LabVIEW - Introduction

Gary Boorman

LabVIEW

Laboratory **V**irtual **I**nstrument

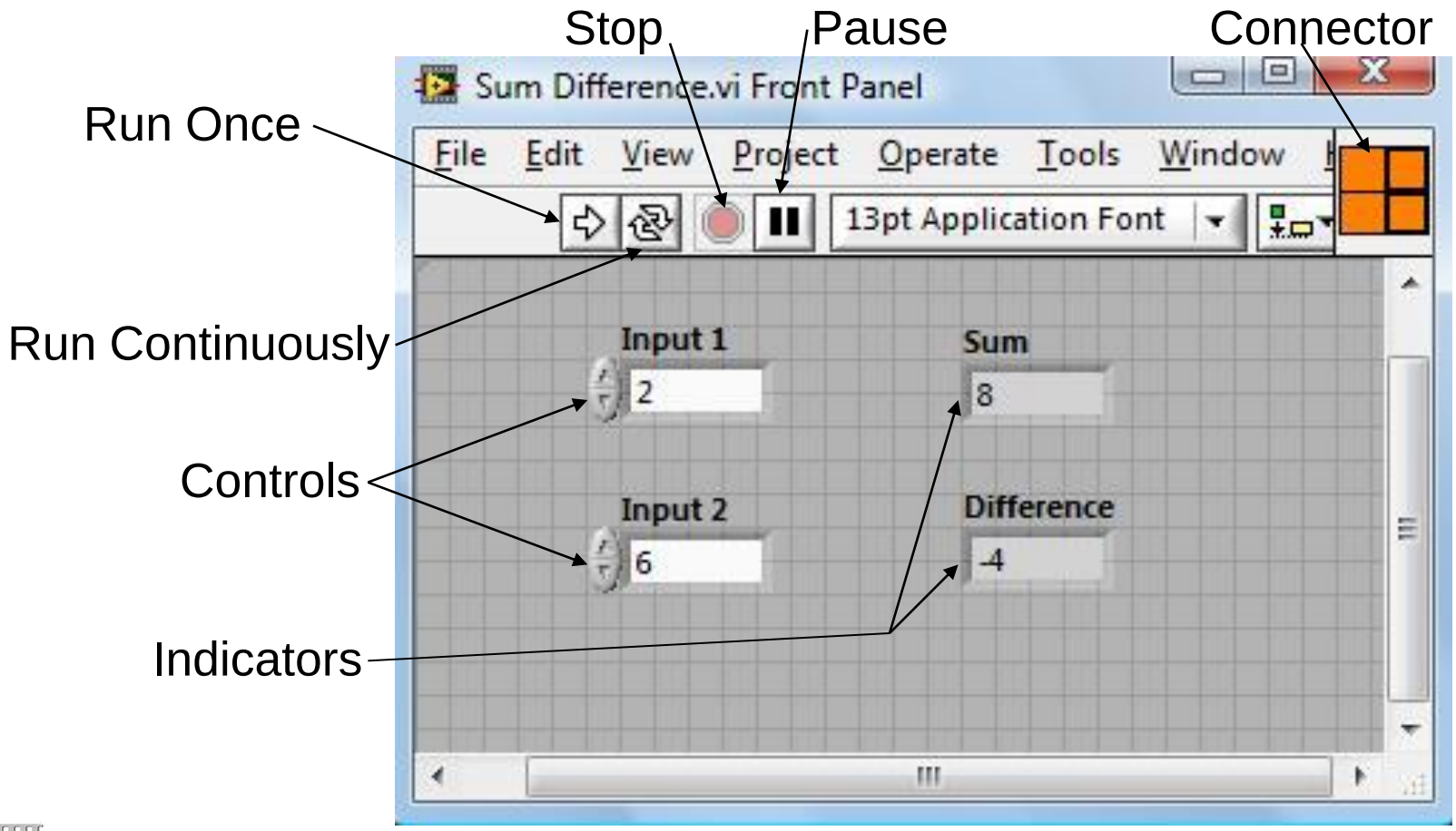
Engineering **W**orkbench

- LabVIEW is a graphical programming environment used to develop sophisticated measurement, test and control systems
- Used by millions of scientists and engineers in thousands of laboratories and test environments
- It uses graphical icons and wires that resemble a flowchart to create Virtual Instruments (VI)

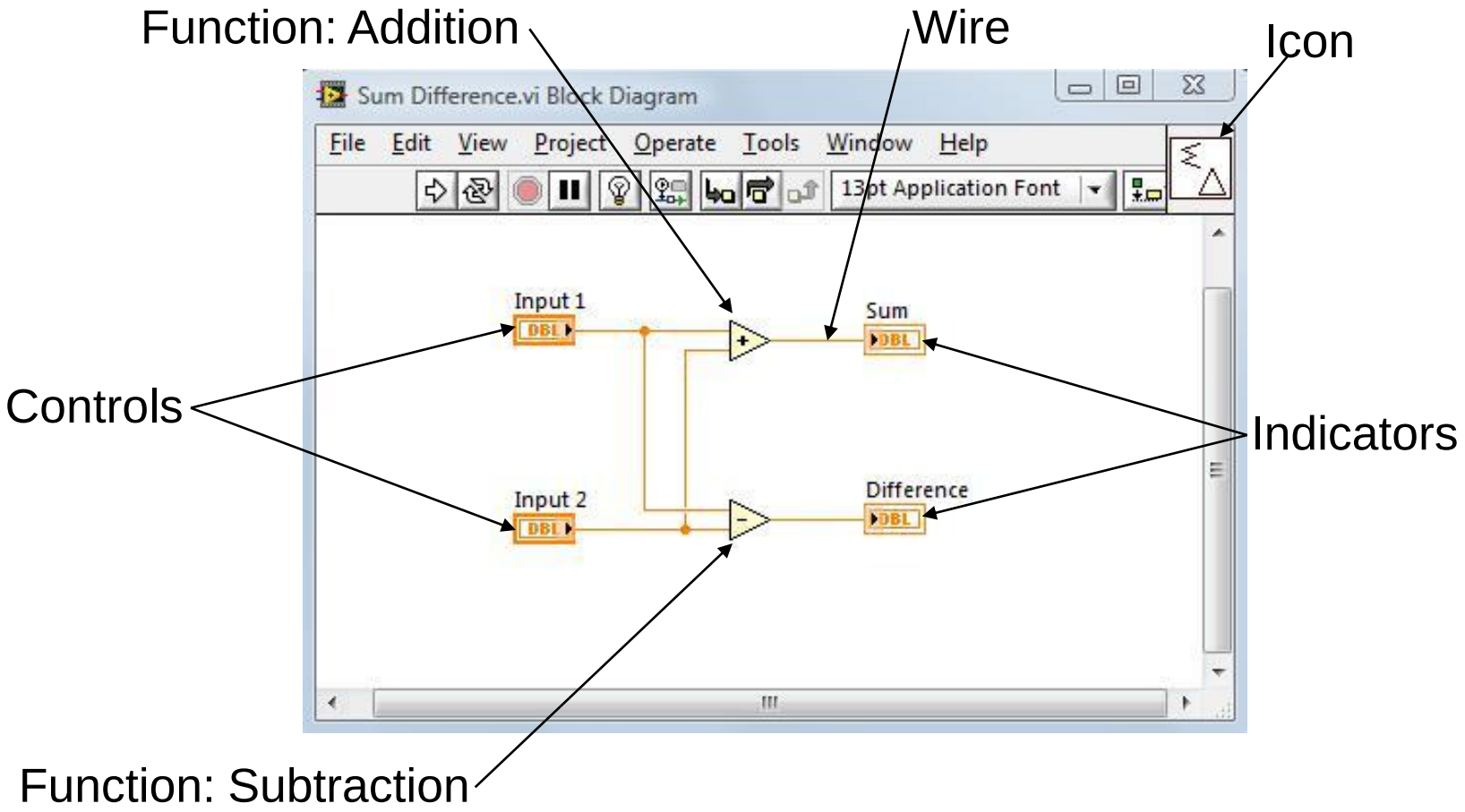
LabVIEW - Characteristics

- LabVIEW is a data-flow language – each sub-VI will run only when data is ready at each input of the VI
- A VI consists of a user interface (*front panel)*, the operating code (*diagram)* and connector pane/icon
- LabVIEW is ***the tool*** for data-acquisition, control and analysis

LabVIEW – Front Panel

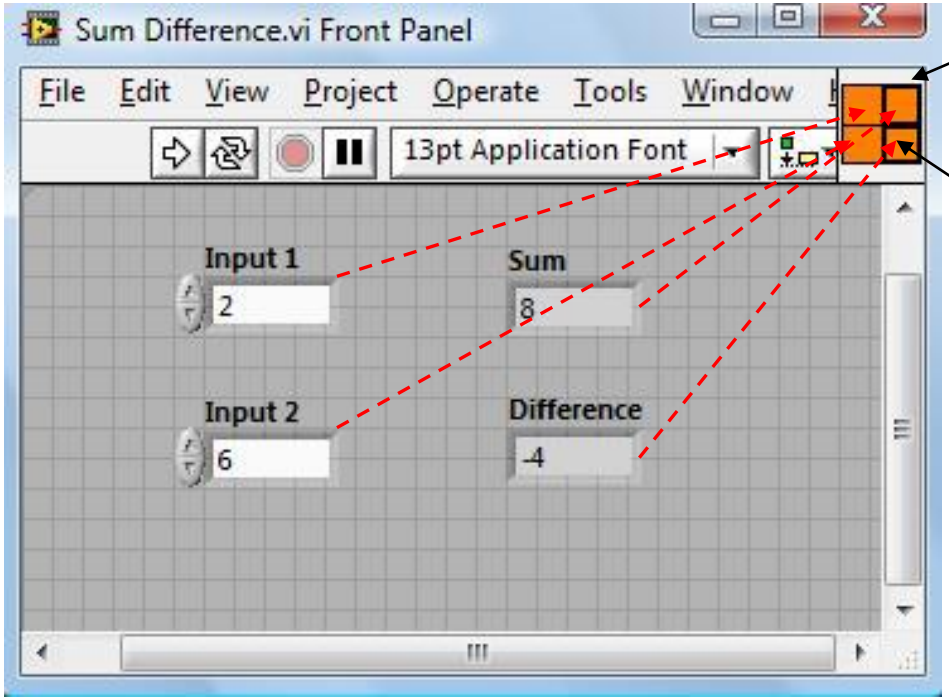


LabVIEW - Diagram

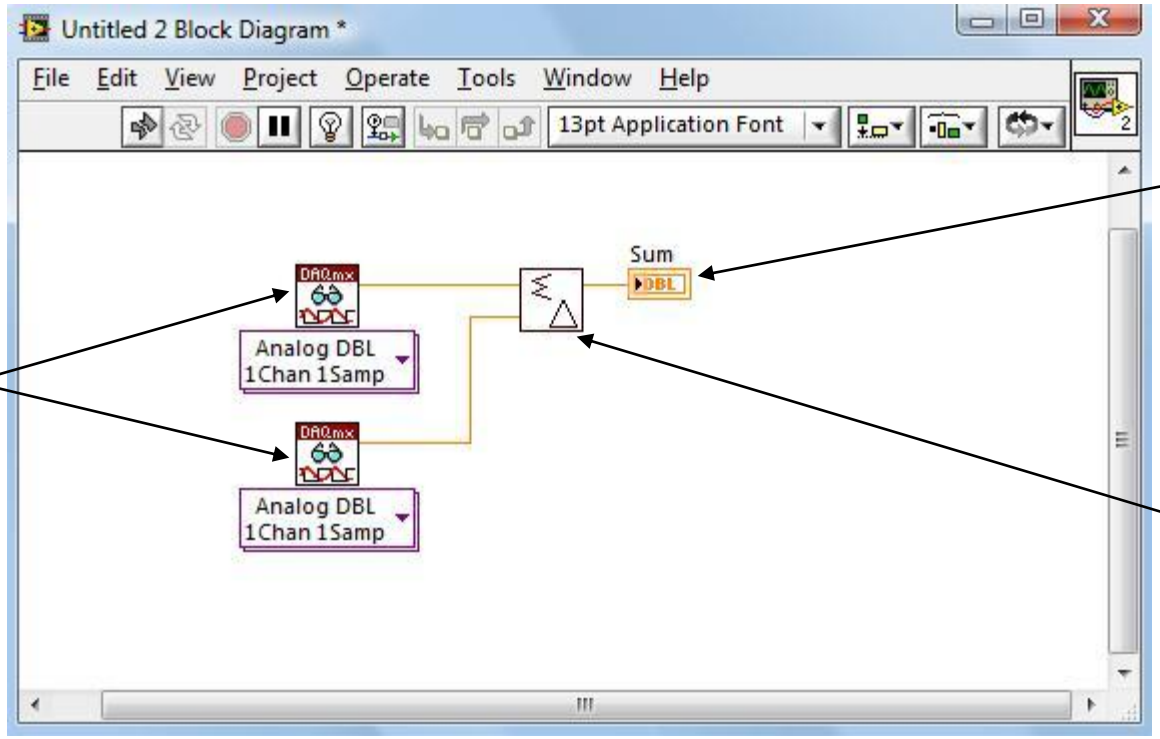


LabVIEW – Connector Pane

Each Control/Indicator can be connected to a Terminal on the Connector Pane



LabVIEW – Using a Sub-VI



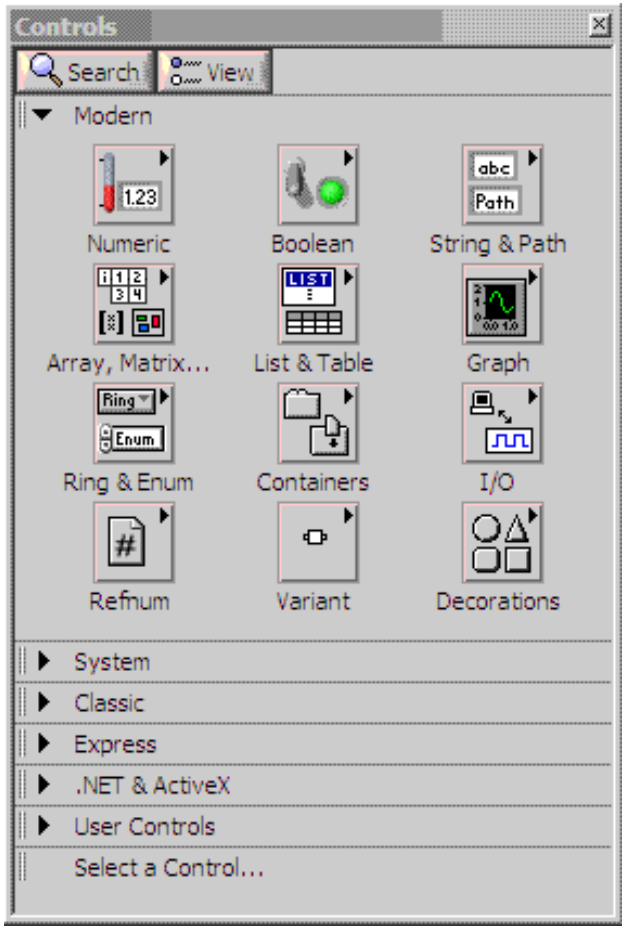
Data sources

Output

Sub-VI

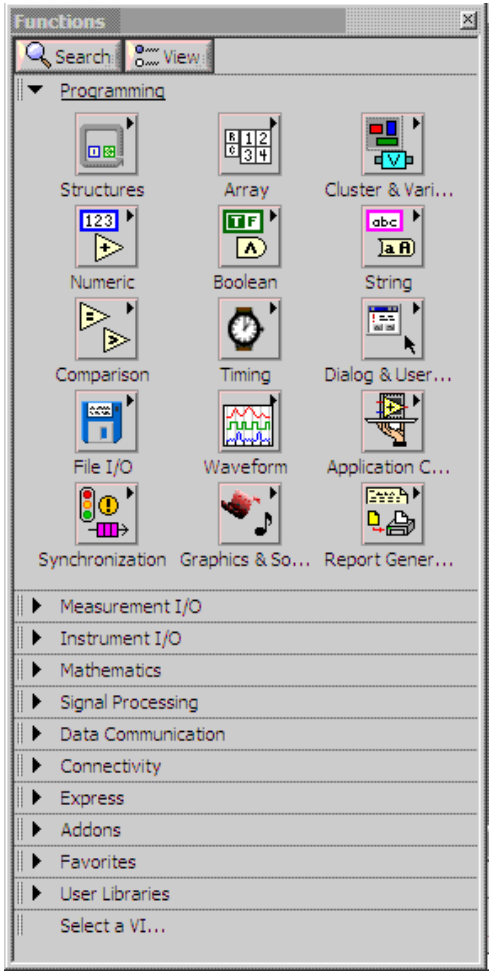
LabVIEW – Controls Palette

- This palette is displayed when the Front Panel is active
- The Modern palette is used for most programs on a PC
- Use the System palette when deploying programs on multiple platforms



LabVIEW – Functions Palette

- This palette is displayed when the Diagram is active
- Most functions used are in the Programming palette
- More specific and advanced functions are in other palettes



LabVIEW – Tools Palette

- This palette is displayed when either the Diagram or Front Panel is active
- The Tool can be set to be a pointer, wiring, text, value or probe tool, or be automatic
- Automatic Tools are active if the top bar ‘led’ is green