Execution Structures

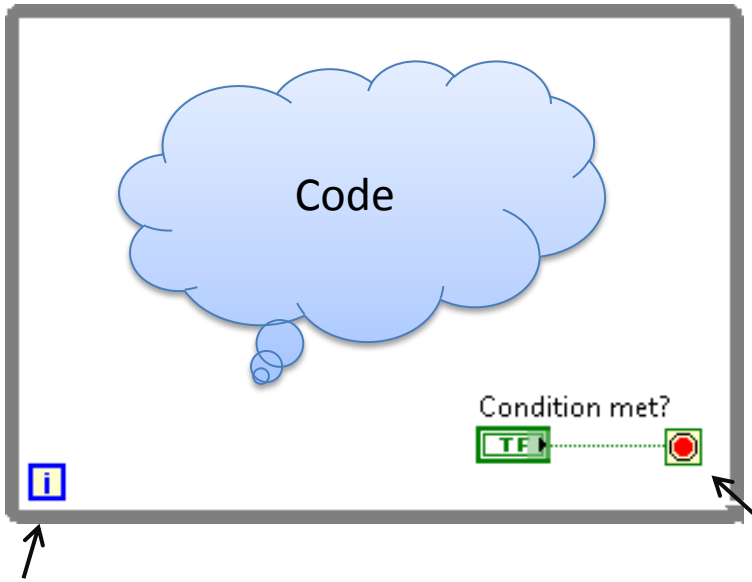
Contain sections of graphical code

Control how and when the code inside is run.

- While Loop
- For Loop
- Case structure
- Sequence structure
- Formula Node

While Loop

- **Executes** the code **until** a condition occurs
- Executes at **least once!**

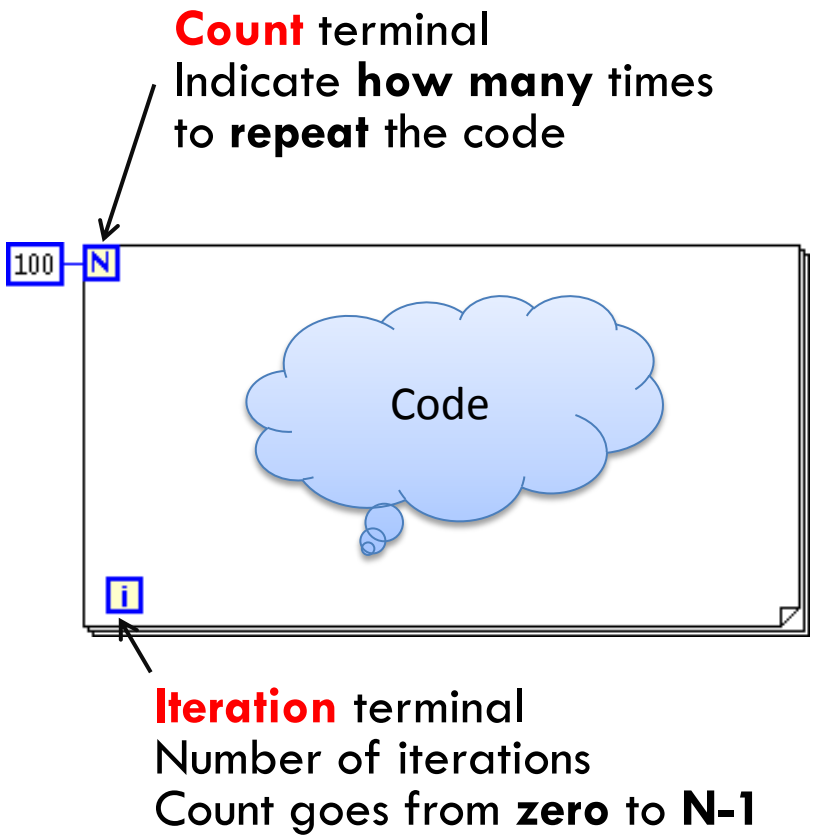


Iteration terminal
Number of iterations
Count starts from **zero**

Condition terminal
Boolean value
Two options:
Stop if True
Continue if True

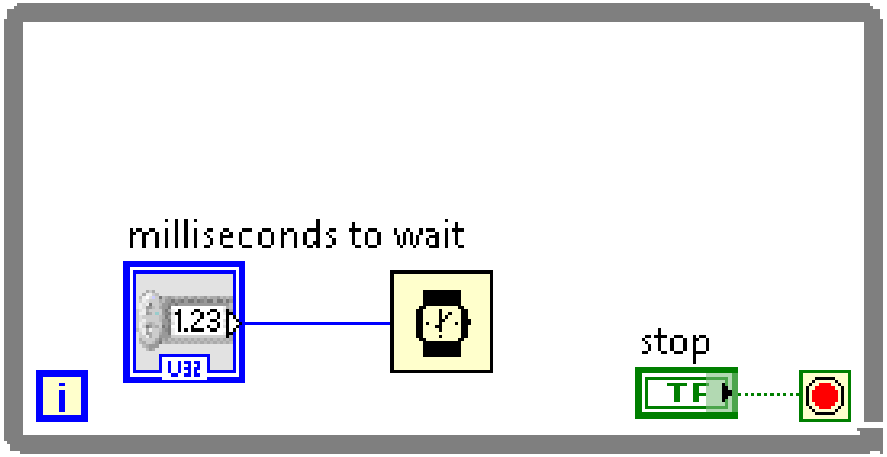
For Loop

- **Executes** a subdiagram a **set number of times**



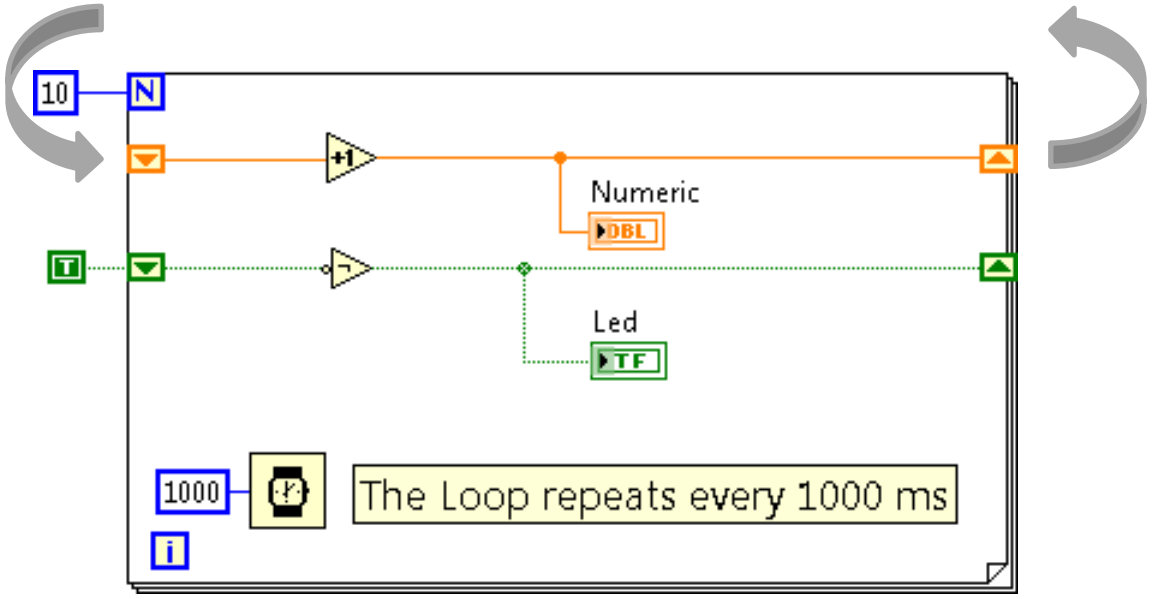
Adding Timming to Loops

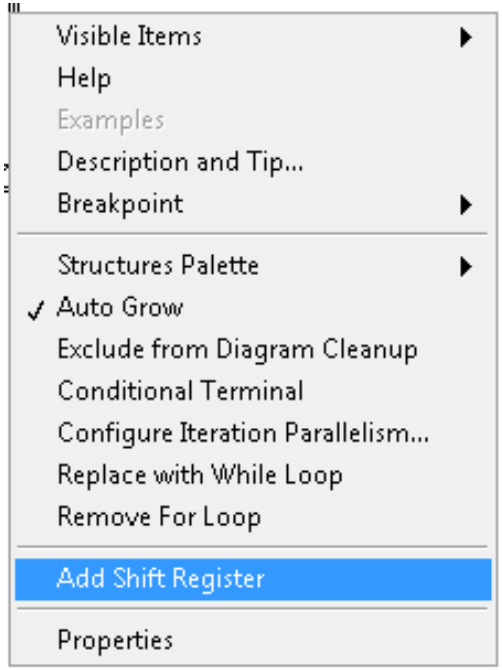
- When a loop **finishes executing** an iteration, it **immediately begins** executing the **next iteration,** unless it reaches a stop condition
- To give the processor time to complete other tasks, use a **Wait function**



Passing data between Loop Iterations

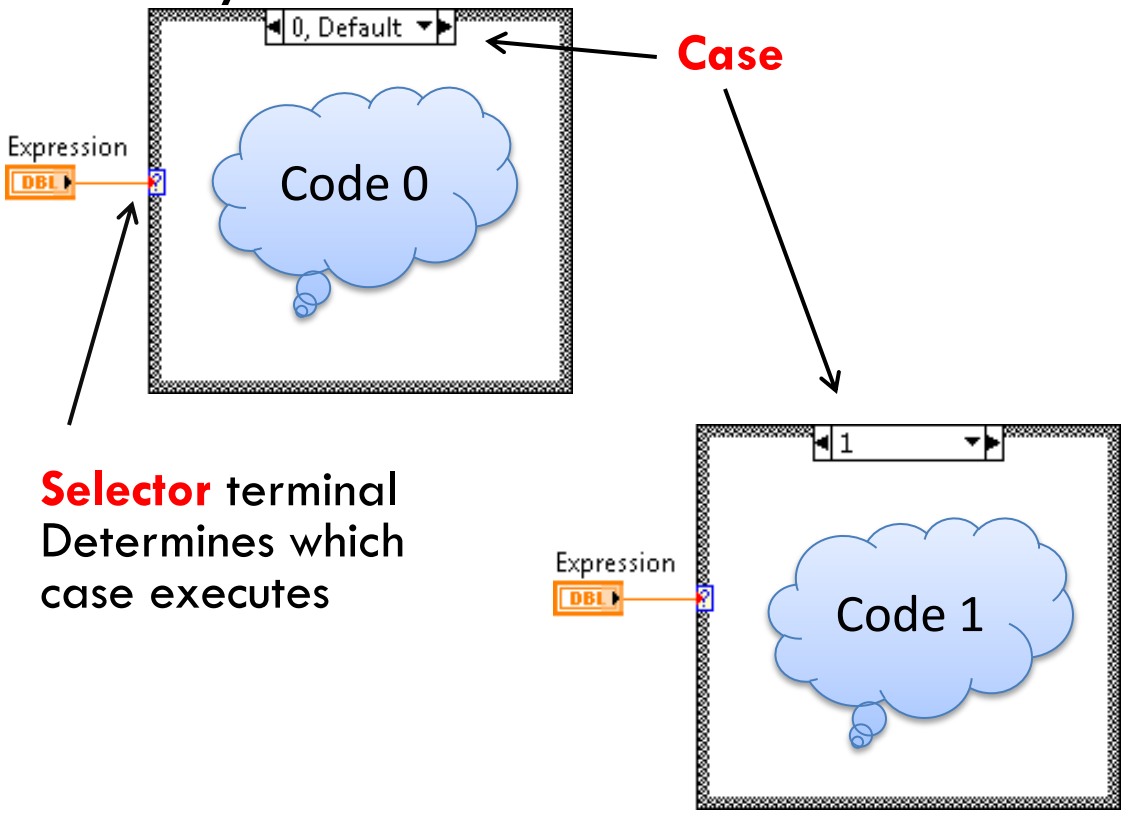
- **Shift Registers**
  - Pass values from previous iterations through the loop to the next iteration
  - Create: **right-click** the left or right border of a loop and selecting **Add Shift Register**





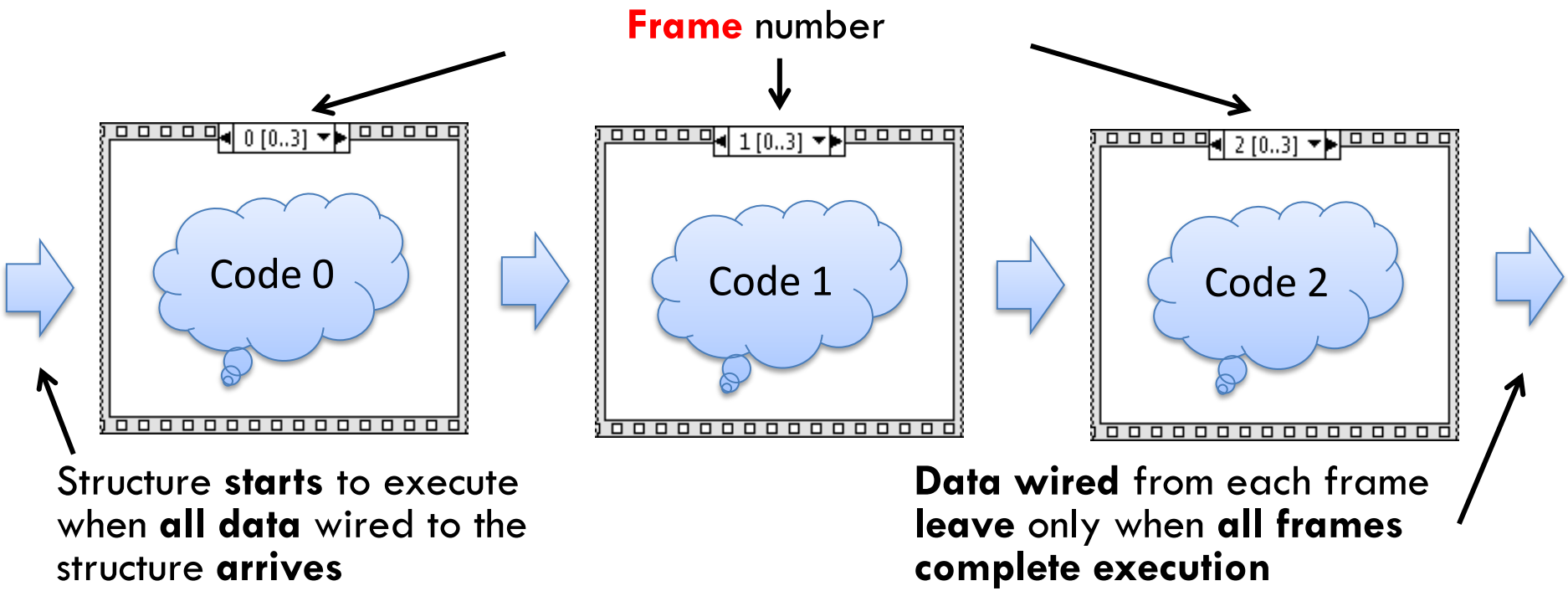
Case Structures

- Use when we want to make decisions
- Has two or more subdiagrams or cases
- **Executes** only **one case** at the time



Stacked Sequence

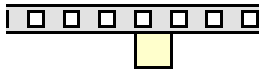
- Has one or more frames that **execute sequentially**
- Used to **ensure** a subdiagram executes before or after another subdiagram

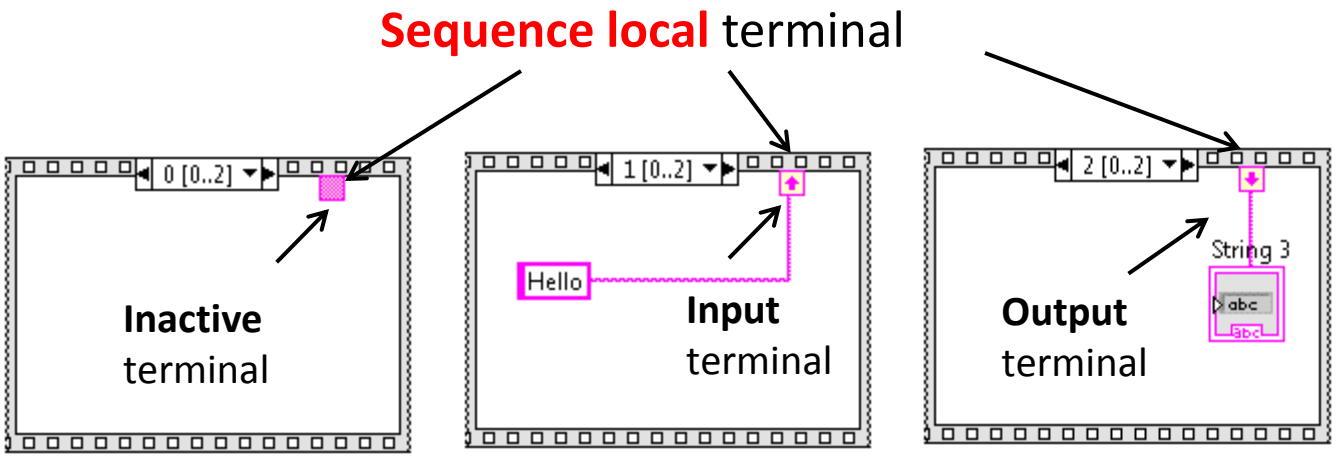


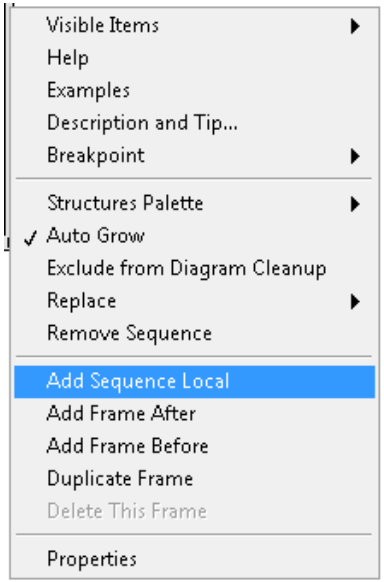
Stacked Sequences

Passing data from one frame to subsequent frames

- Use **Sequence locals**
- **Right click** on the **border** of the frame
- Select **add sequence local**

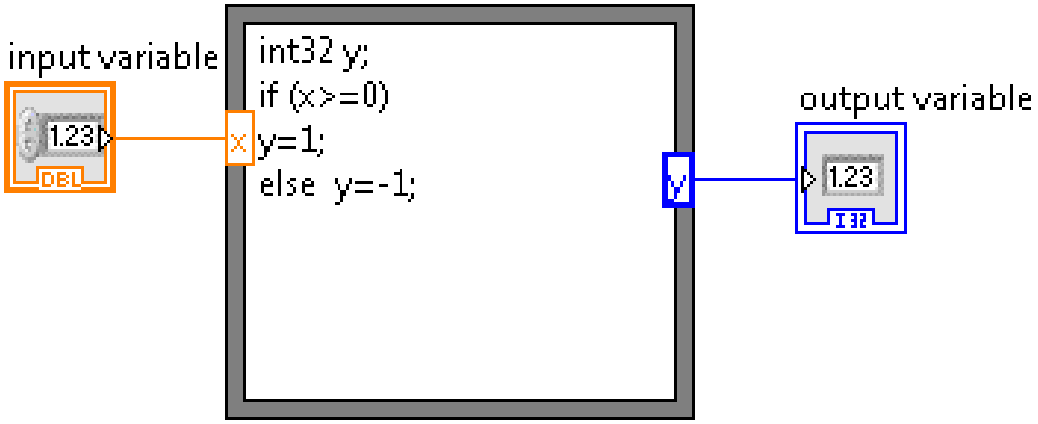






Formula Node

- Evaluates **mathematical formulas** and expressions similar to C on the block diagram



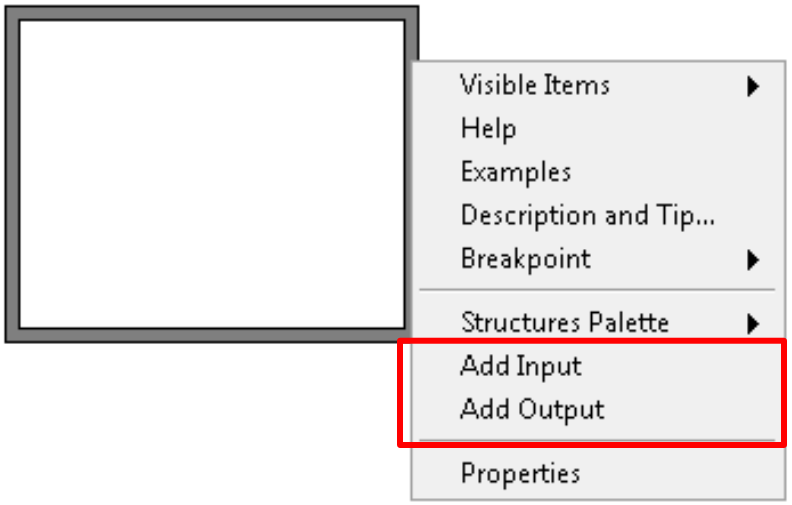
Do not forget the semicolon (;) at the end of an expression!

- Allowed built-in functions:
  - abs, acos, acosh, asin, asinh, atan, atan2, atanh, ceil, cos, cosh, cot, csc, exp, expm1, floor, getexp, getman, int, intrz, ln, lnp1, log, log2, max, min, mod, pow, rand, rem, sec, sign, sin, sinc, sinh, sizeOfDim, sqrt, tan, tanh

Formula node

Adding inputs and outputs

- **Right click on the border**



- More information about Formula Node: Go to **LabVIEW help**