

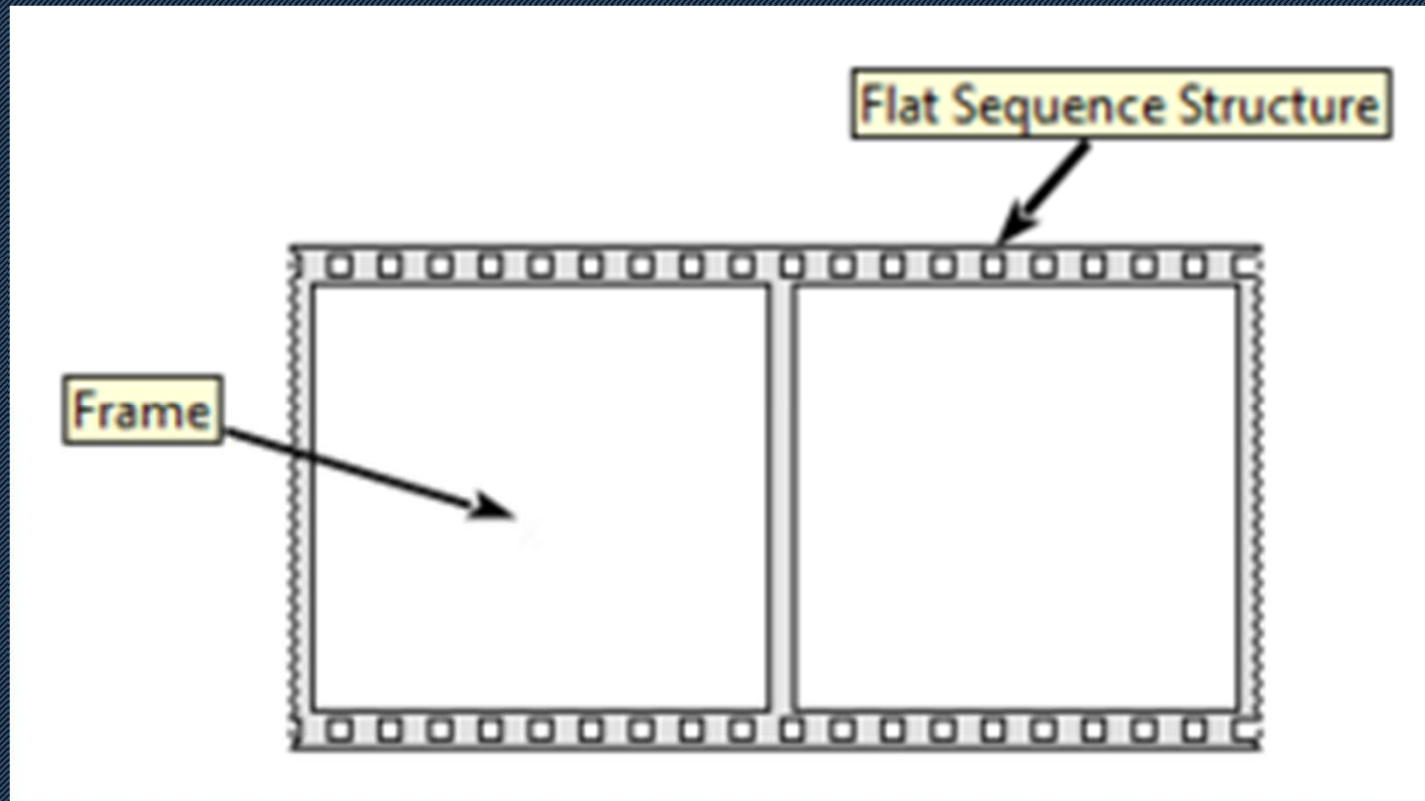
Programming Structure

MEMS 1049 Mechatronics

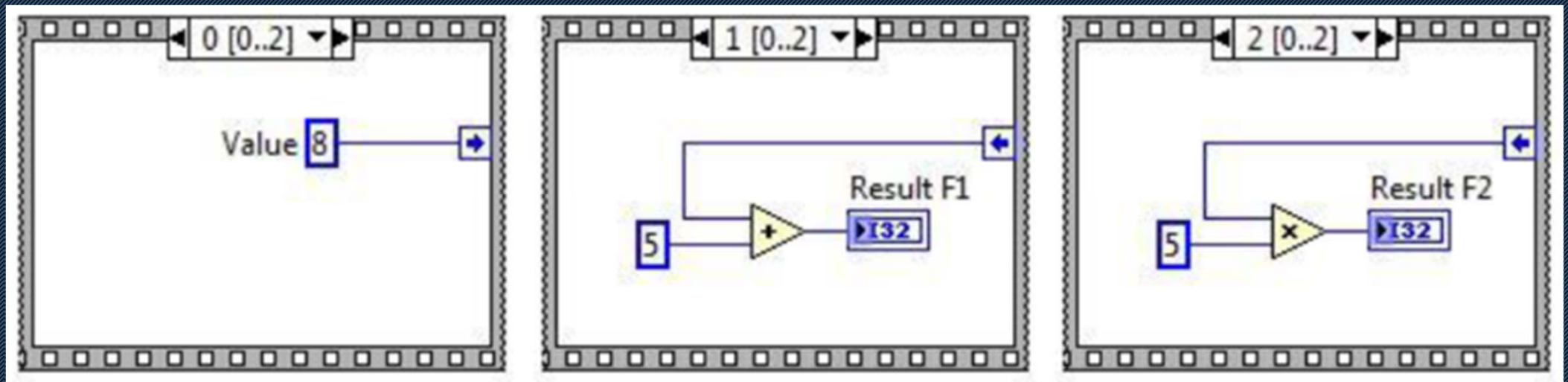
Outline

- Sequence structure
- While loop
- Structure tunnels
- For loop
- Loop timing
- Feedback node
- Case structure

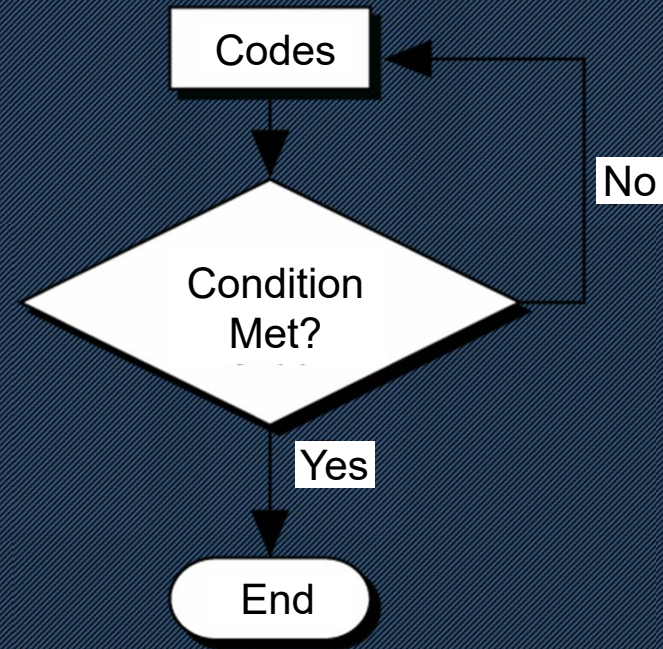
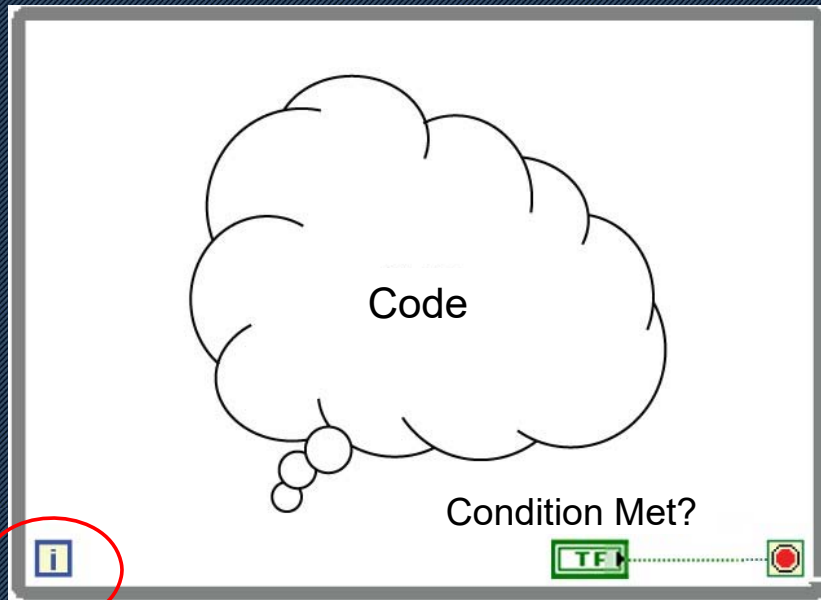
Flat Sequence Structure



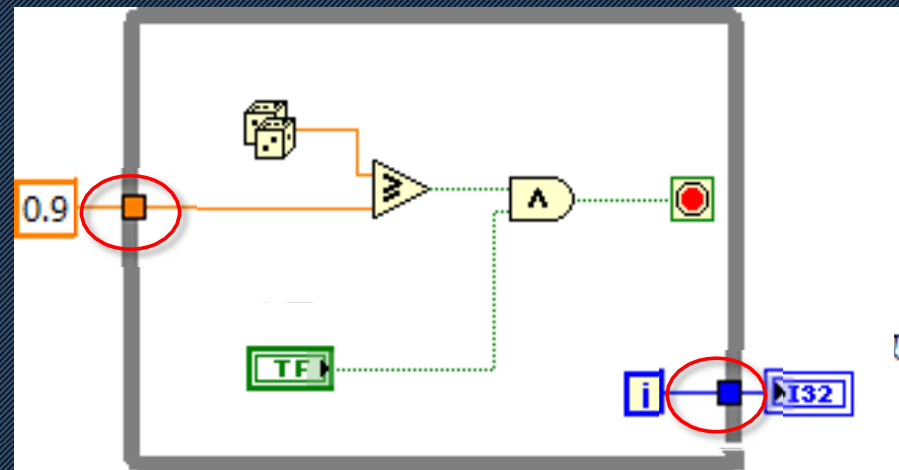
Stacked Sequence Structure



While Loop

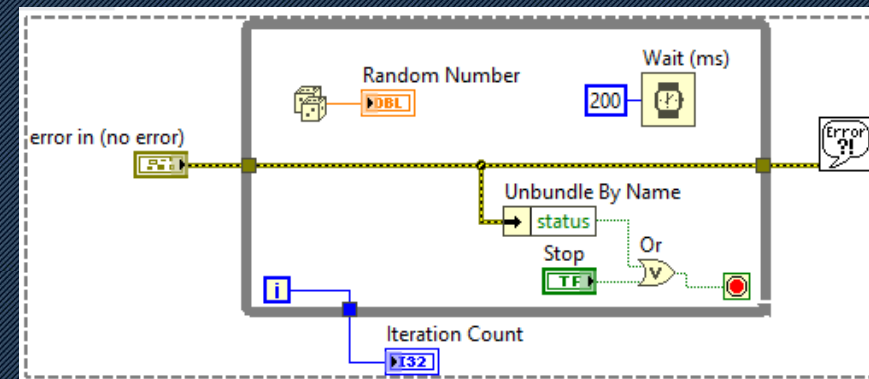
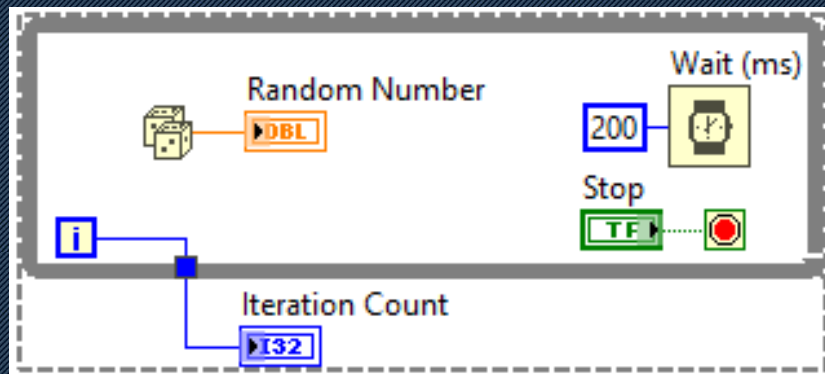


Build a While Loop



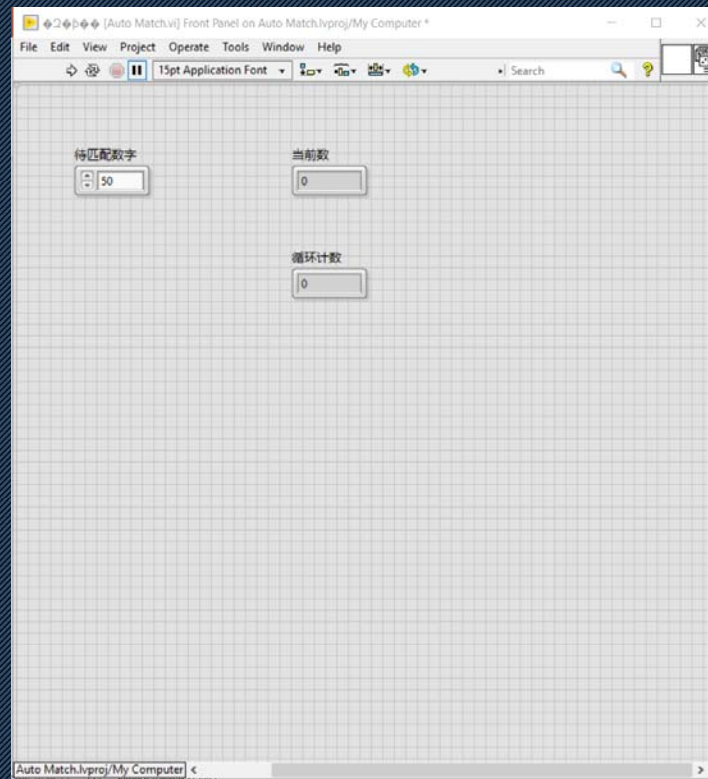
Structure Tunnels

- Data sent into the while Loop is sent only on the first iteration
- Data sent out of the while loop is sent only after the last iteration



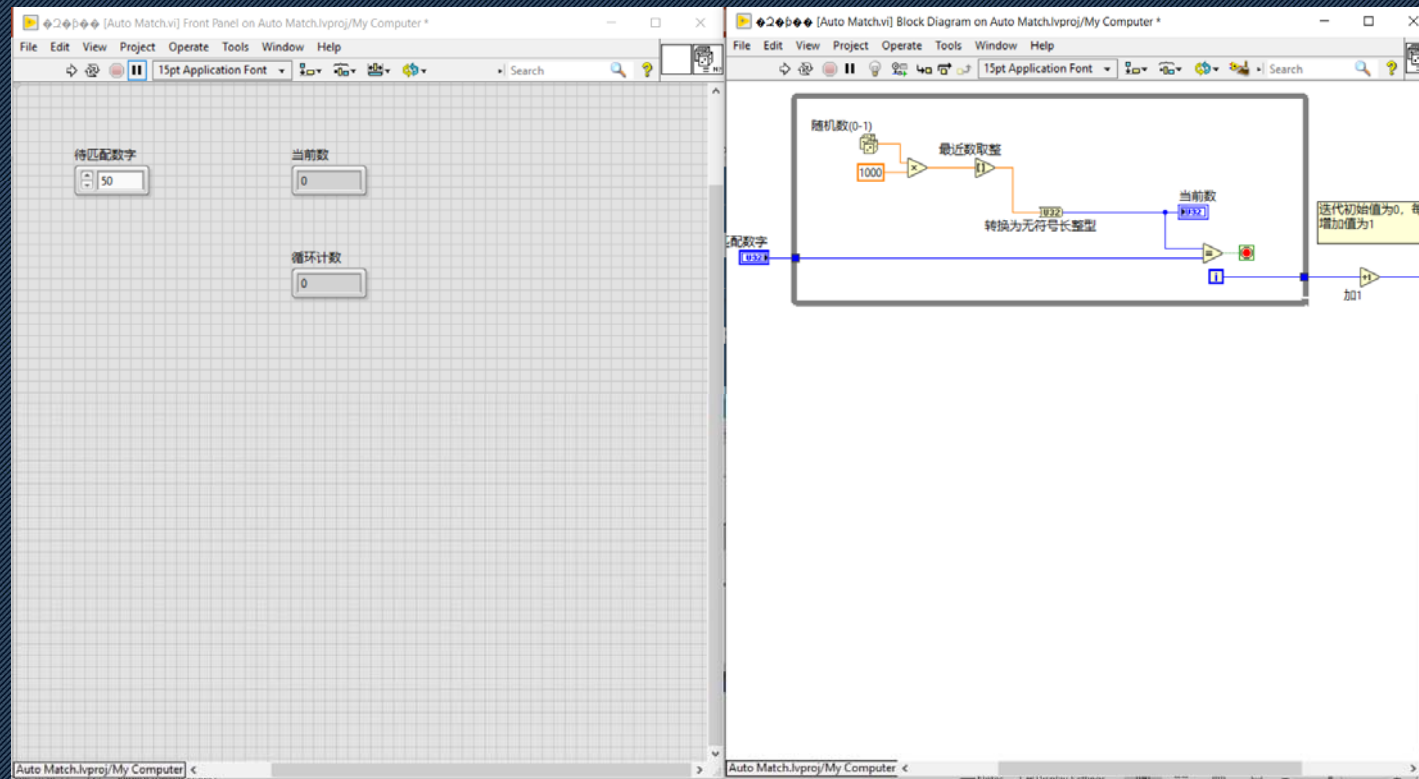
Studio

Auto number matching. Your friend gives you a number within the range of 1 to 1000. Write a program to find that number.

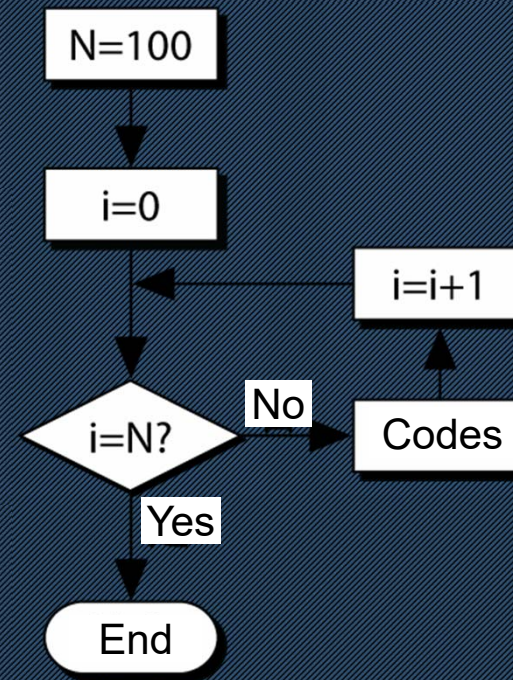
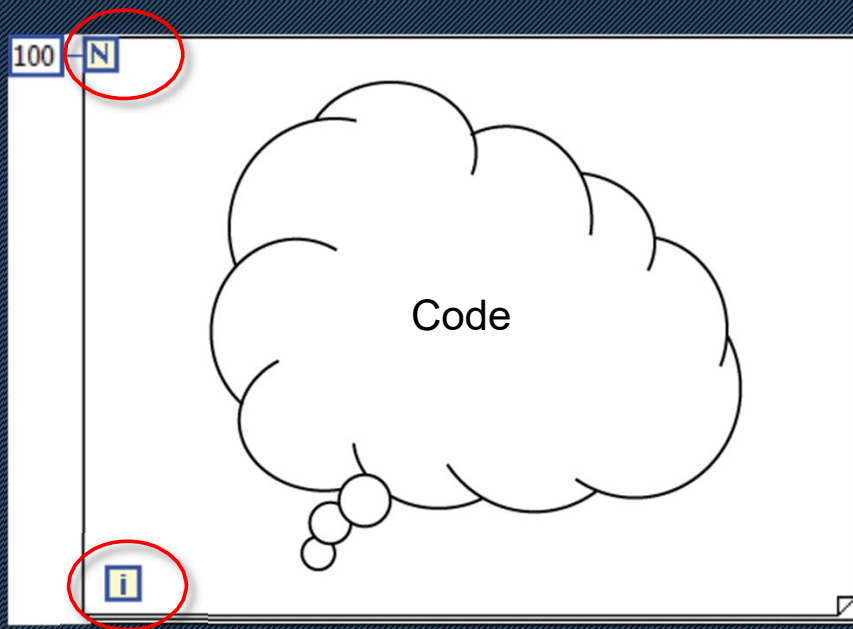


Studio

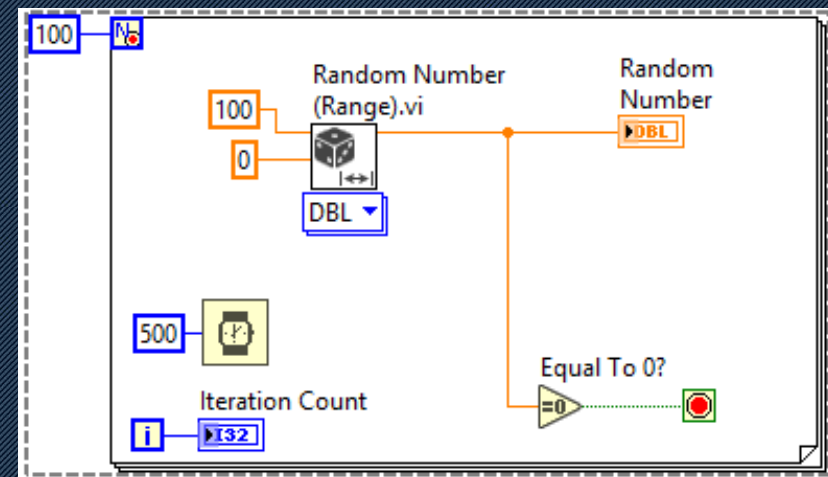
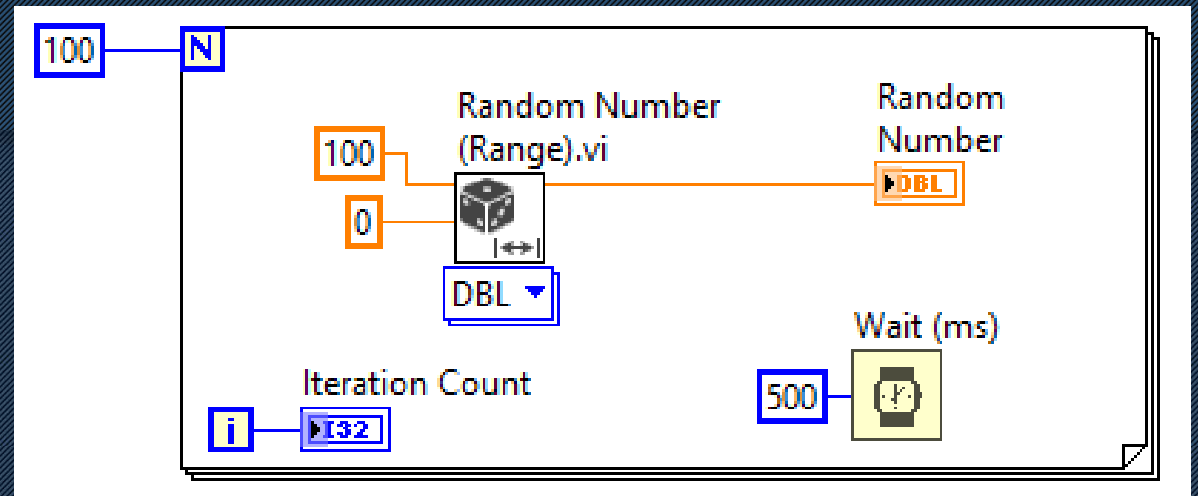
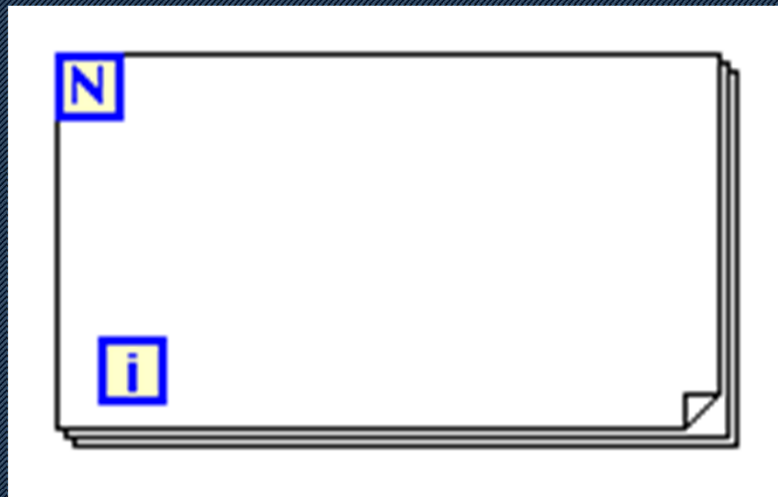
Auto number matching. Your friend gives you a number within the range of 1 to 1000. Write a program to find that number.



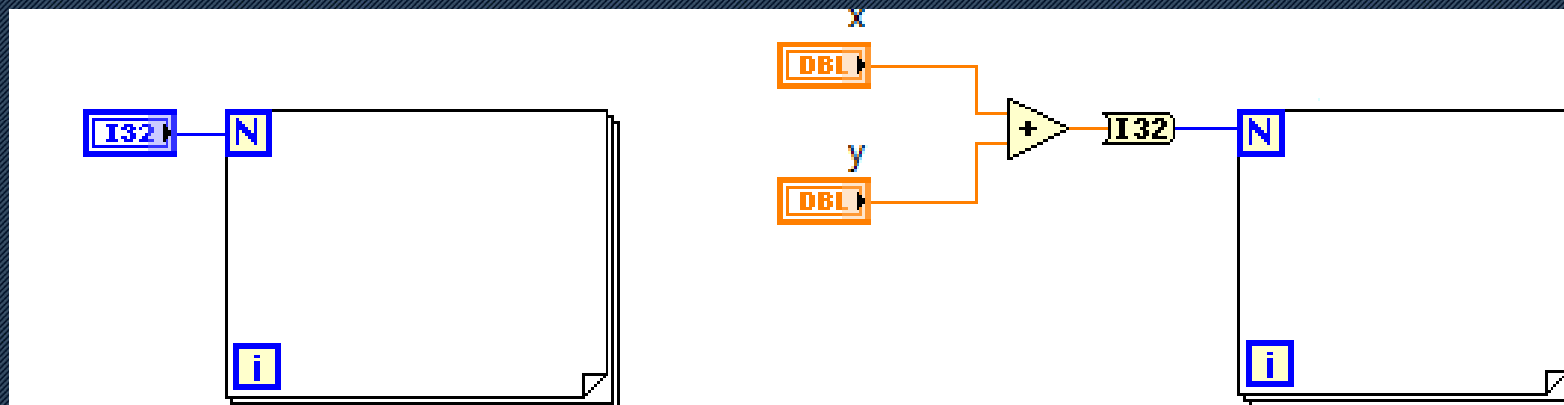
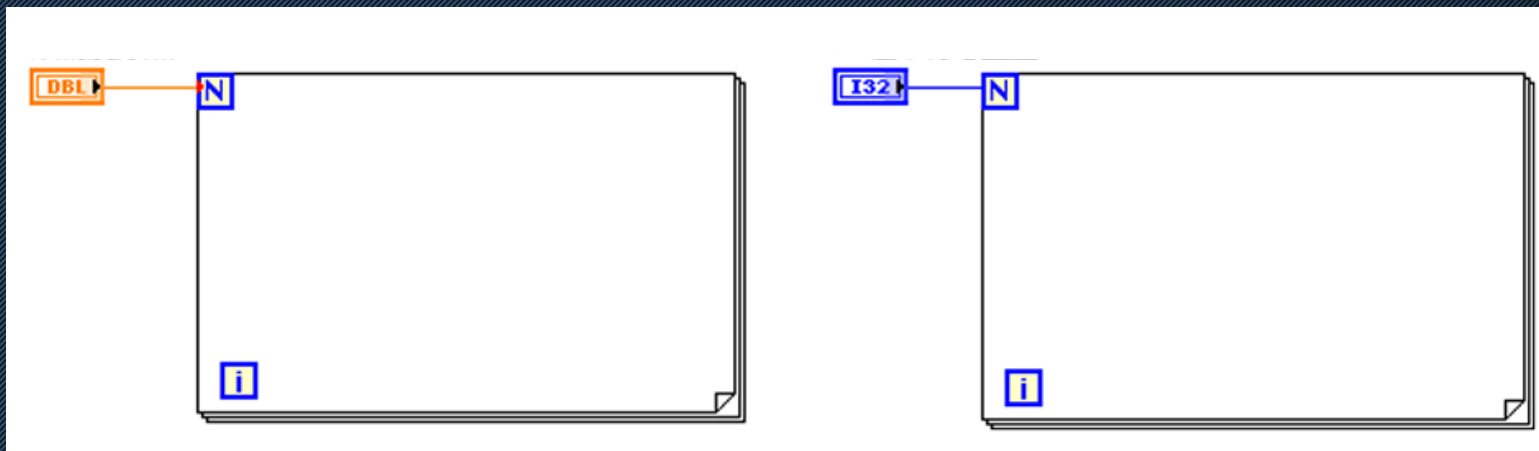
For Loop



Build a For Loop

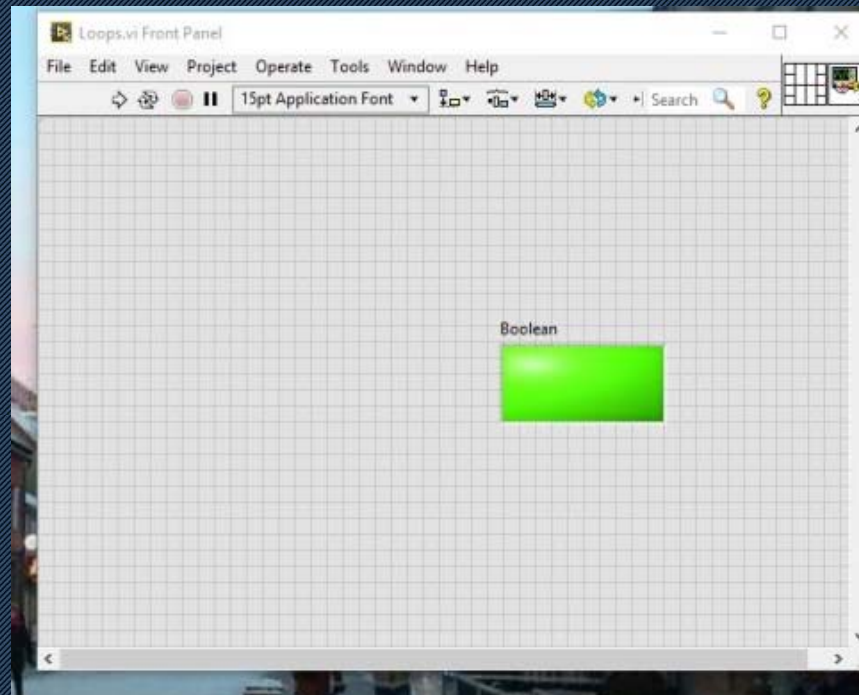


Iteration Terminal Data Conversion



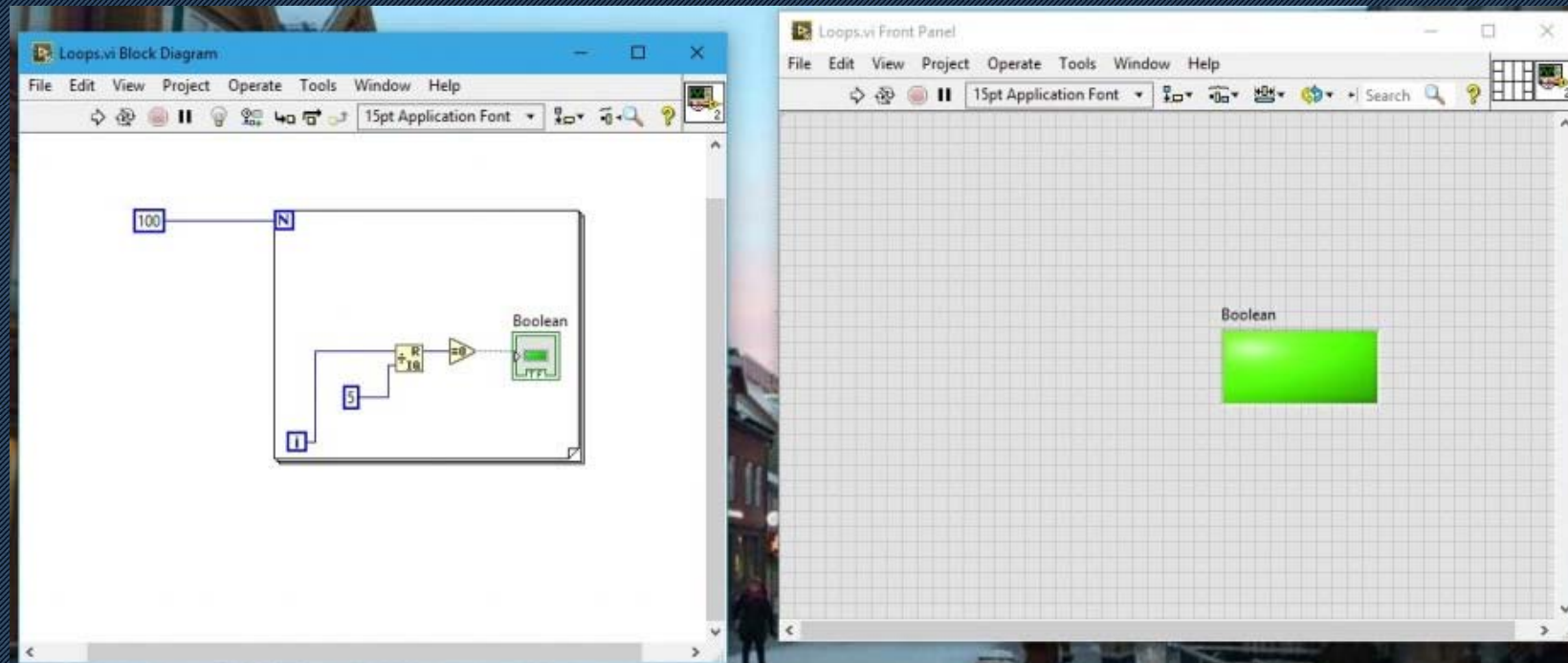
Studio

From 1 to 100, using “for loop” to find the numbers which are the multiples of 5 and light the LED



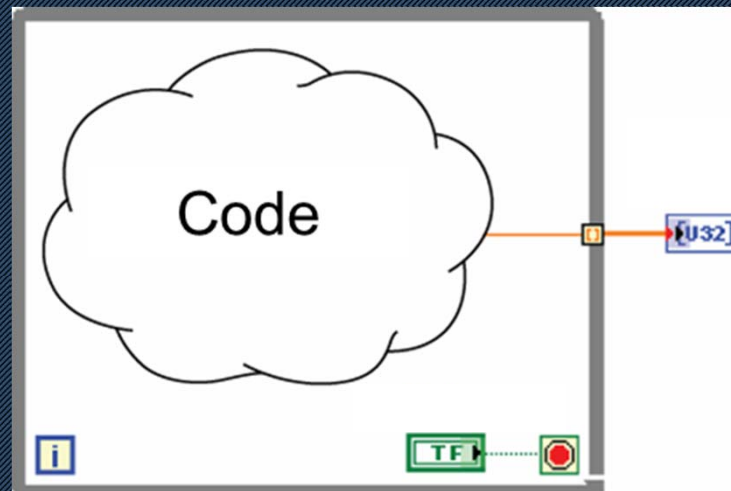
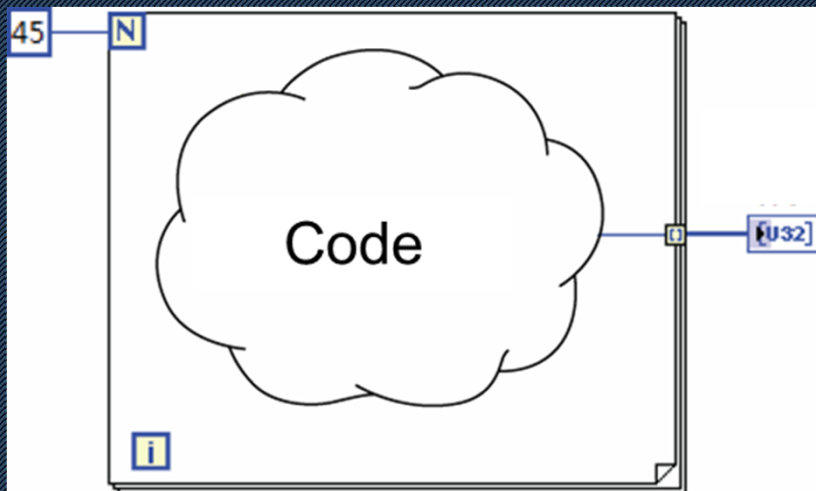
Studio

From 1 to 100, using “for loop” to find the numbers which are the multiples of 5 and light the LED

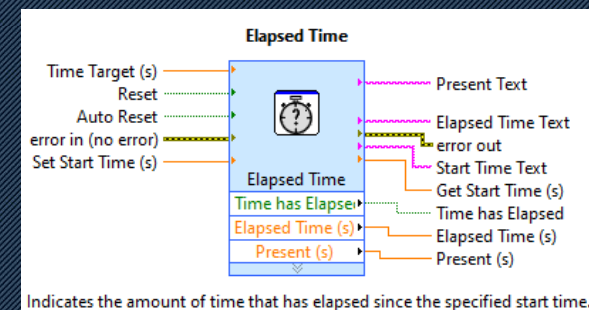
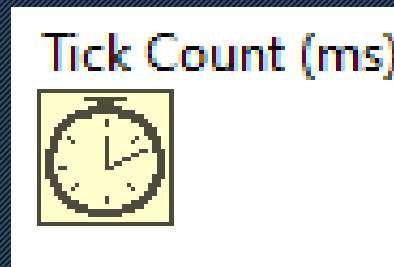
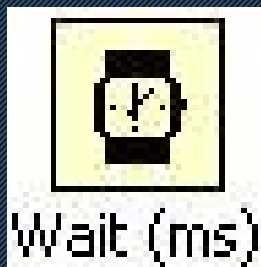
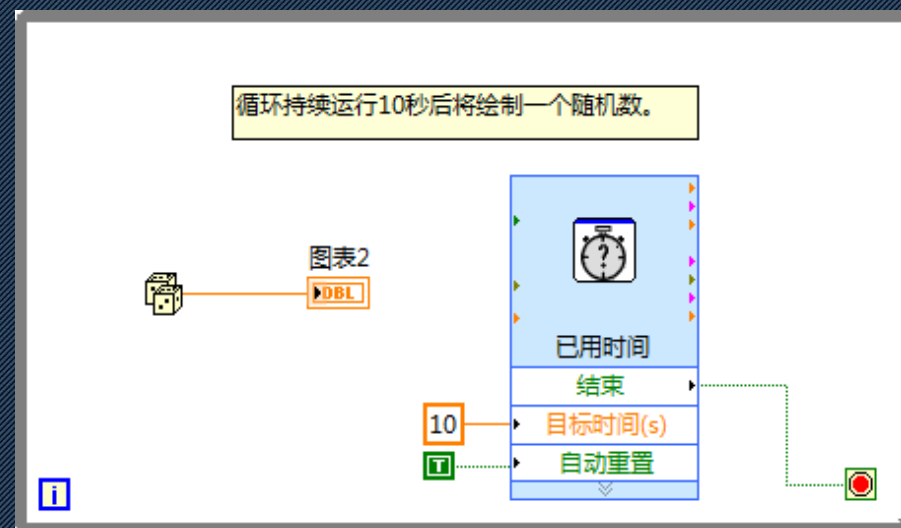
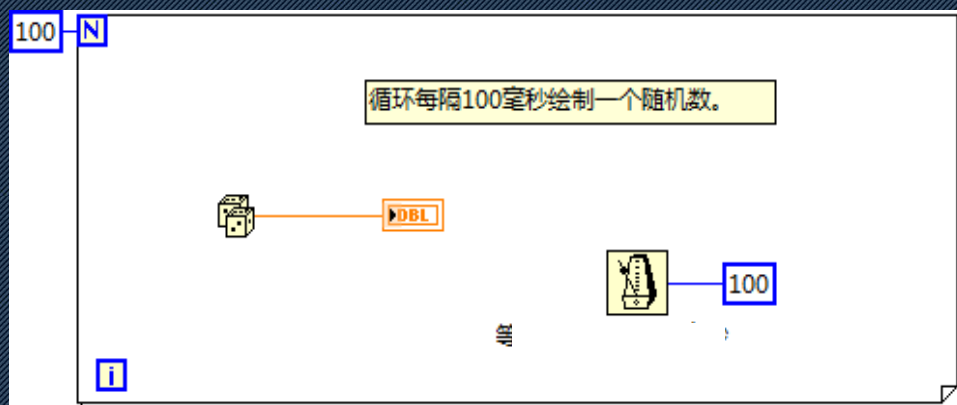
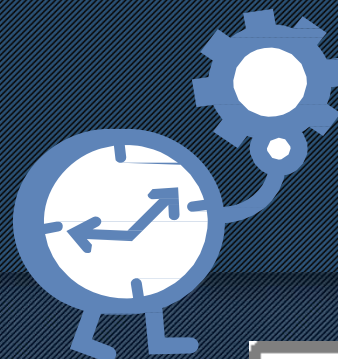


Which of the following structures must run at least once?

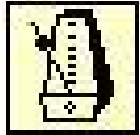
- For loop
- While loop



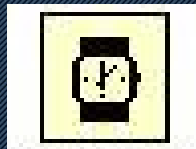
Loop Timing



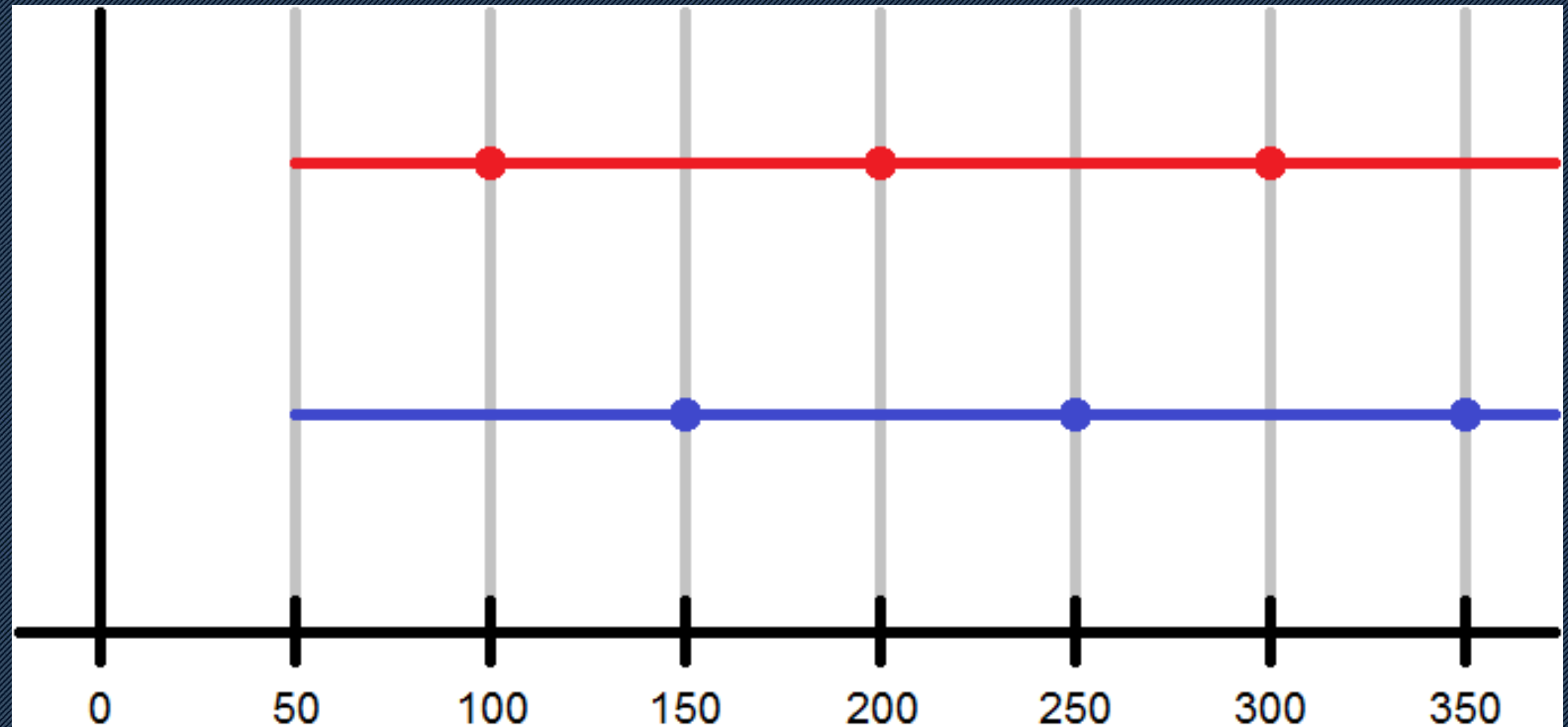
Loop Timing



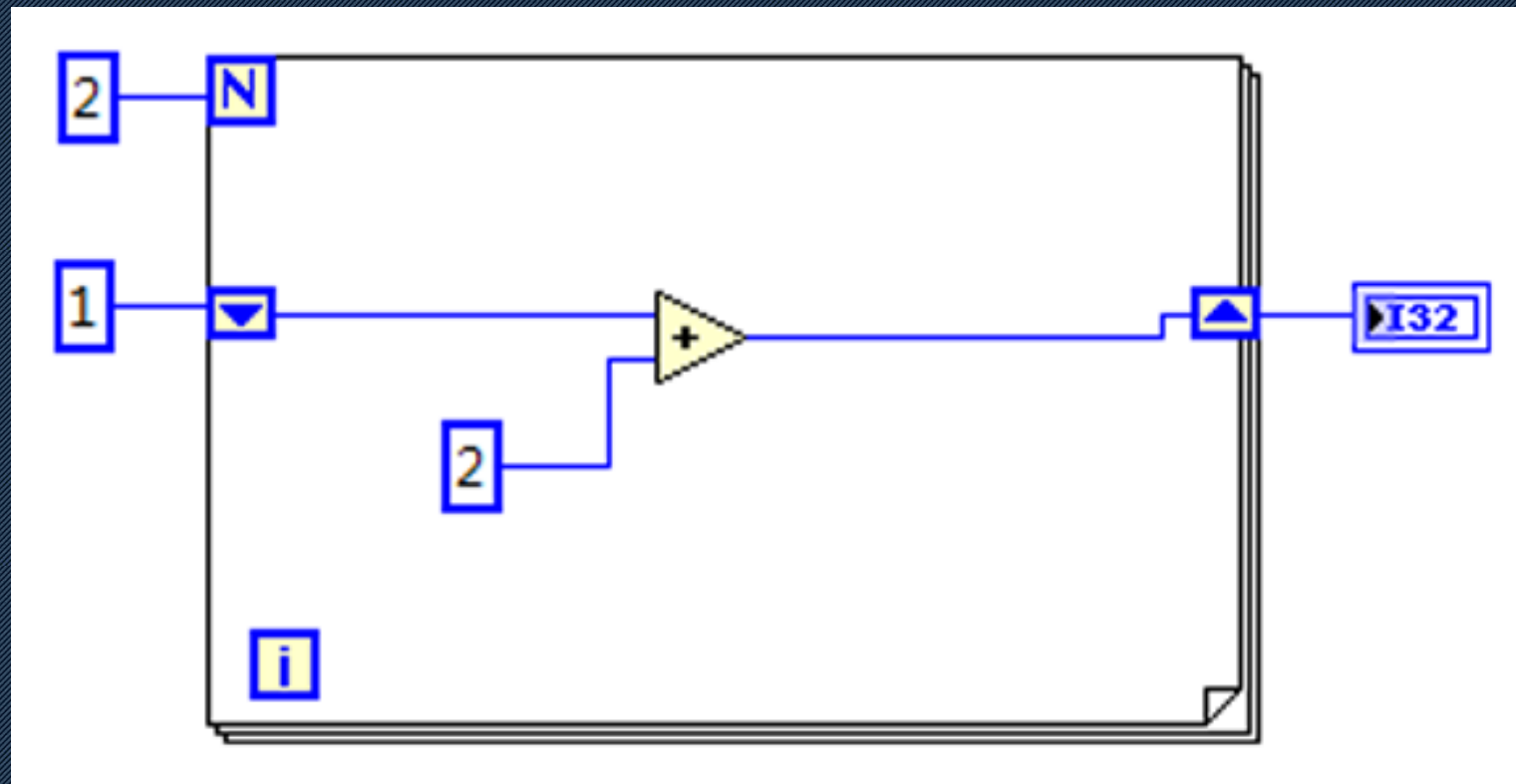
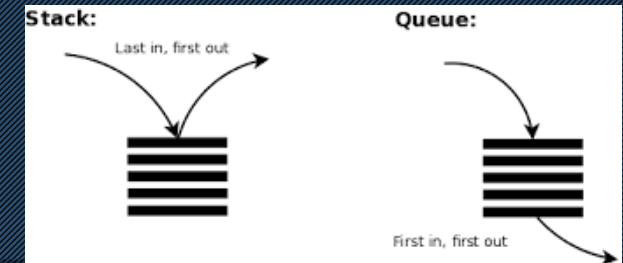
Wait Until Next ms Multiple



Wait (ms)

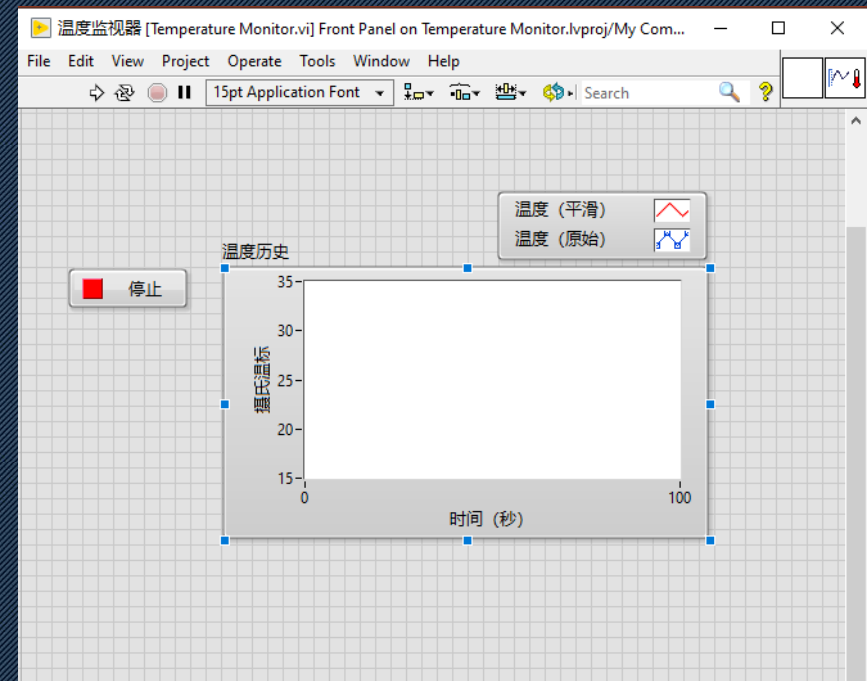
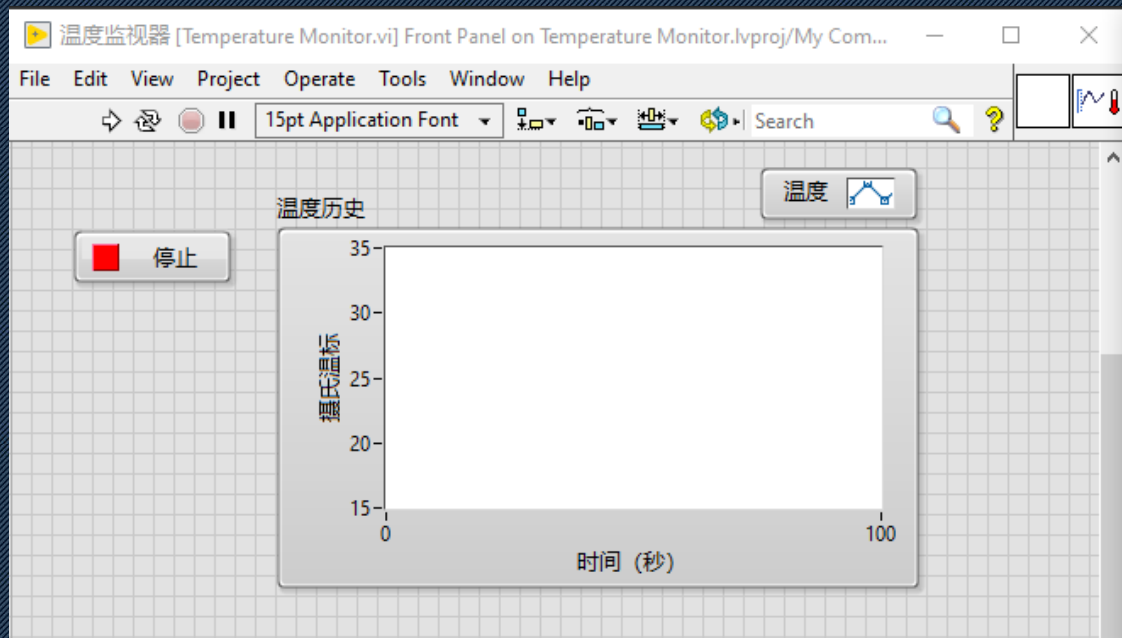


Feedback Node Shift Registers



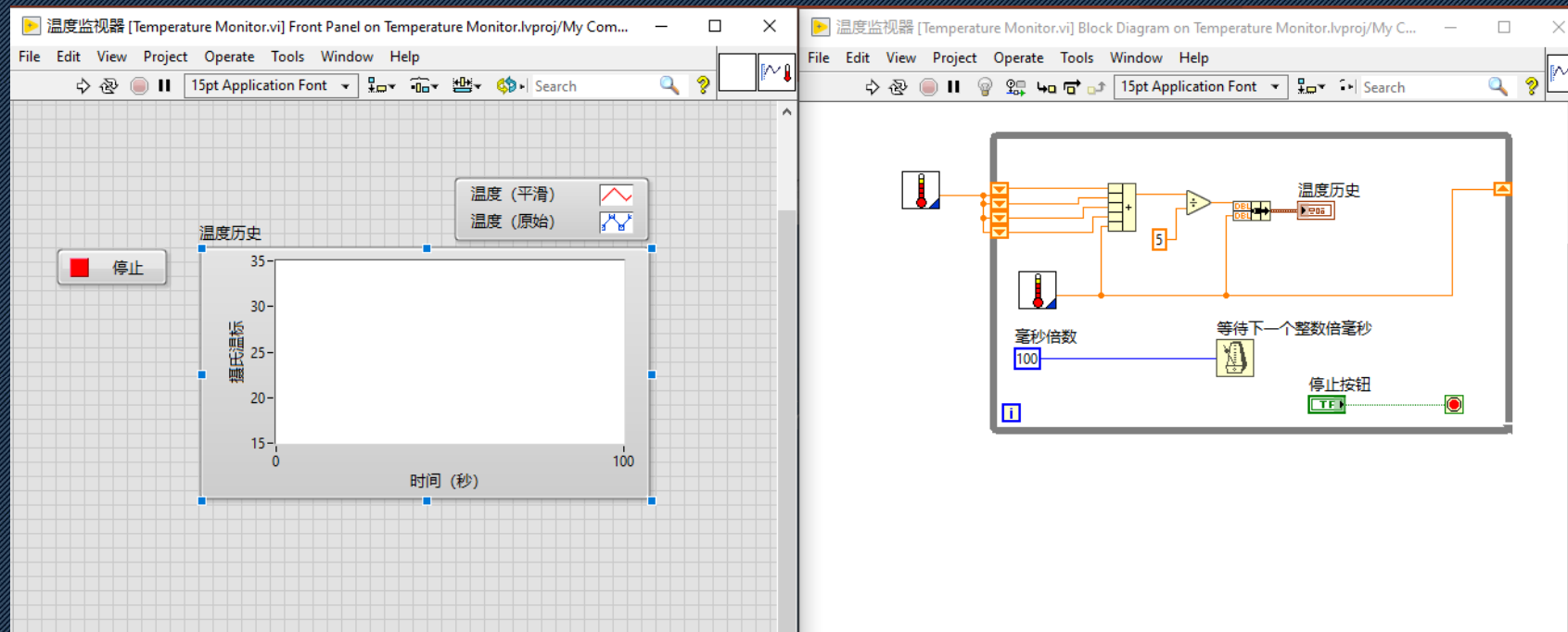
Studio

Create a moving average filter using shift register which averages the last five data points to smooth the temperature measurements

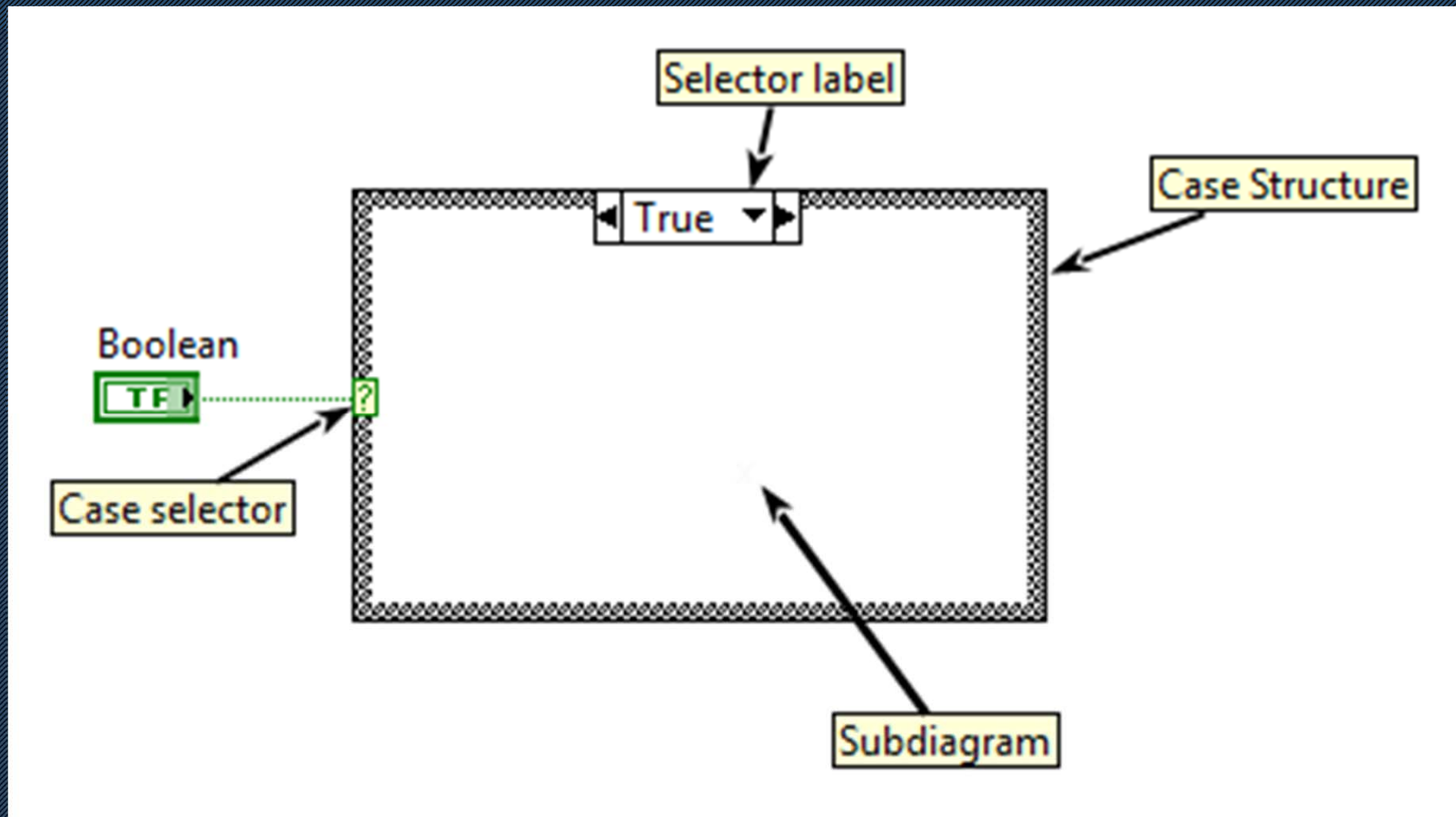


Studio

Create a moving average filter using shift register which averages the **last five** data points to smooth the temperature measurements



Case Structure



Case Structure

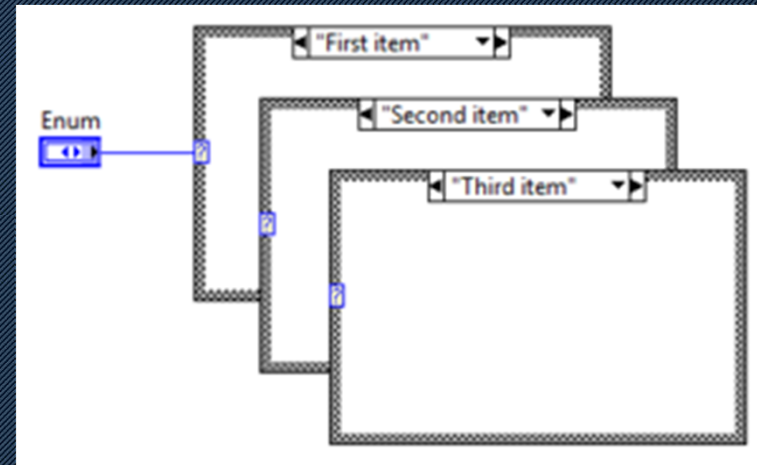
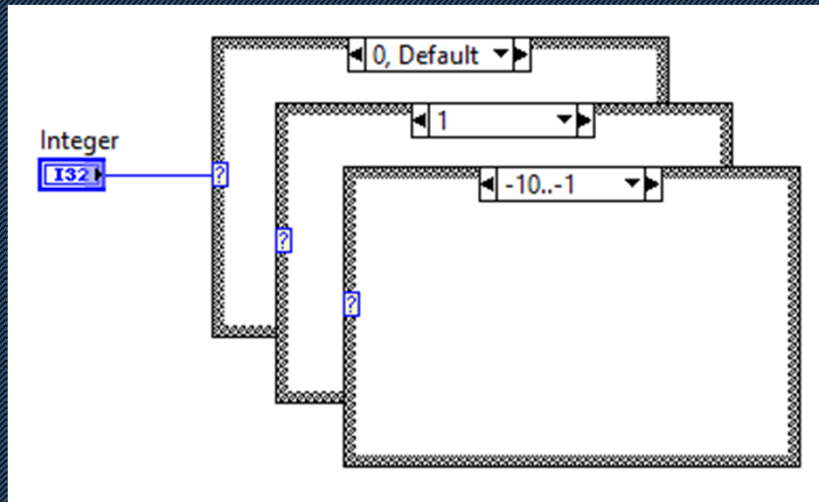
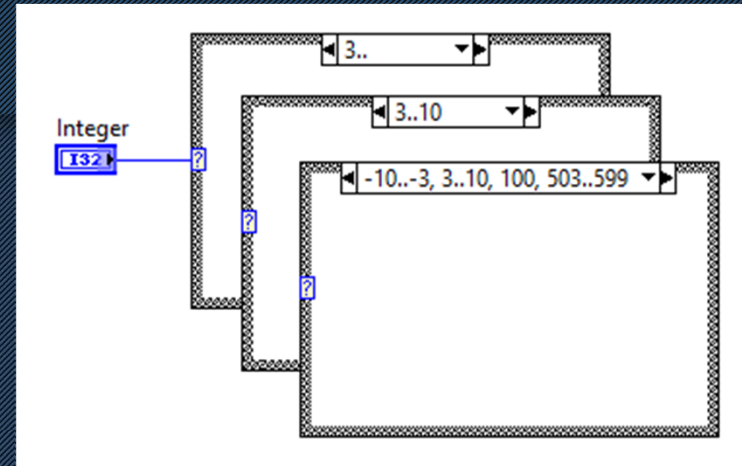
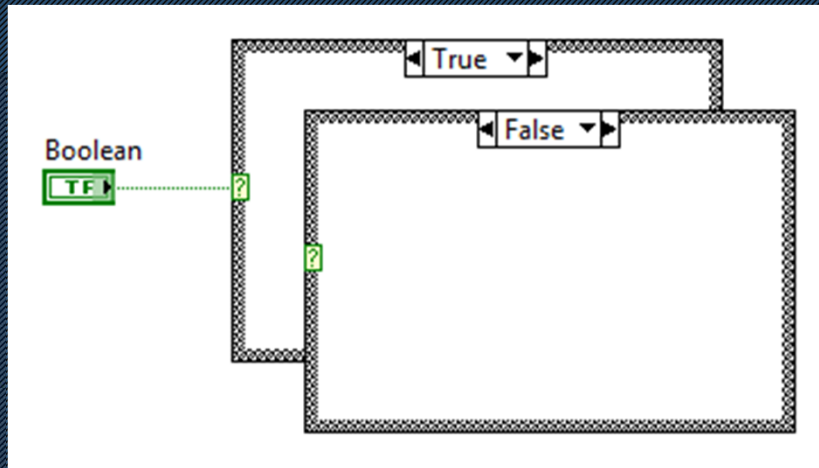


Diagram Disable Structure

