

无线通信实验在线开放课程

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广东省教学质量工程建设项目





LabVIEW 通信编程

(Basic)

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Introduction to LabVIEW (Basic)

1 New VI

2 Case Structure

3 Loop Structure

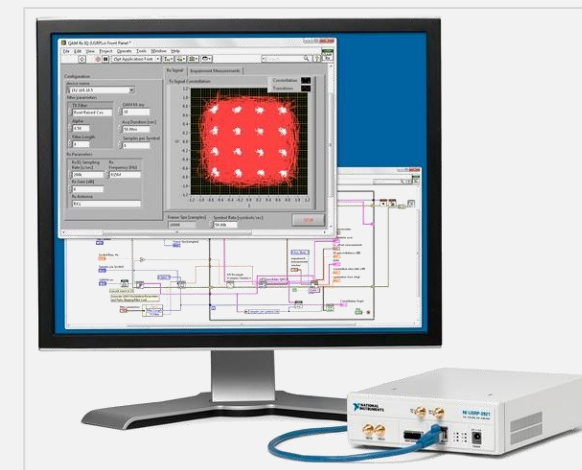
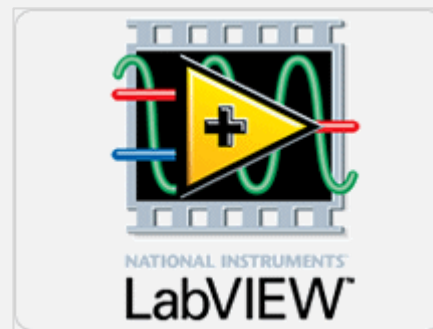
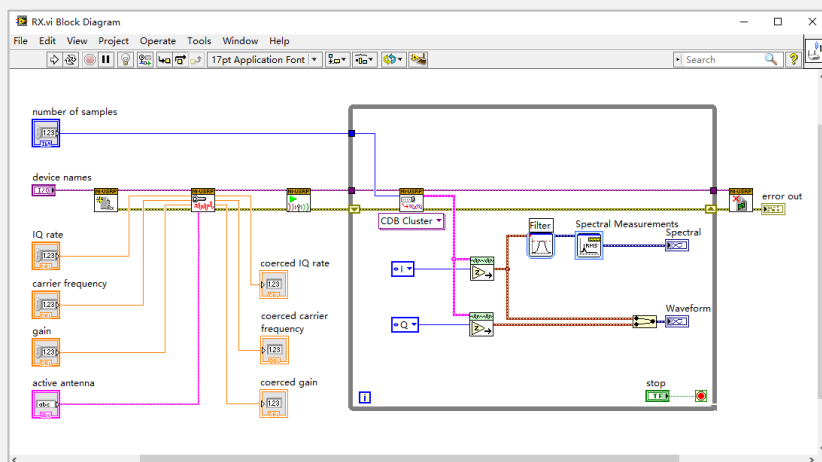
4 Help Document



Outcomes-Based Education (OBE)

What is LabVIEW ?

- LabVIEW is a **graphical programming environment** used by millions of engineers and scientists to develop sophisticated measurement, test, and control systems.
- LabVIEW can integrate with wide variety of hardware devices, including the **Universal Software Radio Peripheral** (USRP).



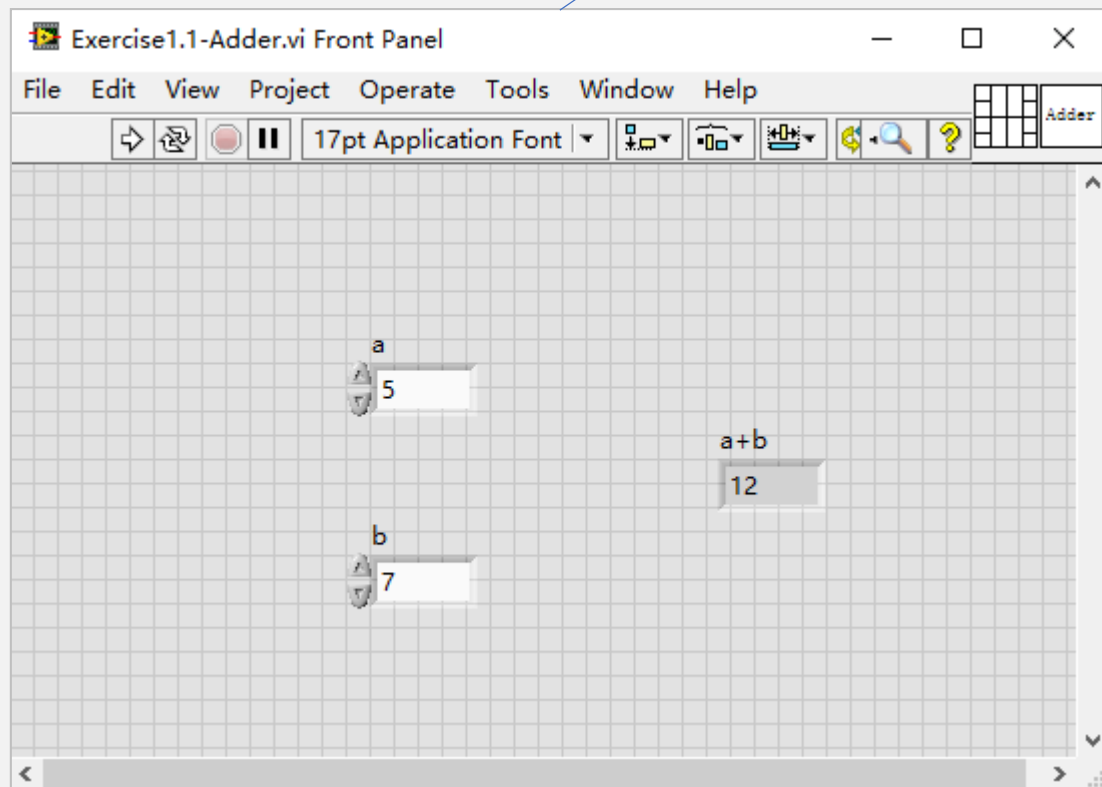


Exercise 1.1 Adder.vi

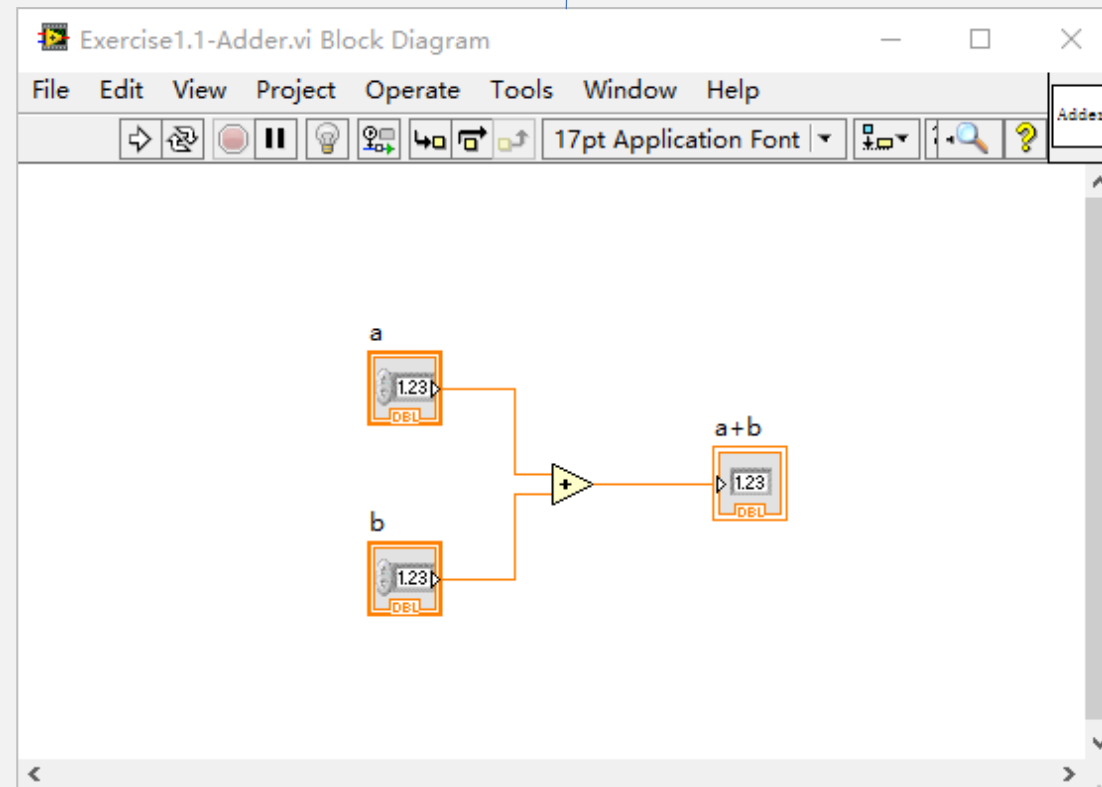


Virtual Instruments (VI)

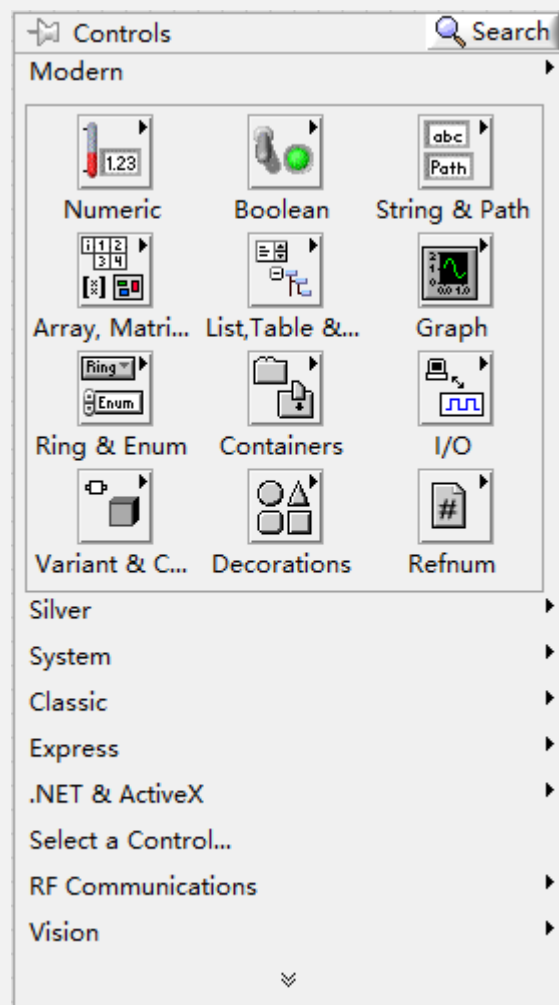
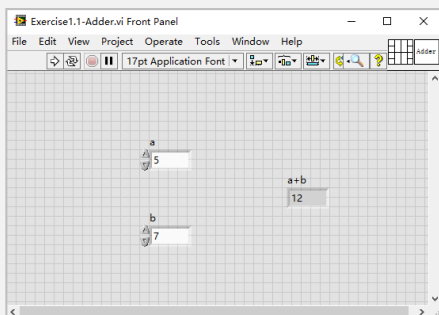
Front Panel



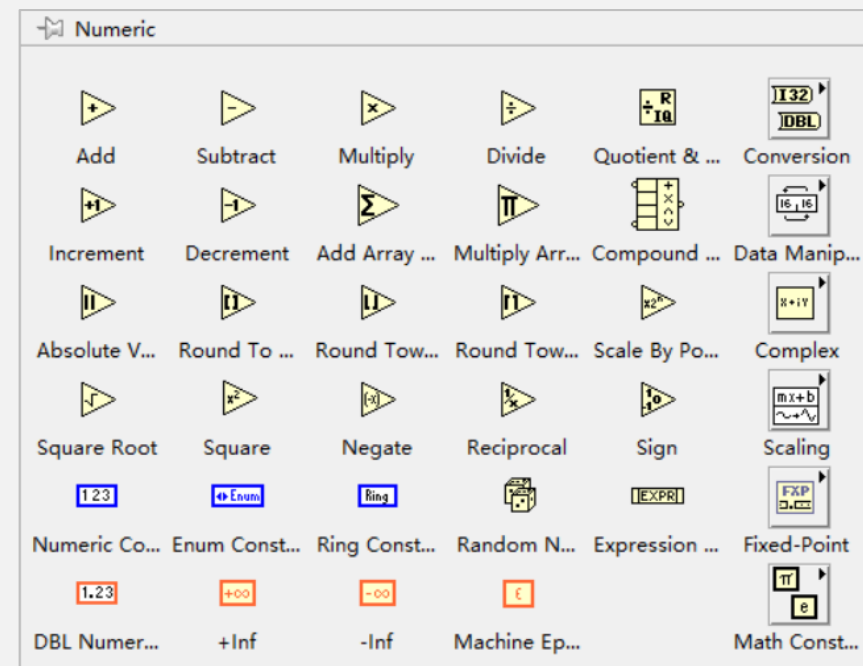
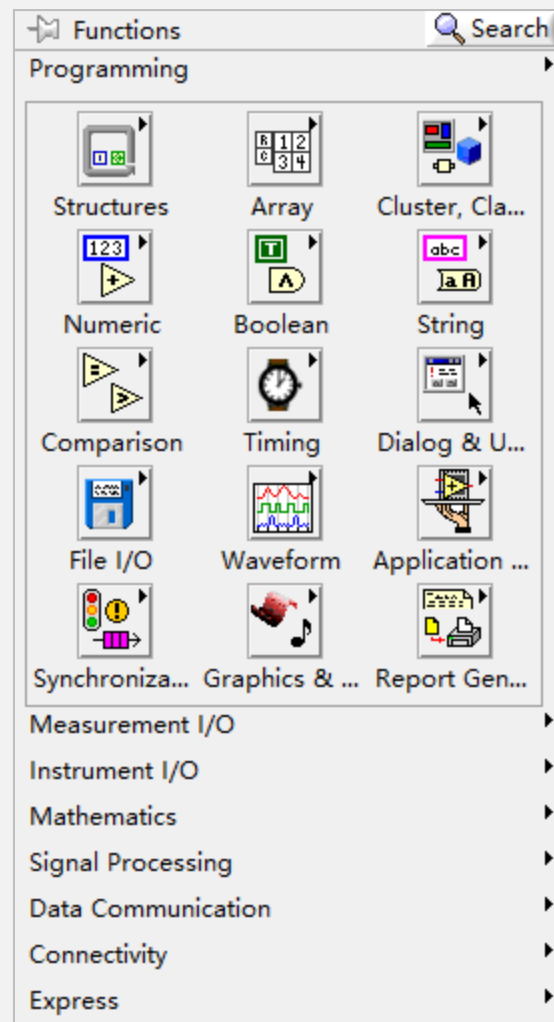
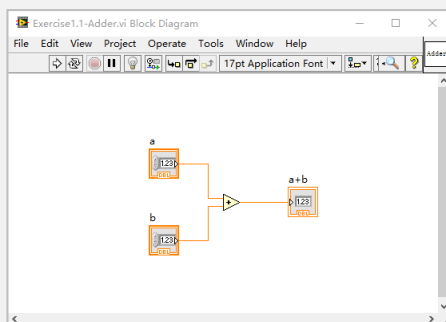
Block Diagram



Front Panel & Controls Palette



Block Diagram & Functions Palette



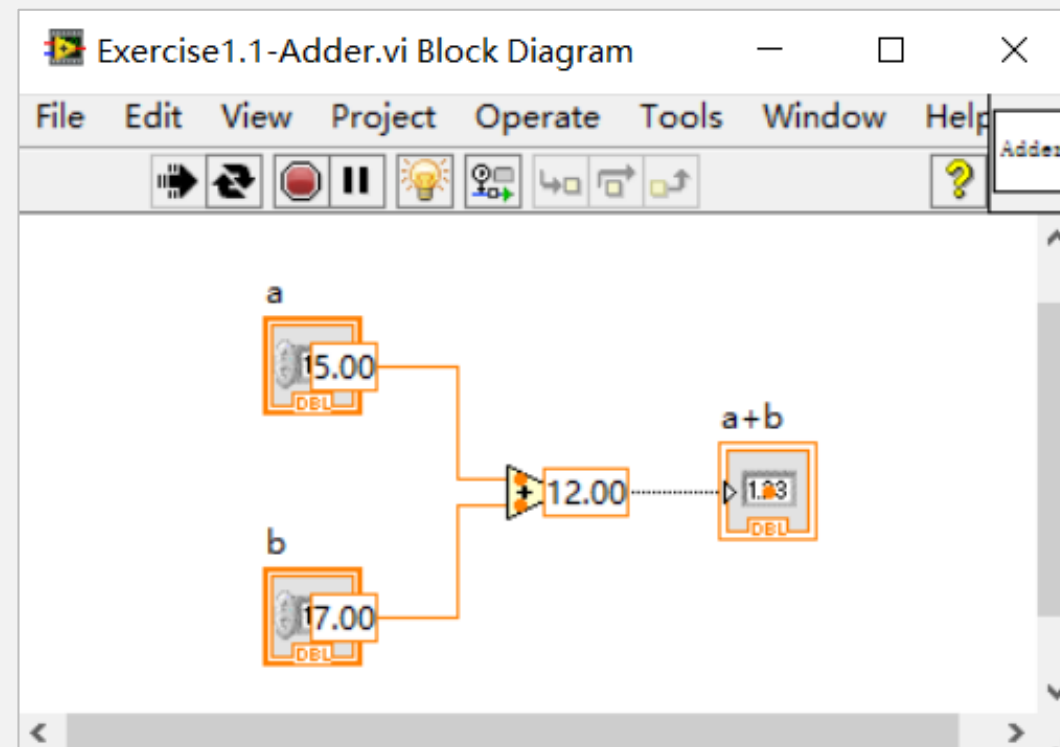


Run and Debug



Dataflow Programming

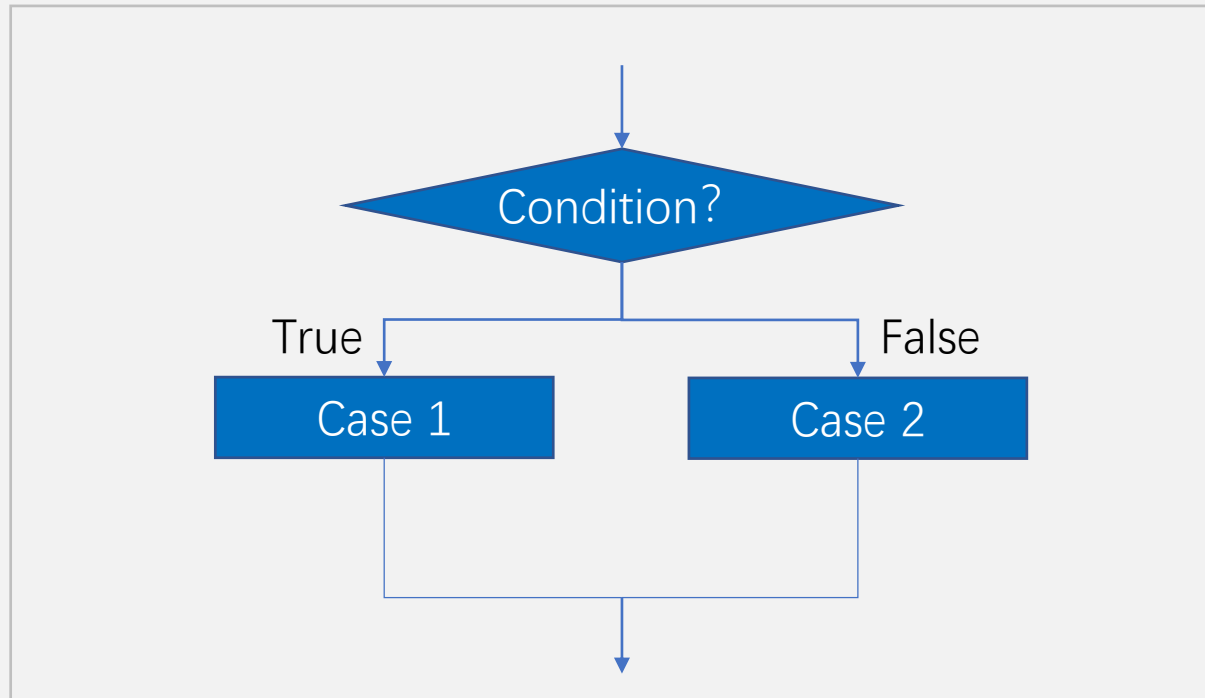
- Block diagram execution
 - Dependent on the flow of data.
 - Block diagram does **NOT** execute left to right.
- Node executes when data is available to **ALL** input terminals.
- Nodes supply data to all output terminals when done.



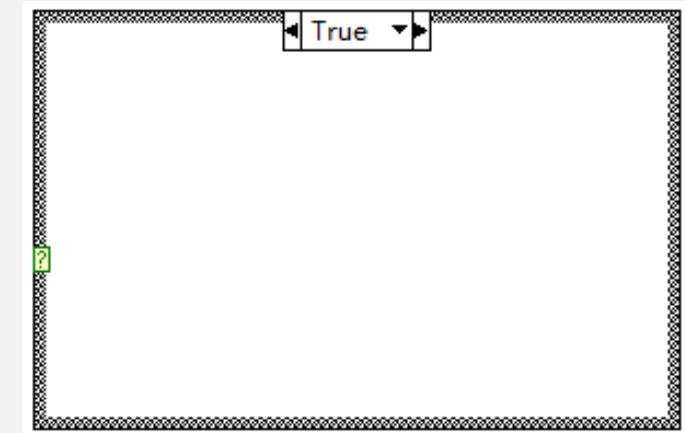


Icon Editor

Case Structure



Flow chart



LabVIEW/Case structure

```
If {Condition == True}
    {Program for True condition}
Else
    {Program for False condition}
```

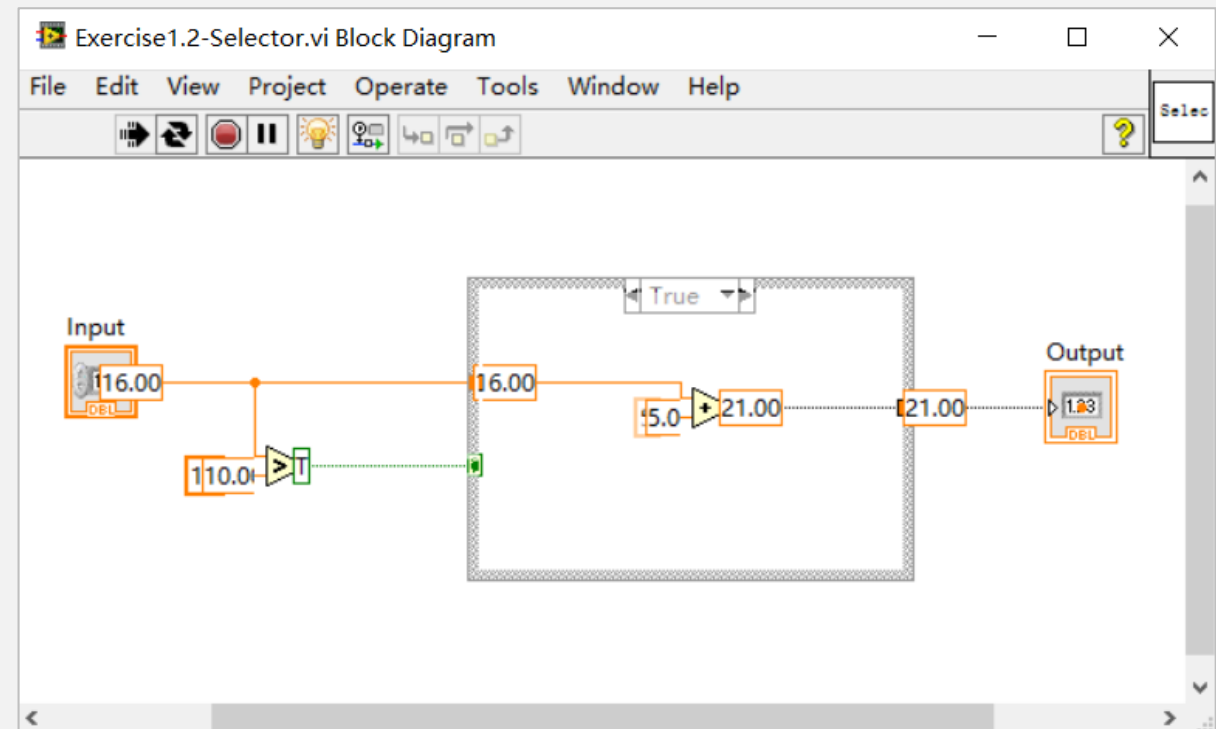
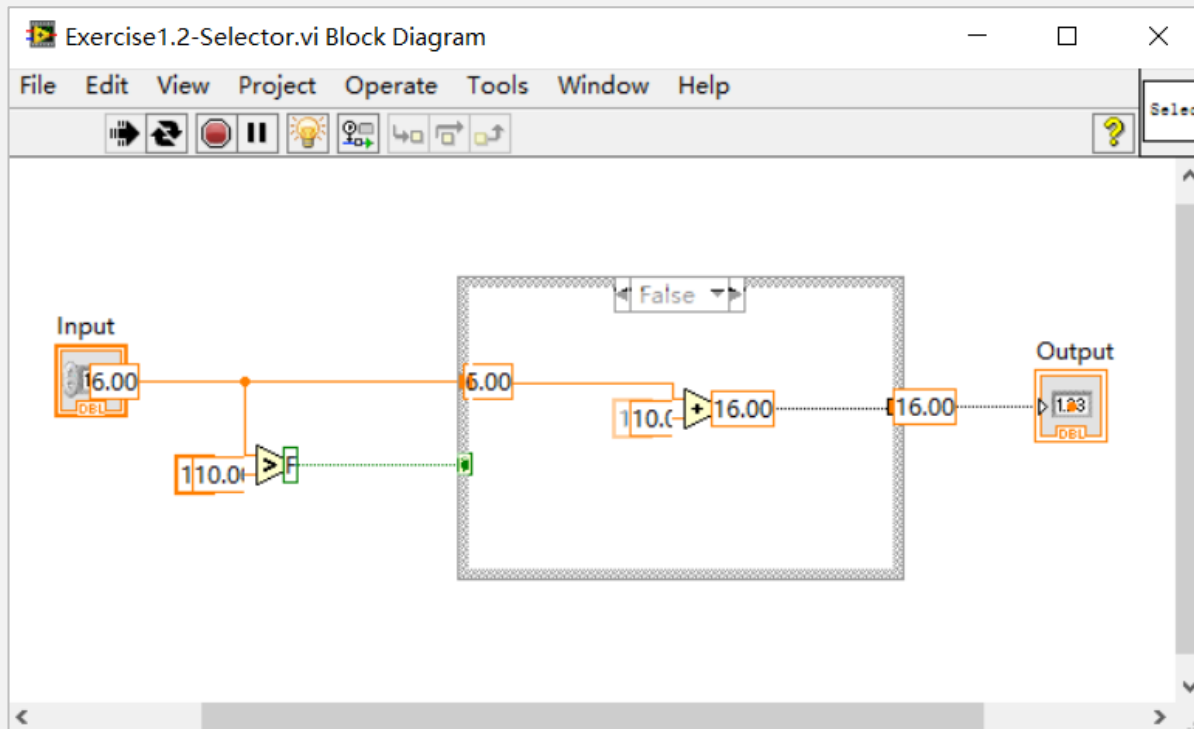
C/If-Else



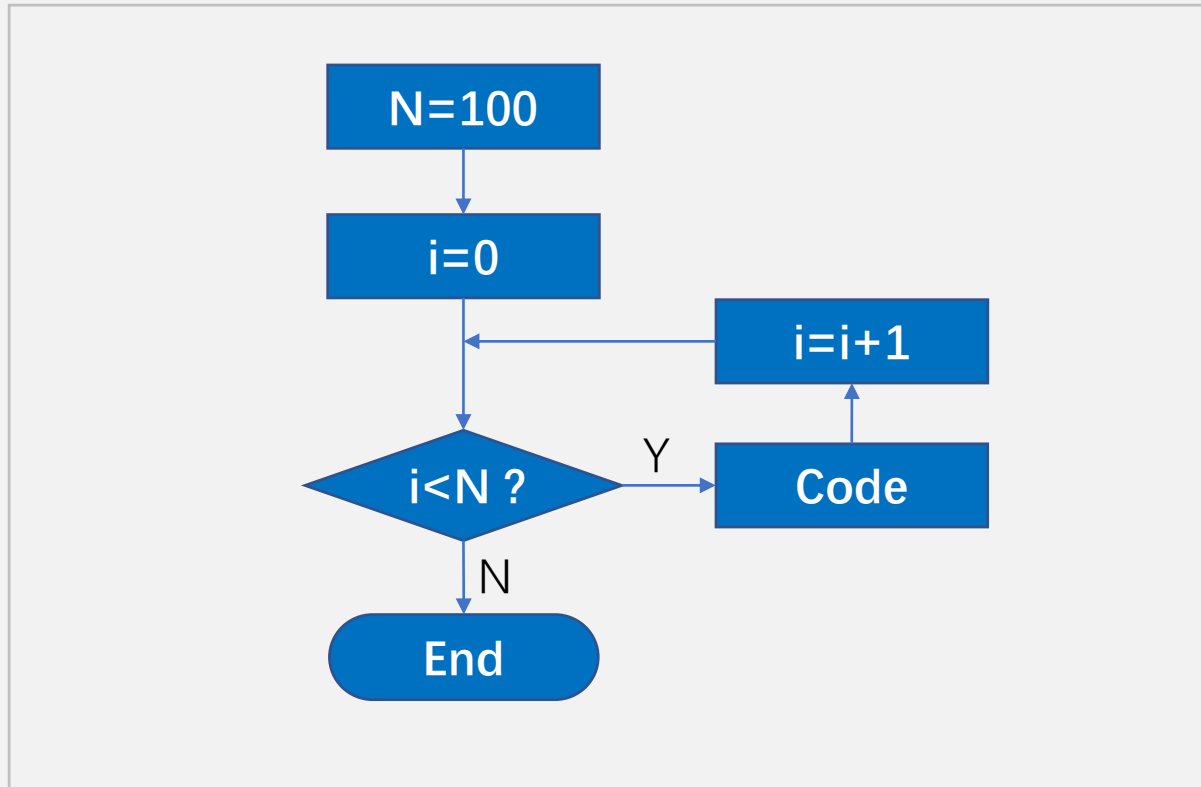
Exercise 1.2 Selector.vi

Create a VI to add '5' to a number if it is greater than '10', else add '10'.

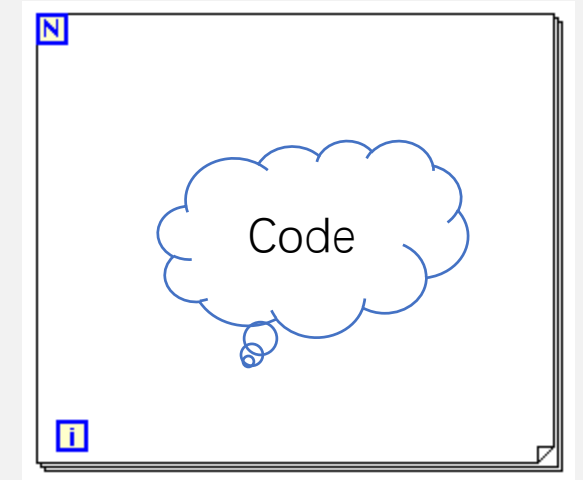
Selector.vi



Loop Structure--For



Flow chart

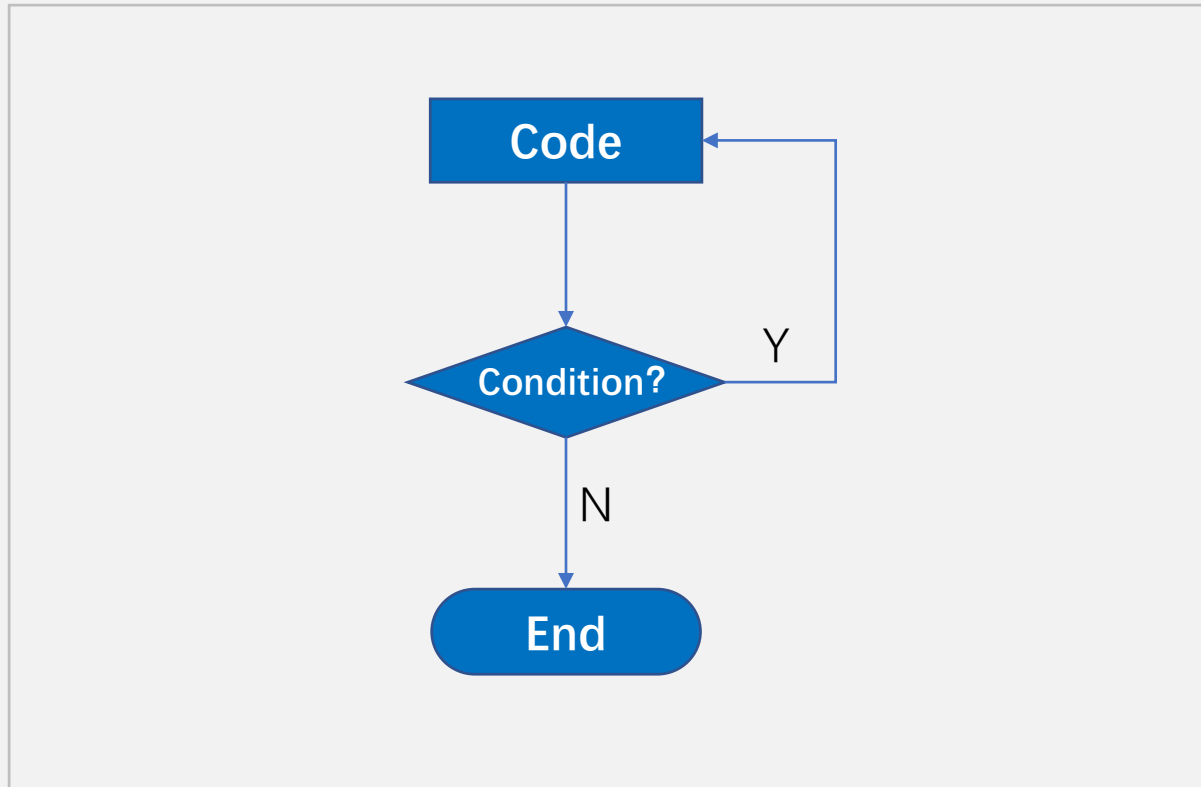


LabVIEW/For Loop

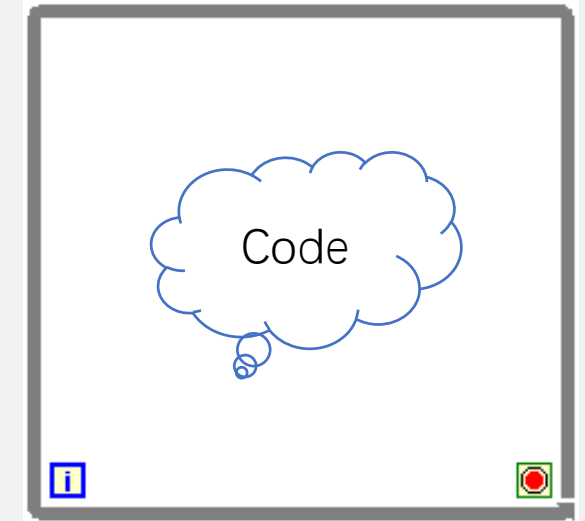
```
int N=100;  
int i;  
for (i=0; i<N; i++) {  
    Code();  
}
```

C/For Loop

Loop Structure--While



Flow chart



LabVIEW/While Loop

```
do{  
    Code();  
}while (Condition);
```

C/While Loop

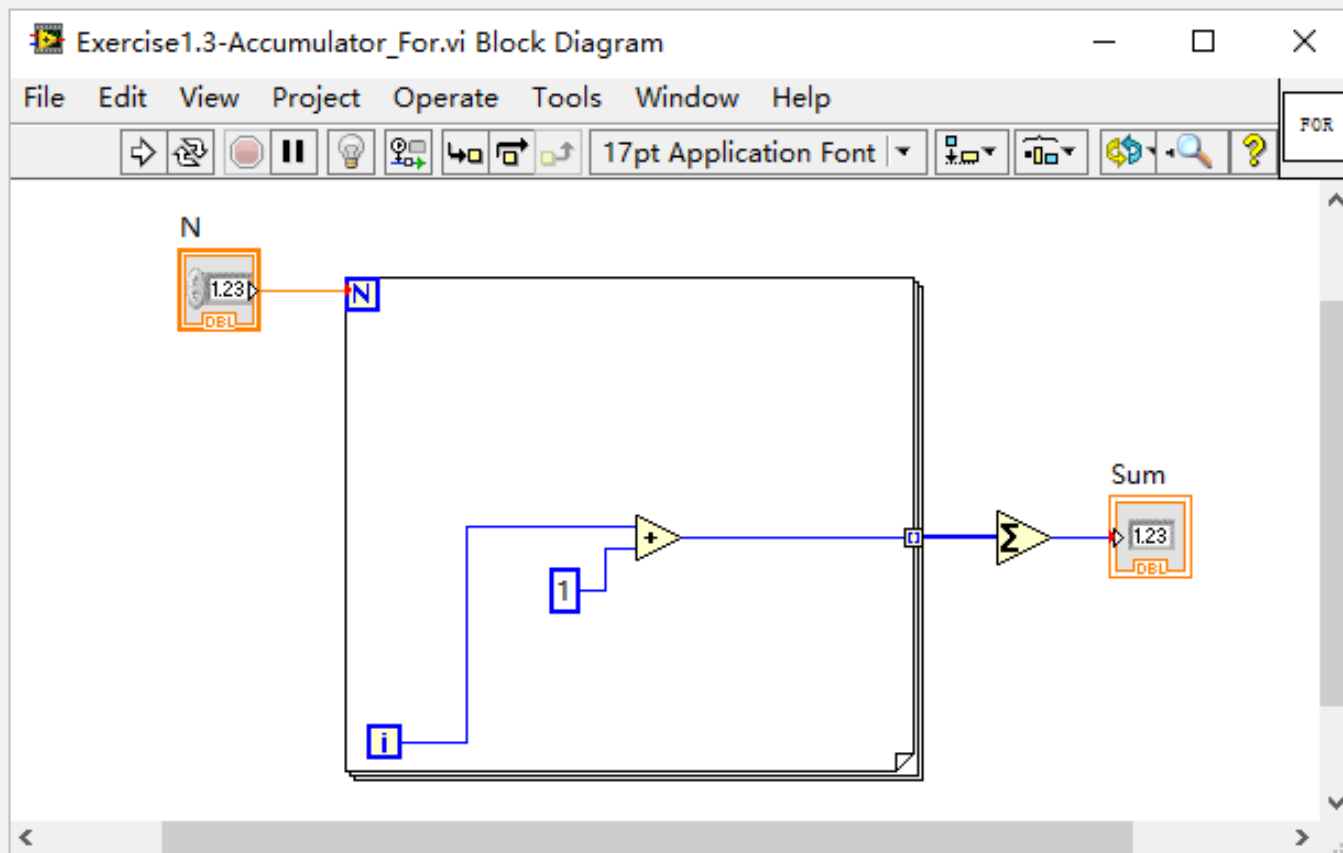


Exercise 1.3 Accumulator.vi

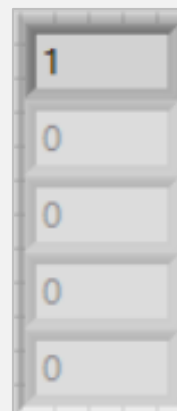
Create a VI to output the sum of numbers from 1 to the number input.



Exercise 1.3 Accumulator_For.vi



N=1



N=2



N=5





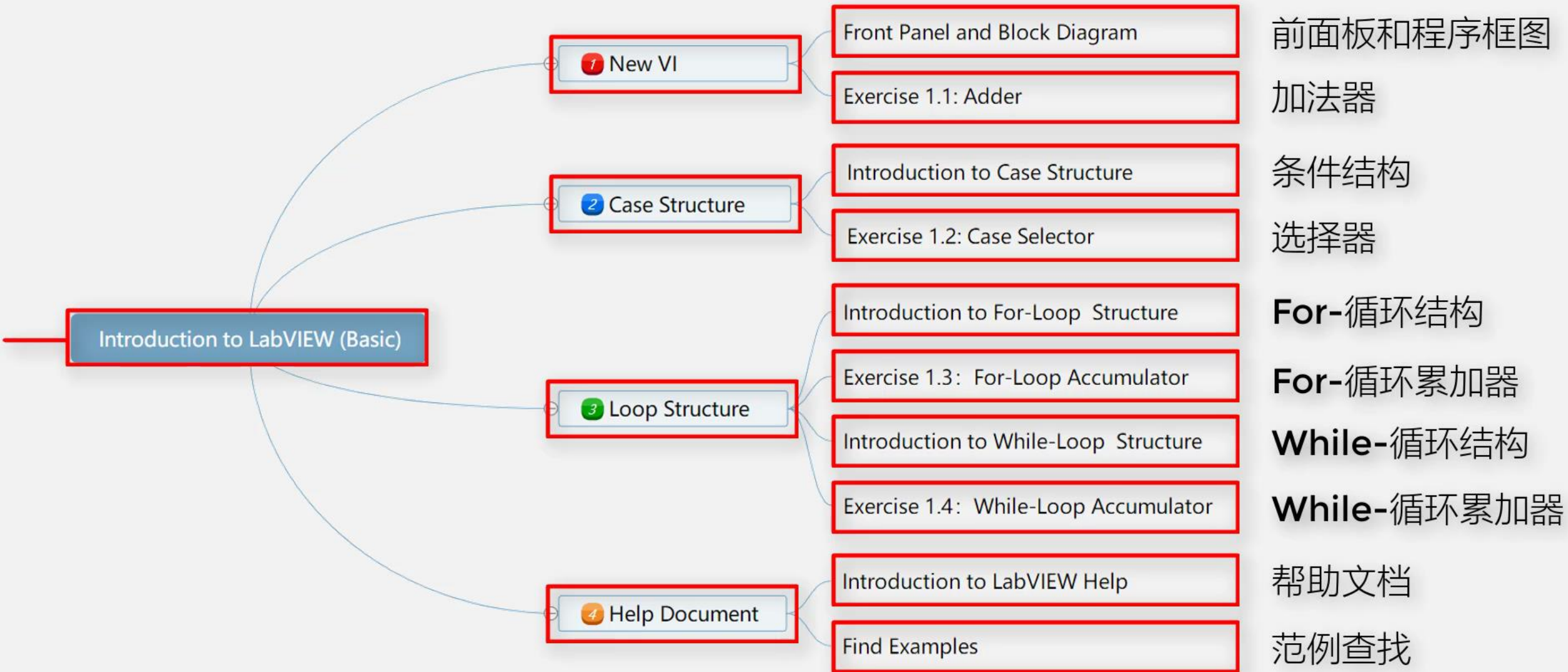
Exercise 1.4 Accumulator_While.vi



Create a VI to output the sum of numbers from 1 to the number input.



Help Documents





- Question ?





【通信新说】



腾讯课堂