

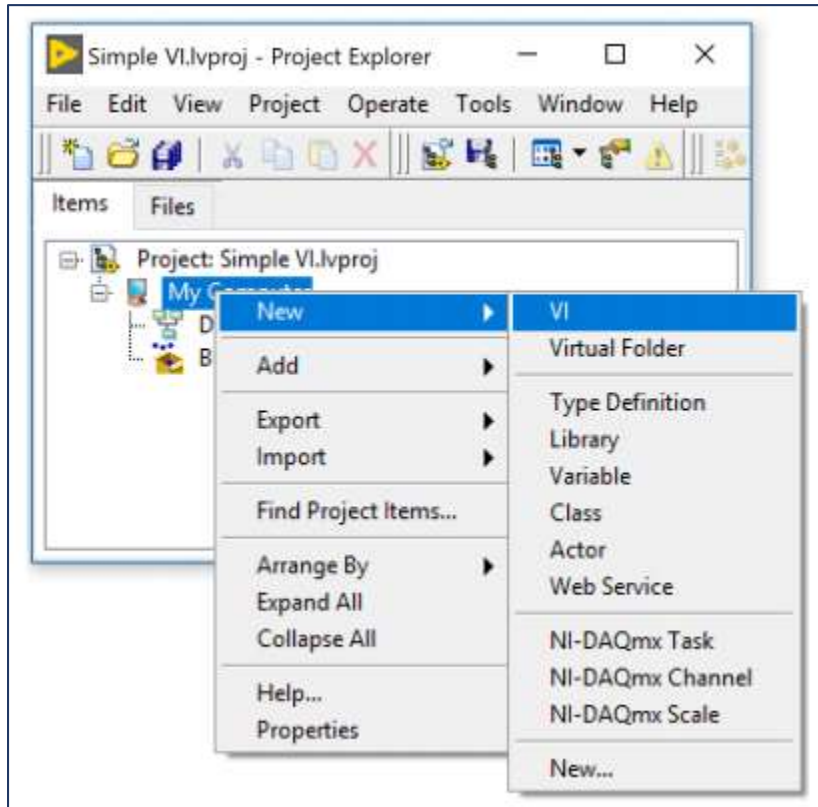
Exercise 5-1: Creating a Simple Project and a VI

Goal

Create a new project and a new VI that executes the straight-line equation: $y = mx + b$.

Instructions

1. Create a new project.
 - From the **Getting Started** window, select **Create Project**.
 - As a starting point, choose **Blank Project**, and click **Finish**.
2. Save the project.
 - Select **File» Save All**.
 - Type **Simple VI** in the **File Name** field.
 - In the **File Explorer** window, browse to the **C:\Exercises\LabVIEW Core 1\Simple VI** directory.
 - Click **OK**.
3. Create a new VI in your project.
 - In the Project Explorer window, **Right-Click My Computer**, then go to **New** and Click **VI**.



- **Save the VI** as **Straight-Line Equation**.

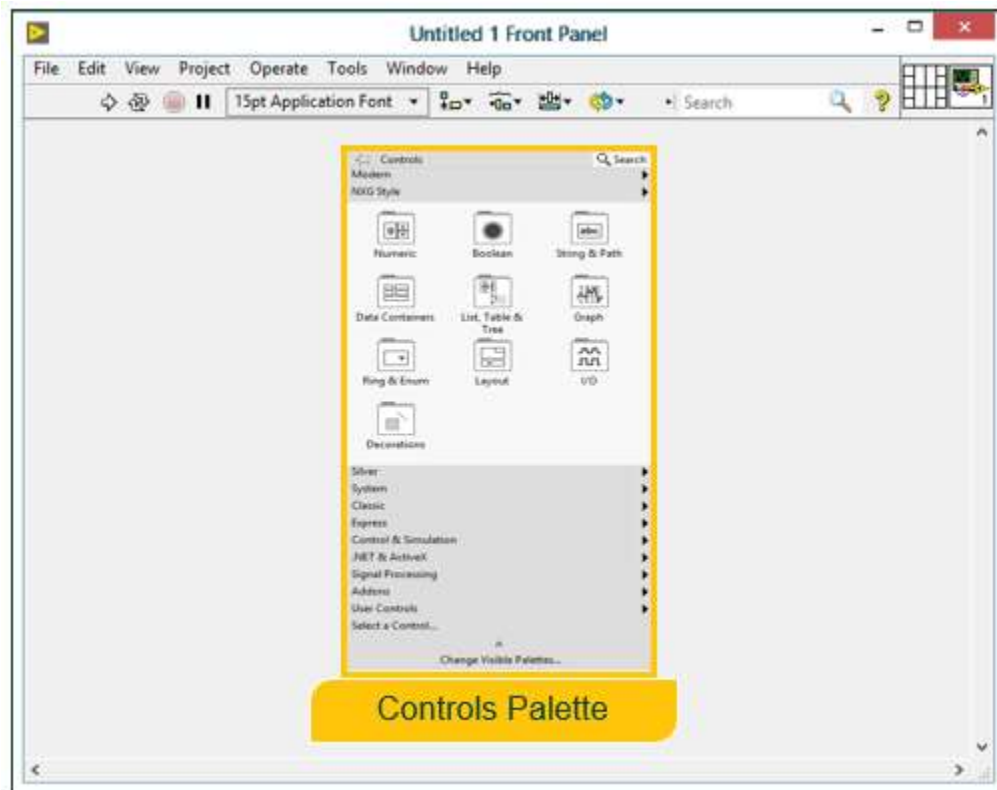
4. Explore the Controls Palette on the front panel.

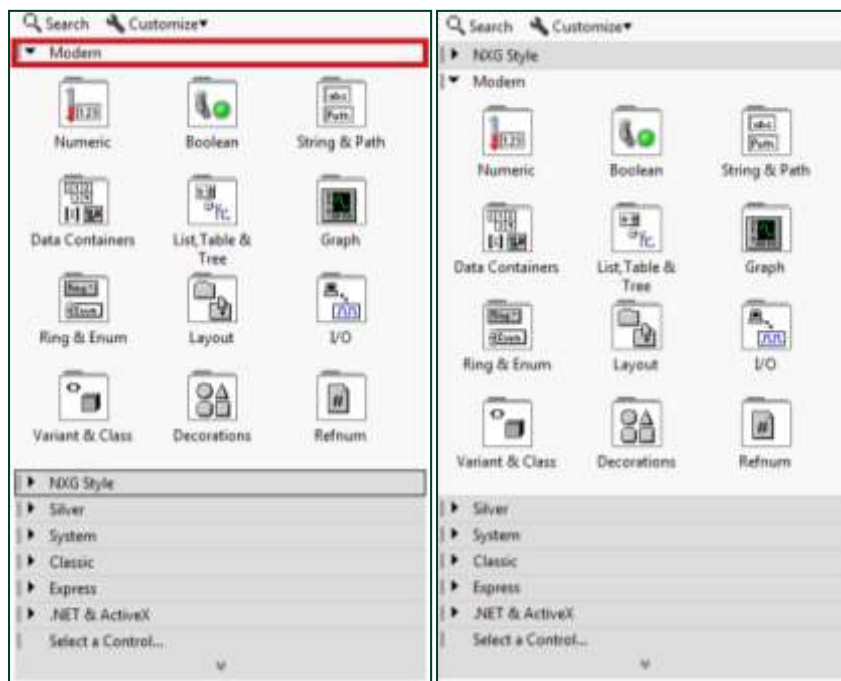
Use palettes to locate items when you want to explore the options available to you or when you are not sure of the name of the control, or indicator you need.

- From the front panel toolbar, select **View» Controls Palette**, or right-click in the **front panel**.

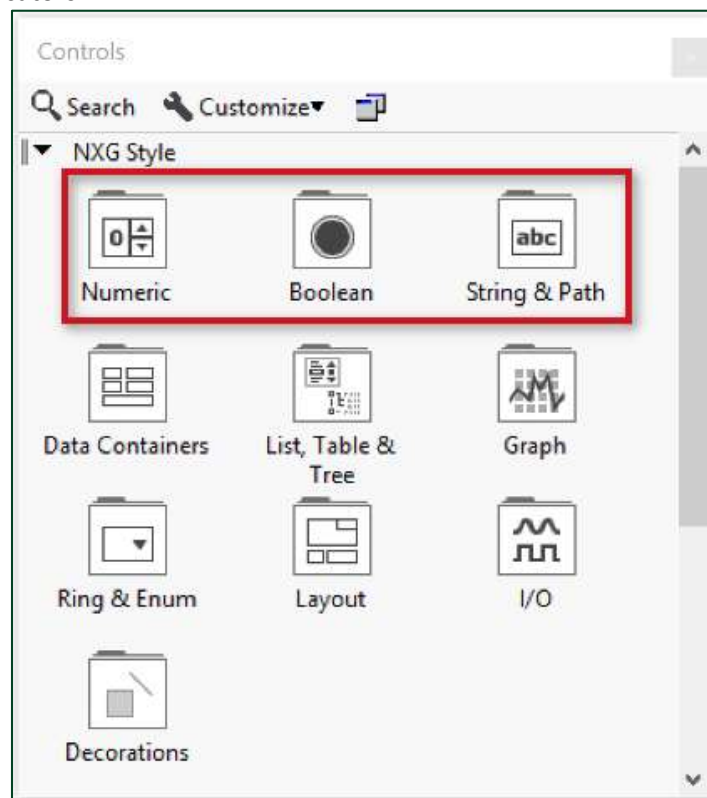


Note: You can access the NXG Style controls palette by right clicking in the **front panel** and hovering your mouse over NXG Style submenu. Also, if you want NXG Style controls palette to open automatically when you click in the front panel press the pin button in the upper-left corner and drag the NXG Style controls palette to the top of the stack.





- Open the **Numeric**, **Boolean**, and **String & Path** palette categories to explore various types of controls and indicators.



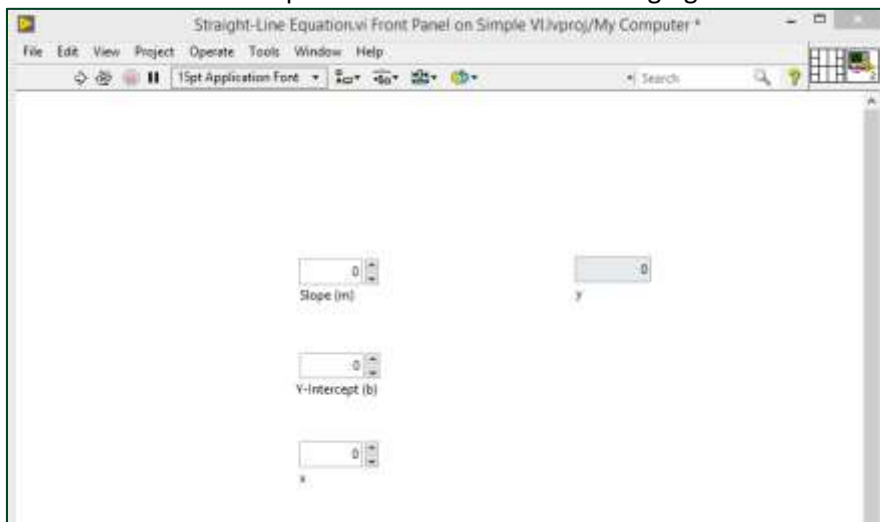
5. Create the user interface for your VI on the front panel.

- Right-click on the **Front Panel**.
- Go to **Numeric**, and then select **Numeric Control**.
- Now, place the Numeric Control on the Front Panel where you like.
- Do this three times to place three numeric controls on the front panel. Rename them as Slope (m), Y-Intercept (b), and x.



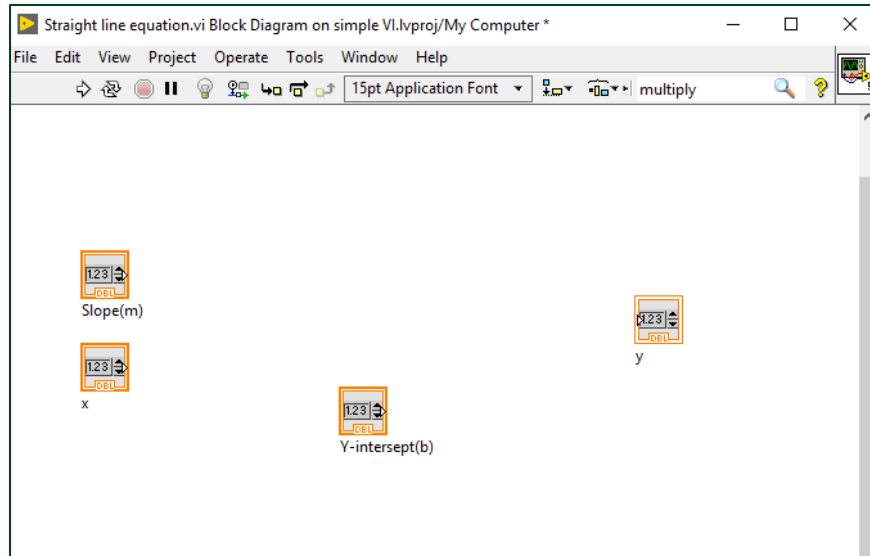
Note: You can also add the Numeric Control by searching it from the Search button available on the top right corner of the Controls palette. Press <Ctrl + Space> to quickly access the search box.

- Right-click on the **Front Panel**.
- Go to **Numeric** and then select **Numeric Indicator**.
- Now, place the Numeric Indicator on the Front Panel. Rename it y.
- Arrange the items on the front panel as shown in the following figure.

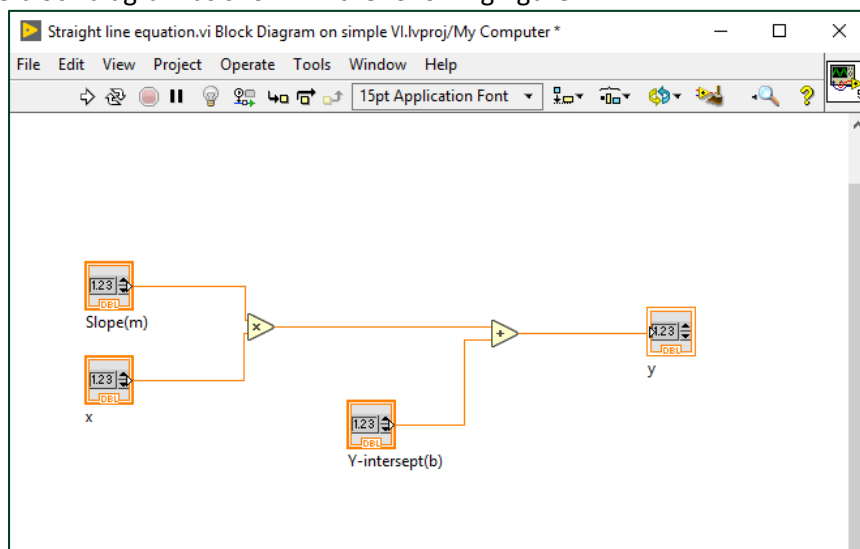


6. Develop the code for your VI on the block diagram.

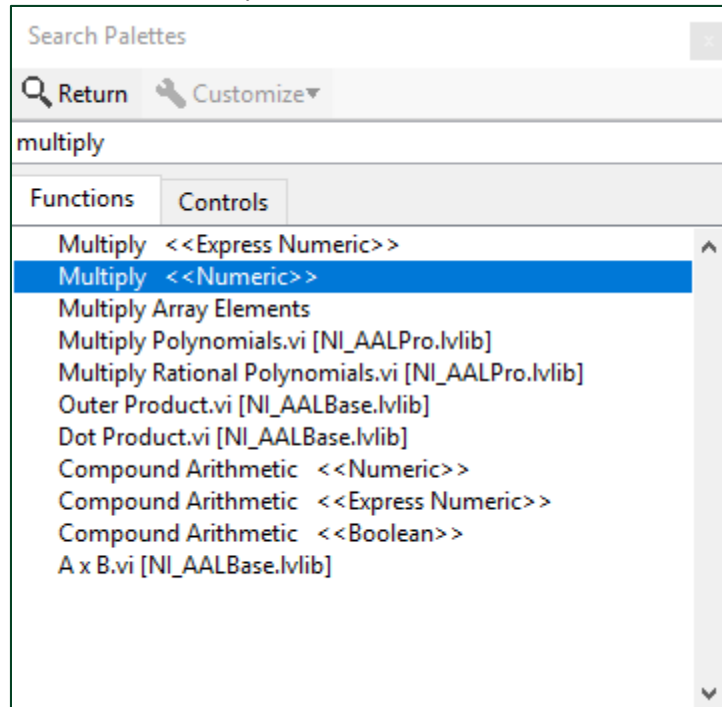
- Switch to block diagram by pressing <Ctrl-E>.
- The block diagram contains the terminals of the controls and indicators, placed on the front panel. In this case it will contain the **Slope (m)**, **Y-Intercept (b)**, **x**, and **y** terminals as shown in the figure below.



- Press <Ctrl-Space> and type `multiply` in the search text box. Double-click on **Multiply** in the search results and place the Multiply function on the block diagram.
- Place an Add function to the block diagram.
- Wire the block diagram as shown in the following figure.



7. Locate the palette that contains a particular VI or function using the palette search.
- Right-click in the **block diagram**, press the **Search** button in the upper right hand corner of the **Functions** palette and search for the term `Multiply`.
 - In the search results, double-click the **desired function** to display the palette category that contains the function. This allows you to browse related functions.



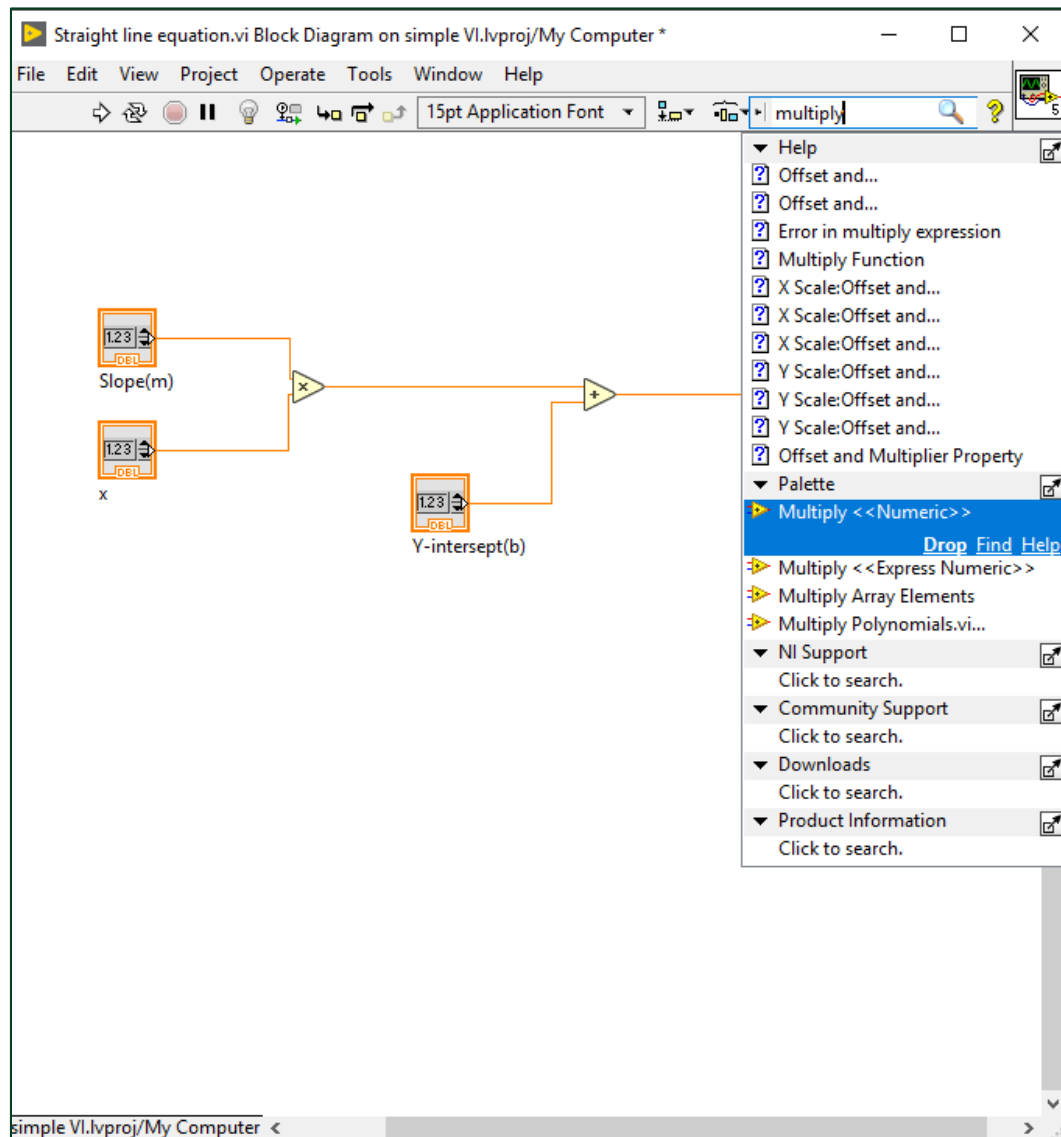
8. Practice using the global search feature.

- Type `Multiply` in the **Search** bar in the upper right hand corner of either front panel or block diagram.



Note: As you type, the global search automatically looks for matches in several places, including online Help and LabVIEW palettes.

- Examine the search results.



9. Test the Straight-Line Equation VI using the values given in the following table.
- Enter the input values in the controls.
 - Click **Run**.
 - For each set of inputs, compare the given outputs to the outputs of the front panel. If the VI works correctly, they should match.

Input		Output	
Slope (m)	2	y	7
x	1		
Y-Intercept (b)	5		
Slope (m)	2	y	15
x	5		
Y-Intercept (b)	5		
Slope (m)	-3	y	-16
x	2		
Y-Intercept (b)	-10		

Your Turn

1. Create a new project and name it `Average.lvproj`.
2. Add a new VI named **Average.vi** to the project.
3. Modify the VI to calculate the average of five numbers.
 $(X1 + X2 + X3 + X4 + X5) / 5 = \text{Average}$
4. Run the VI and verify that you get the correct results.

End of Exercise 5-1