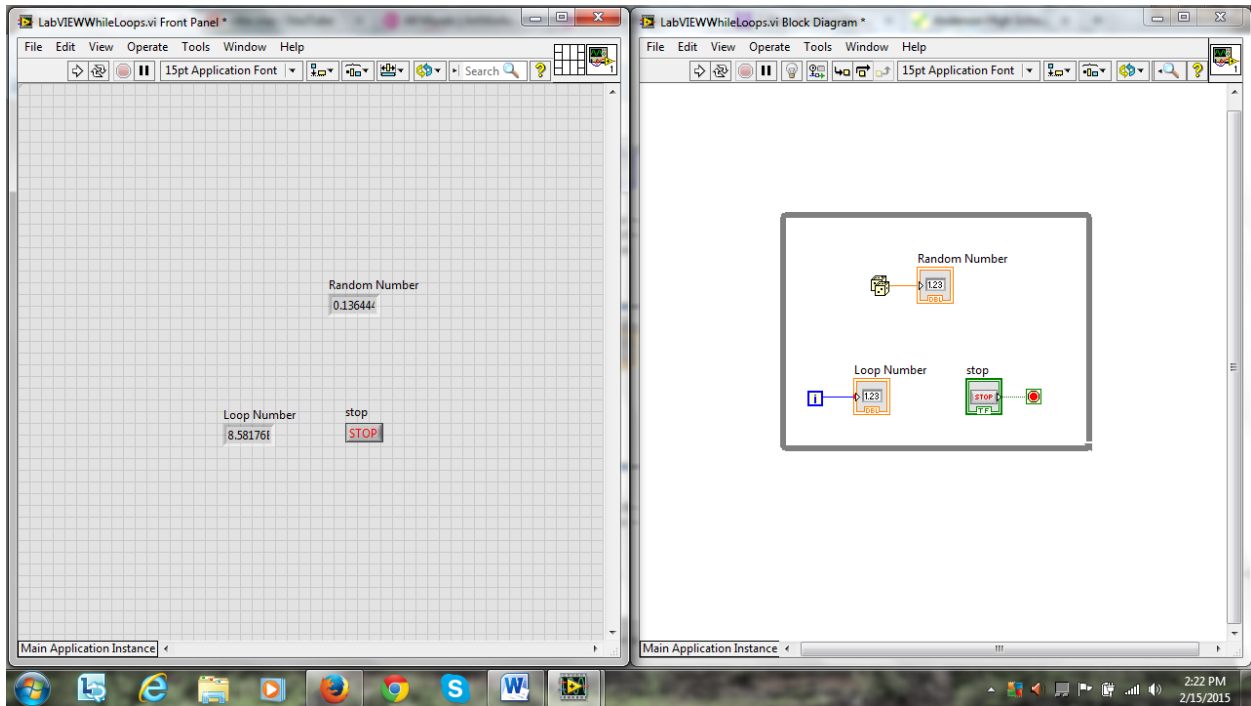
- Front Panel:** The "Number" control is set to -5, and the "Square Root Value" indicator shows 0.
- Block Diagram:** A Case Structure is shown with the "False" case selected. The input "Number" (-5.00) is compared against a "0" constant. The "True" branch of the comparison is connected to an "Error" block with the message "Error...Square root (Error...Sq² number!)". This error block is connected to an "Inf" block, which is then connected to the "Square Root Value" indicator.
- Message Box:** A dialog box is displayed with the text "Error...Square root of negative number!" and an "OK" button.

Bottom Screenshot (True Case):

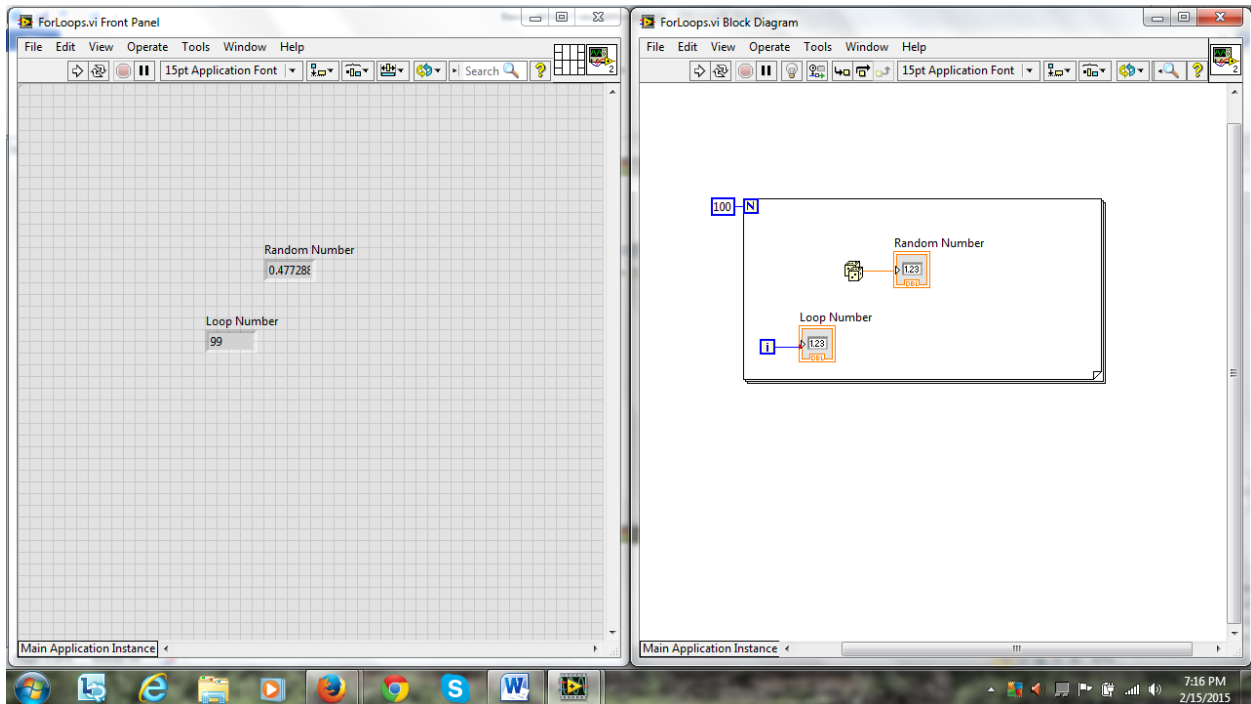
- Front Panel:** The "Number" control is set to 16, and the "Square Root Value" indicator shows 4.
- Block Diagram:** The same Case Structure is shown, but the "True" case is selected. The input "Number" (123) is compared against a "0" constant. The "True" branch of the comparison is connected to a "Sqrt" block, which is then connected to the "Square Root Value" indicator.

The screenshots are taken from a Windows desktop environment, with the taskbar and system tray visible at the bottom. The system clock shows 11:33 AM on 2/15/2015.

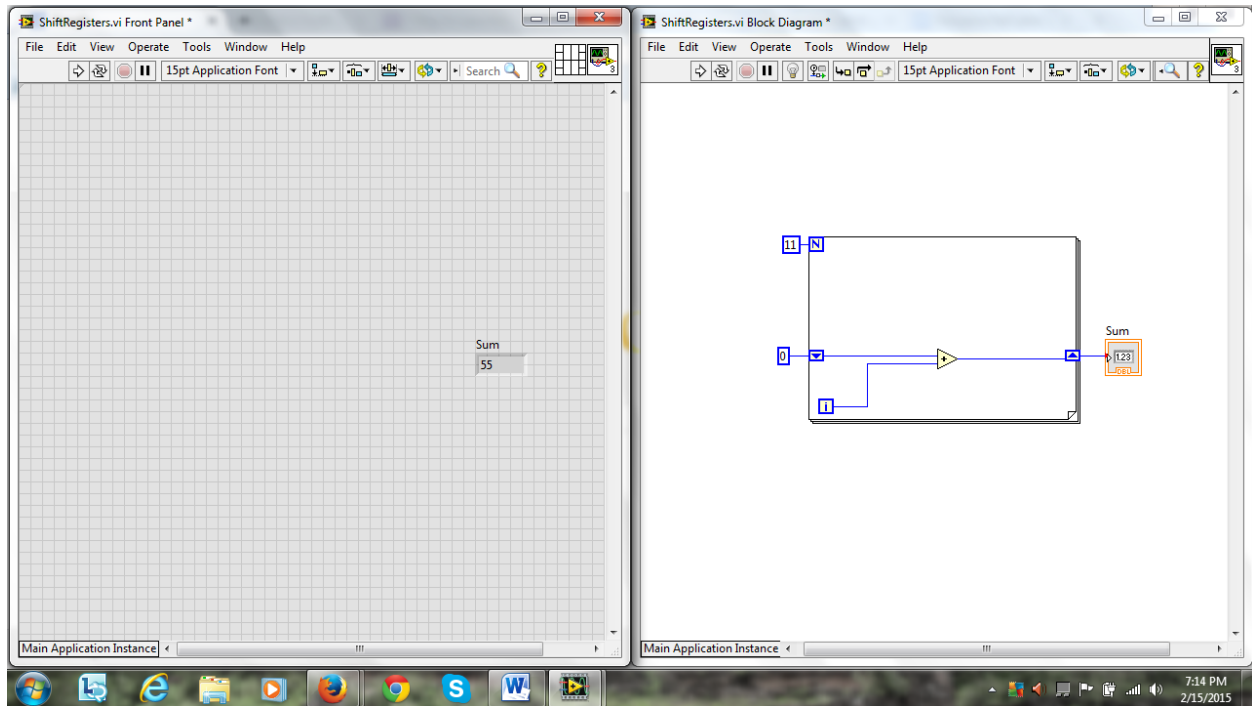
6) LabVIEW While Loops



7) For Loops



8) Shift Registers



9) Square Root Calculator Project

