

Exercise 4-1: Exploring an Existing Project and a VI

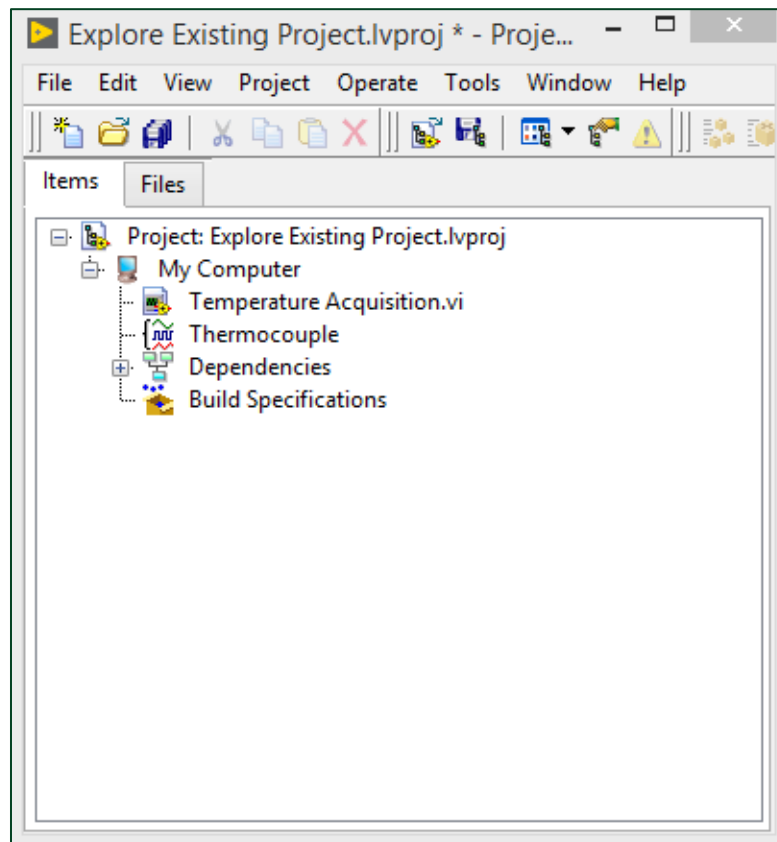
Goal

- Explain the purpose of the main LabVIEW project/VI development environment items.
- Differentiate between controls and indicators.
- Differentiate between numeric, Boolean, and string data types.

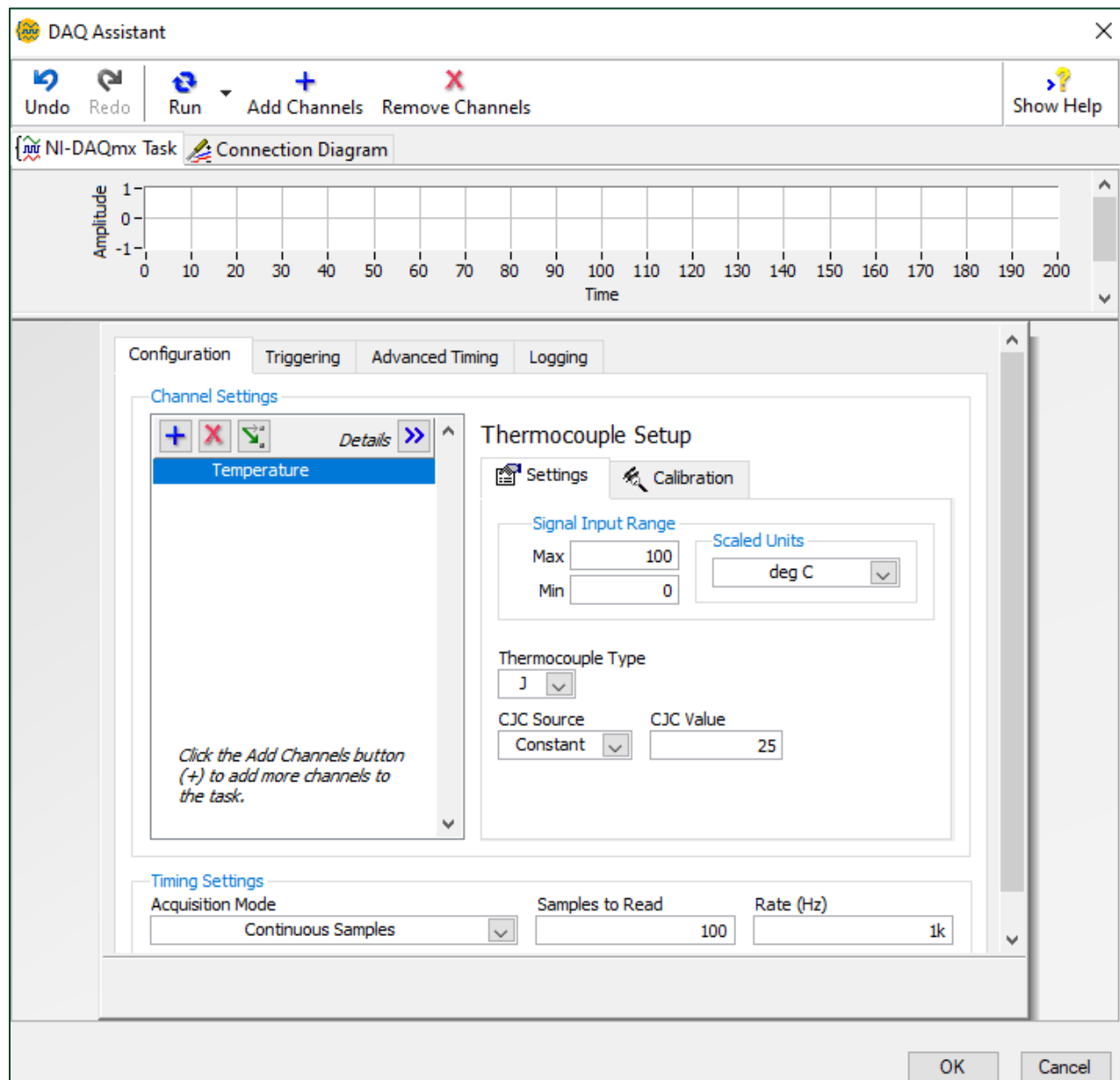
Instructions

Explore an existing project

1. Open `Explore Existing Project.lvproj` in the `C:\Exercises\ LabVIEW Core 1\Explore Existing Project` directory.
2. Notice that the **Project Explorer** window contains the following two items.
 - Thermocouple task
 - Temperature Acquisition VI



3. Explore the Thermocouple task.
 - Double-click the **Thermocouple task** to launch DAQ Assistant.
 - In the opened window you can configure the DAQmx task by changing different values of sample rate, samples to read, signal input range, and by adding physical and virtual channels to the task.
 - Configure the Thermocouple task as shown in the figure below.



Explore and run the VI in the project

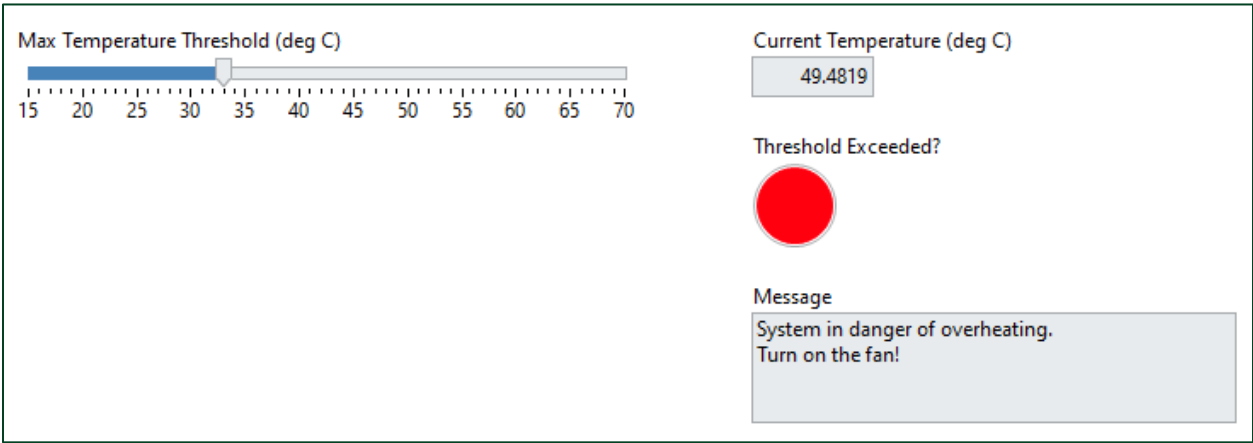
- 1. Open the VI in the project.
 - In the **Project Explorer** window, double-click the **Temperature Acquisition VI**.
- 2. Run the VI.
 - Notice that **Current Temperature** displays the temperature.
 - Run the VI a couple more times.
 - Set **Max Temperature Threshold** to values above and below the current temperature, and observe how this affects the **Threshold Exceeded?** And **Message** indicators.

Explore the VI Front Panel

The front panel is the user interface of the VI.

- 1. Examine the VI front panel.
- 2. Determine whether each of the following front panel objects is a control (front panel input) or indicator (front panel output), and also numeric, Boolean, or string, and write the correct answer in the box.

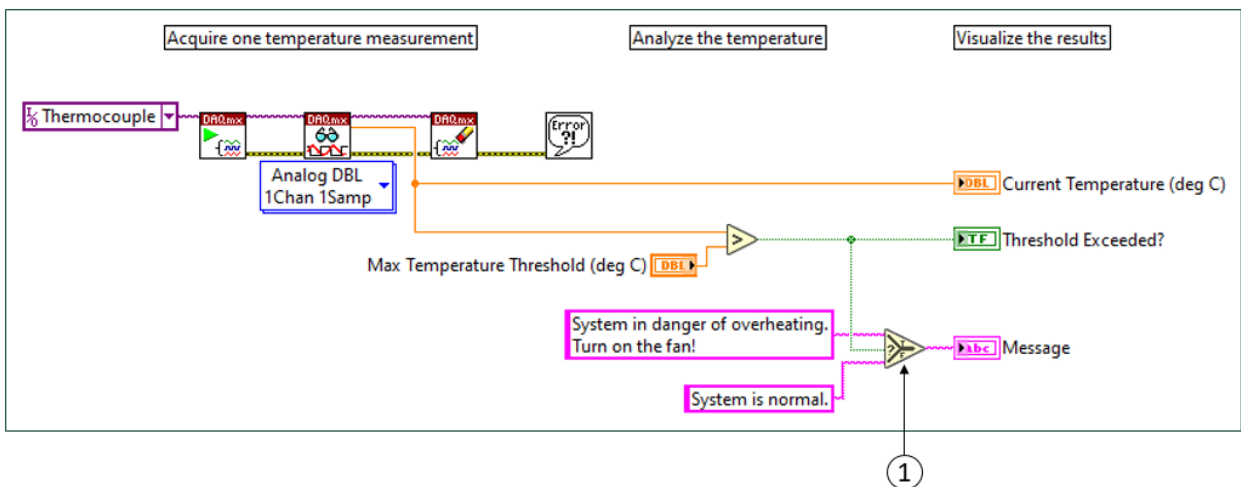
Front Panel Objects	Control	Indicator	Numeric	Boolean	String
Maximum Temperature Threshold					
Current Temperature					
Threshold Exceeded?					
Message					



Explore the Block Diagram

The block diagram defines the functionality of the VI and contains the code for the VI.

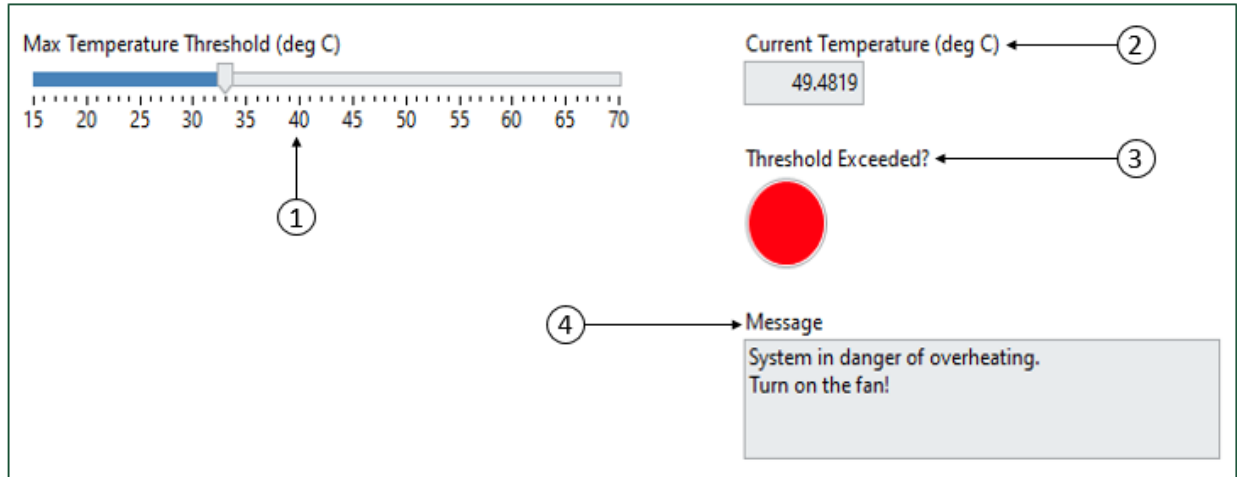
1. Select **Window» Show Block Diagram** in the front panel toolbar to display the block diagram.
 - On the block diagram, identify the following items. How many can you find of each item?
 - Controls
 - Indicators
 - Constants
 - Free labels
 - Functions
 - VIs
2. Use the context help to learn more about the items on the block diagram.
 - Press <Ctrl-H> to open the **Context Help** window or select **Help» Show Context Help**.
 - Move the **Context Help** window to a convenient area where the window does not hide part of the diagram.
 - Place your cursor over each of the different color wires to see which data type they represent.
 - The **Context Help** window content changes to show information about the object that your mouse is over.
3. Get detailed help for the Select function.



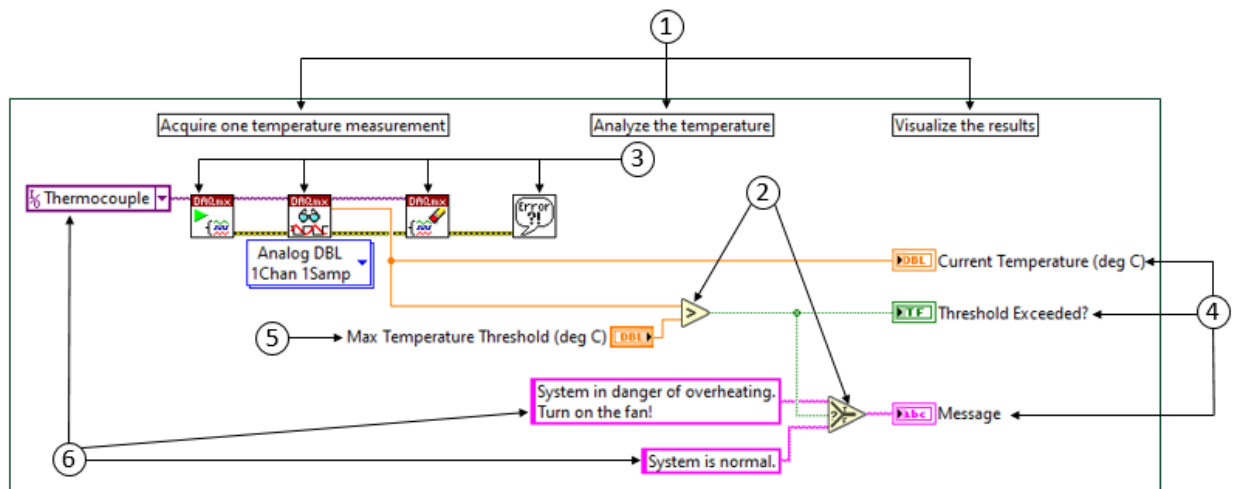
1. **Select function** – Place your cursor over the function. In the **Context Help** window, click the **Detailed help** link to launch the *LabVIEW Help* and learn more about this function.

Check Your Answers

1. Refer following figures to verify that you identified all items correctly.



-
1. Numeric Control
 2. Numeric Indicator
 3. Boolean Indicator
 4. String Indicator
-



1. Comments
2. Functions
3. VIs
4. Indicators
5. Control
6. Constants

On the Job

Describe the controls and indicators that you need when you create VIs at work. (Name, data type)

End of Exercise 4-1