

LabVIEW HW #1

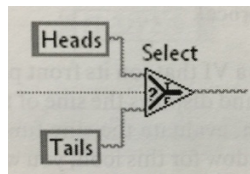
Each problem begins with a suggested descriptive name (including the *.vi* extension) for the solution VI that you will write. Suggested icons for use in the VI are given at the end of some problem statements. The palette locations of the cited icons are not give explicitly: these icons can be found with the aid of **Quick Drop**.

1. Complete the Do-It-Yourself/“USE IT!” section ending the chapter on *LabVIEW* Program Development.
2. **Parallel Resistors.vi** For two resistors, R_1 and R_2 in parallel, the equivalent resistance, R , is given by the inverse of the sum of the inverse resistances.

Write a VI that, given the resistance values R_1 and R_2 in two **Numeric Controls**, calculates R , and then displays this value in a front-panel **Numeric Indicator** labelled Equivalent Resistance.

(Suggested icon: **Reciprocal**.)

3. **Coin Toss.vi** Build a VI that simulates the toss of a coin. On your block diagram, to generate a random floating-point number, x , in the range from zero up to (but not including) one, use the VI called **Random Number (0-1)**. When run, if $x \geq 0.5$, assign the result of the coin toss to be *Heads*; otherwise, the result is *Tails*. Then use a **Select** icon as shown below to decide which of two strings should be sent to a front-panel **String Indicator** to display the toss result. Each of the two strings (one *Heads*, the other *Tails*) is contained within a **String Constant**.



4. **AND Gate.vi** On the front panel of this VI, place two **Push Buttons**, labeled Detector A and Detector B, respectively, and also a **Round LED** named COINCIDENCE. Then code the block diagram using an **And** icon so that when the VI is running with both **Push Buttons** pressed, the **Round LED** lights, while for any other combinations of inputs (*e.g.*, Detector A pressed, Detector B not pressed), the LED is unlit.