How to Build a 4-bit adder in logic.ly

Steps by Chris Gregg

https://logic.ly/demo/
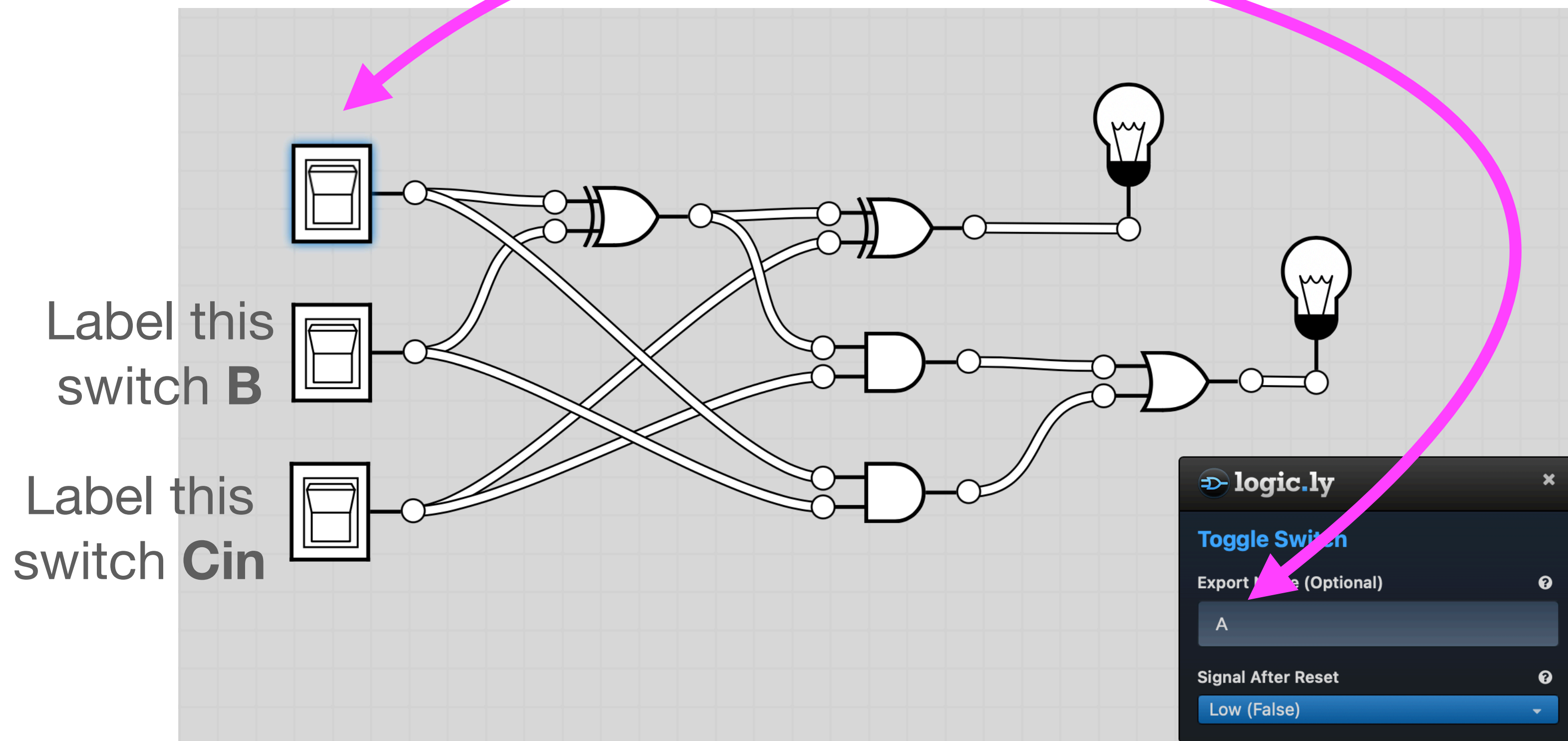
Step 1:
Build a full adder
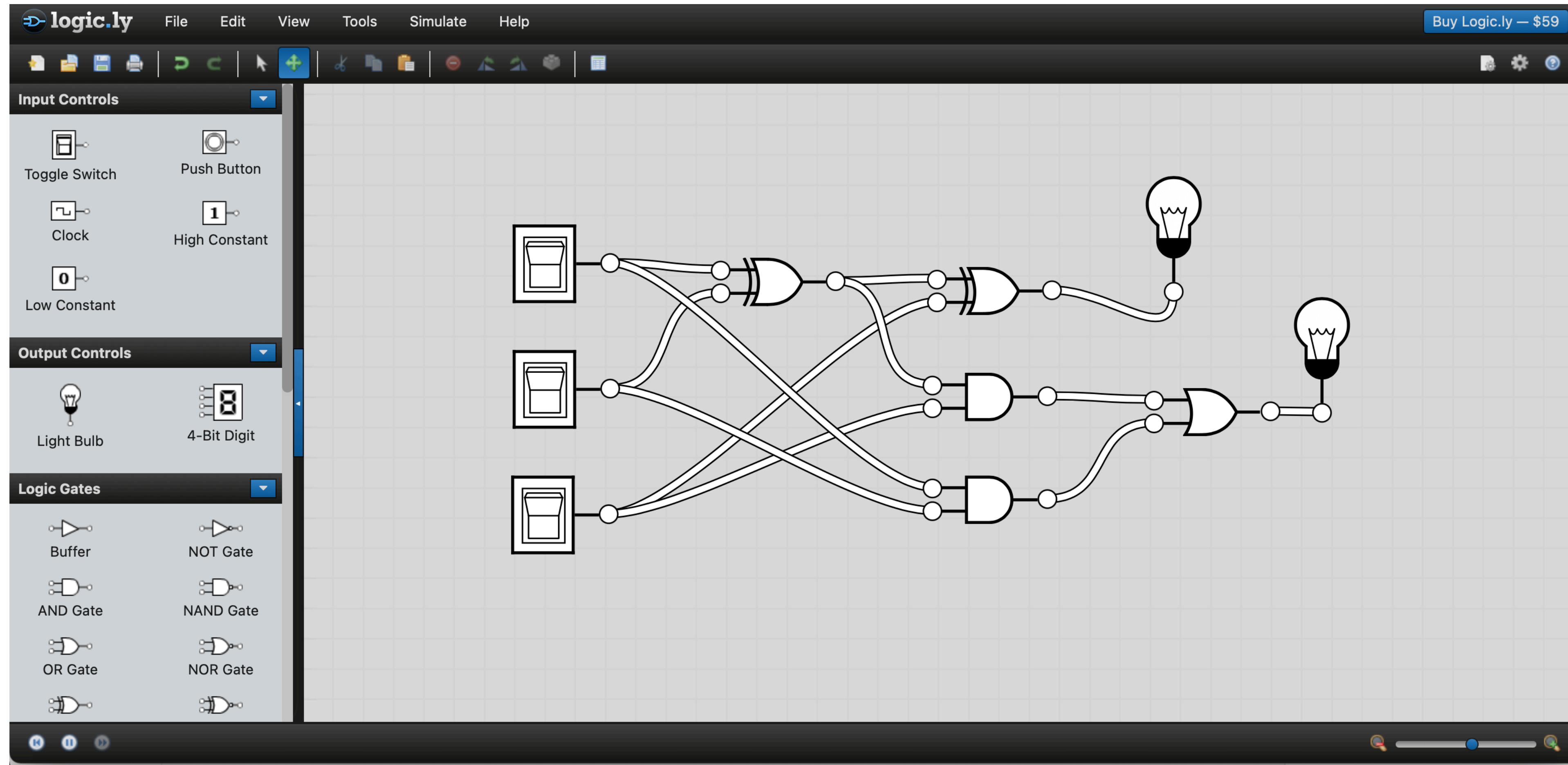
Step 2:
Label inputs (switches)

A. Click on each switch, and label the inputs **A**, **B**, and **Cin** ("Carry In")
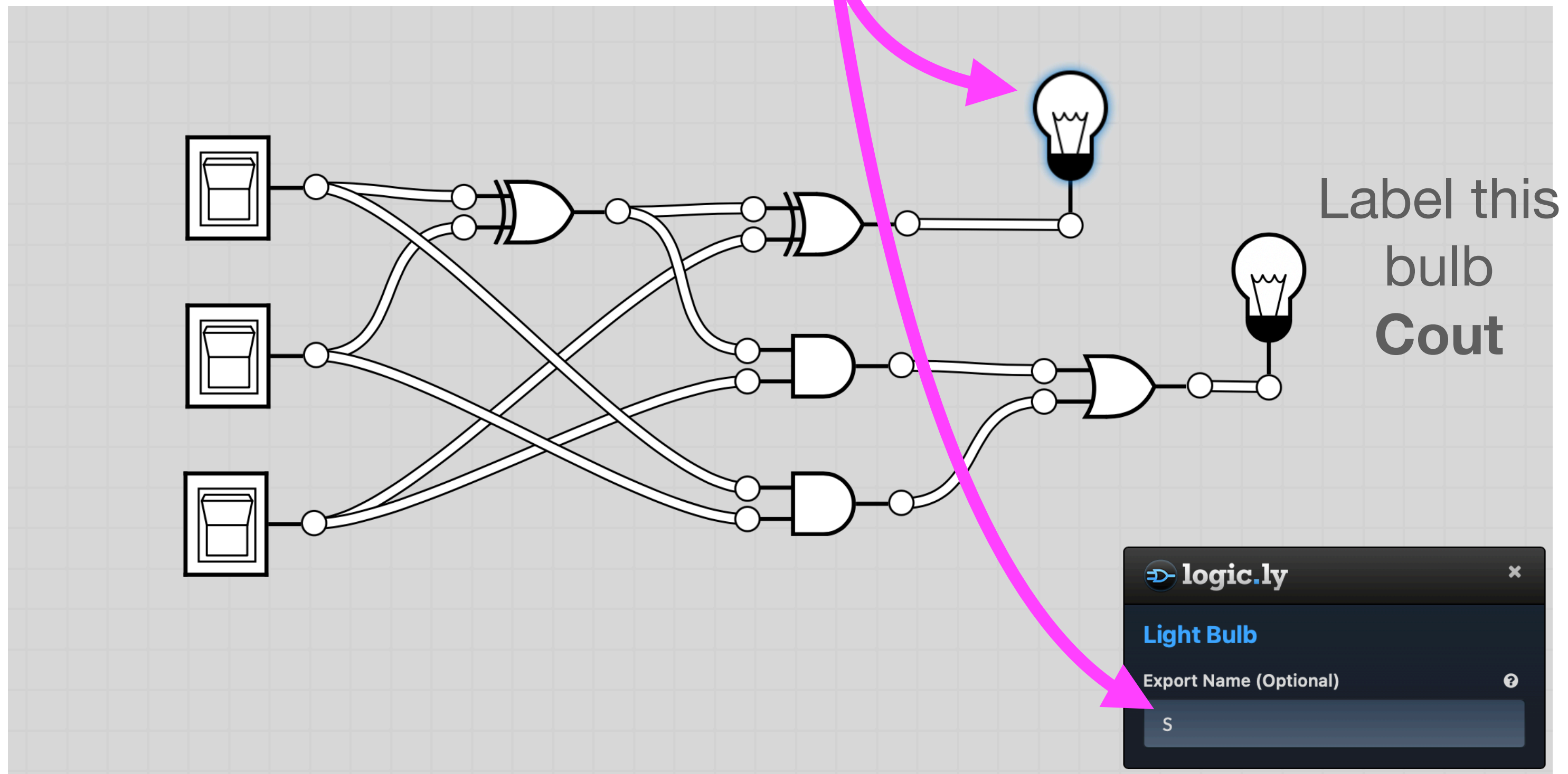
The top switch should be labeled **A**

Label this switch **B**

Label this switch **Cin**

Step 3:
Label outputs (bulbs)

A. Click on each bulb, and label the outputs **S** (for "Sum"), and **Cout** ("Carry out")

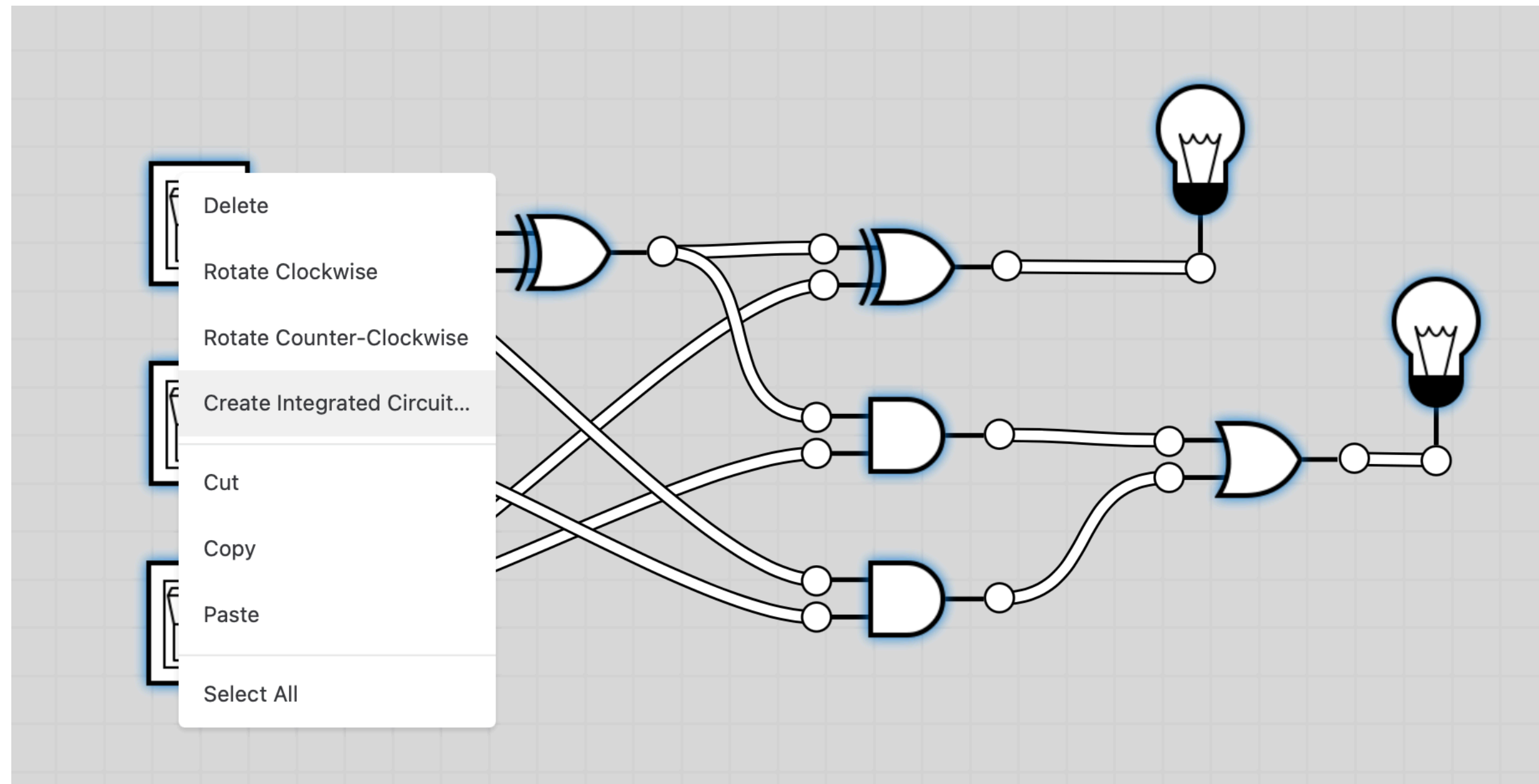The top bulb should be labeled **S**

Label this
bulb
Cout

Step 4:

Select all elements, right/ctrl-click and select "Create Integrated Circuit..."

A. Click on each bulb, and label the outputs **S** (for "Sum"), and **Cout** ("Carry out")

Step 5:

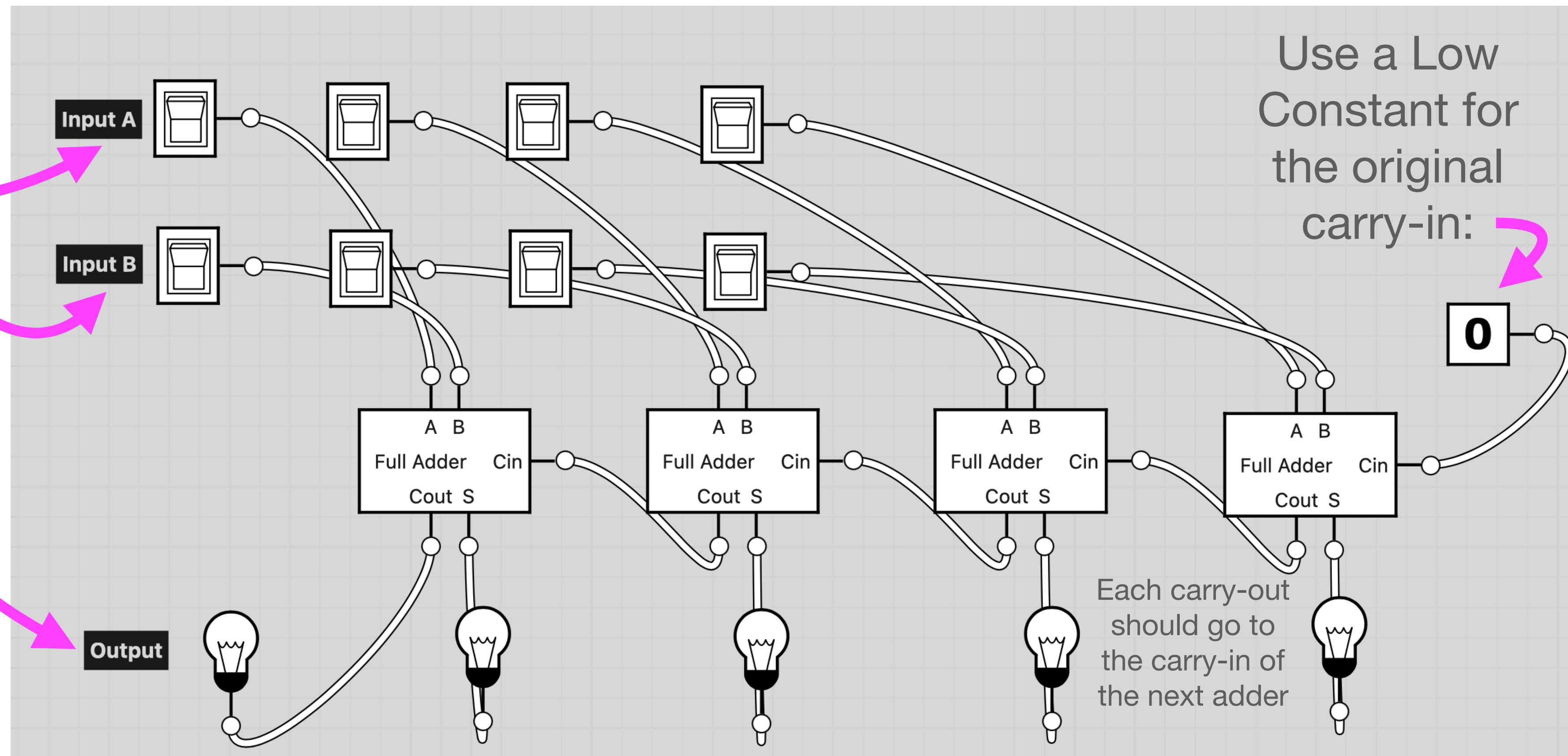**Name the circuit and drag the inputs/outputs to match the diagram below.**

When finished, click "Create New Circuit"

Step 6:

Using four full adders (under "Custom" in the left panel), two 4-bit inputs (with four switches), and five light bulbs (4 bits output, plus a carry out), assemble your 4-bit adder
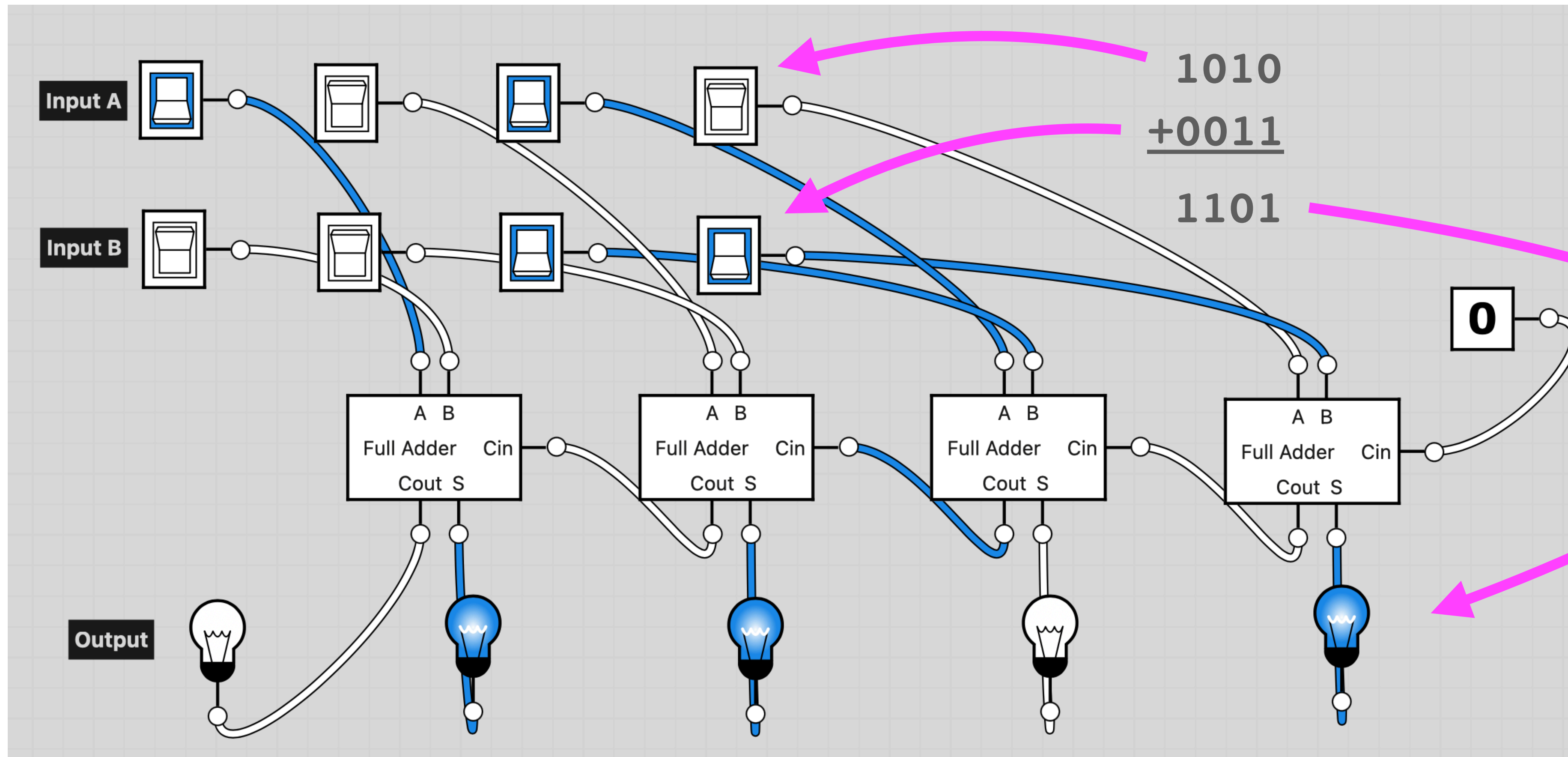

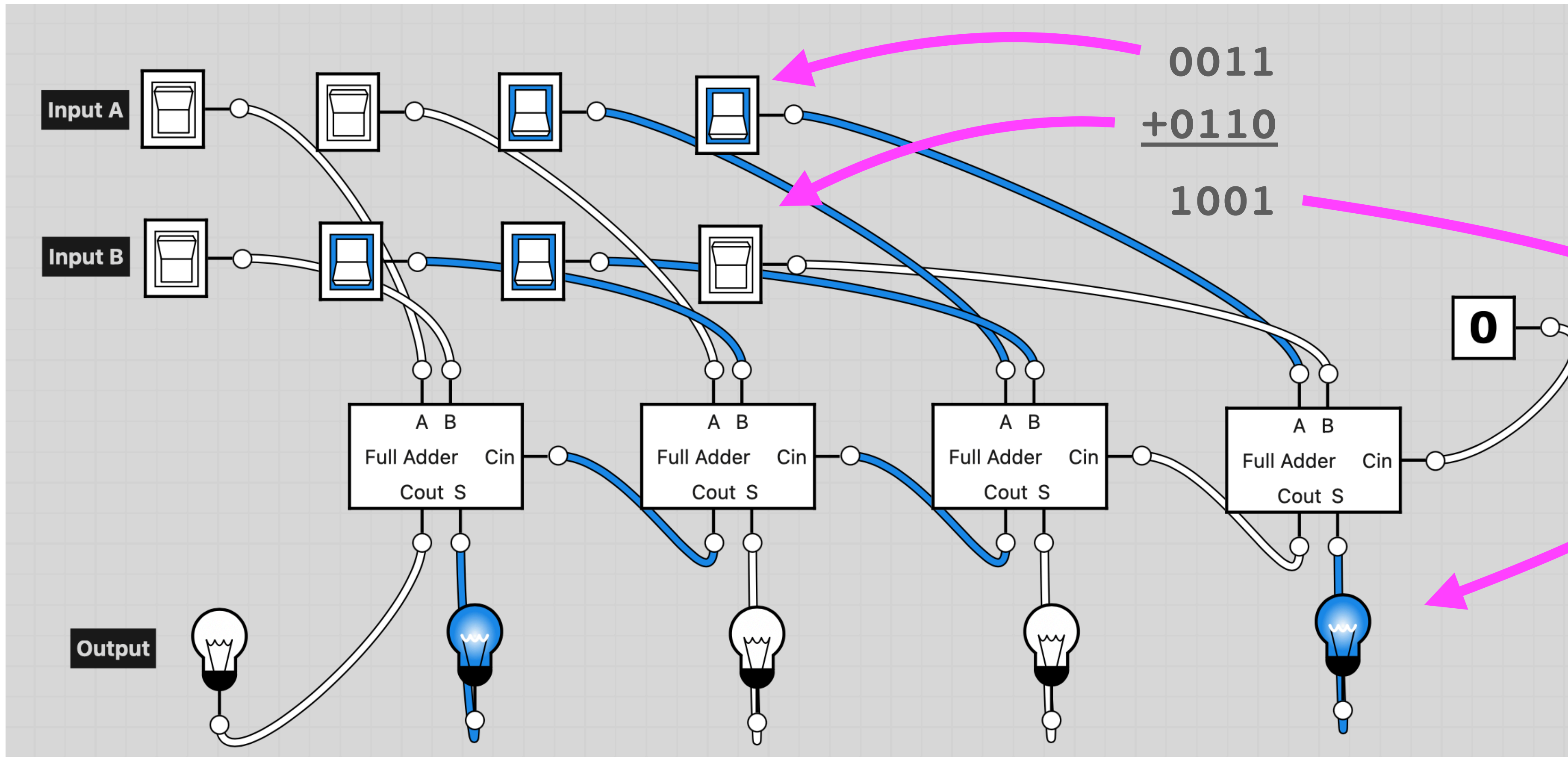
Drag out and name labels for the inputs and output.

Use a Low Constant for the original carry-in:

Each carry-out should go to the carry-in of the next adder

Step 7:
Test your adder!

e.g., `10 + 3 = 13`

Step 7:
Test your adder!

e.g., `14 + 2 = 16`

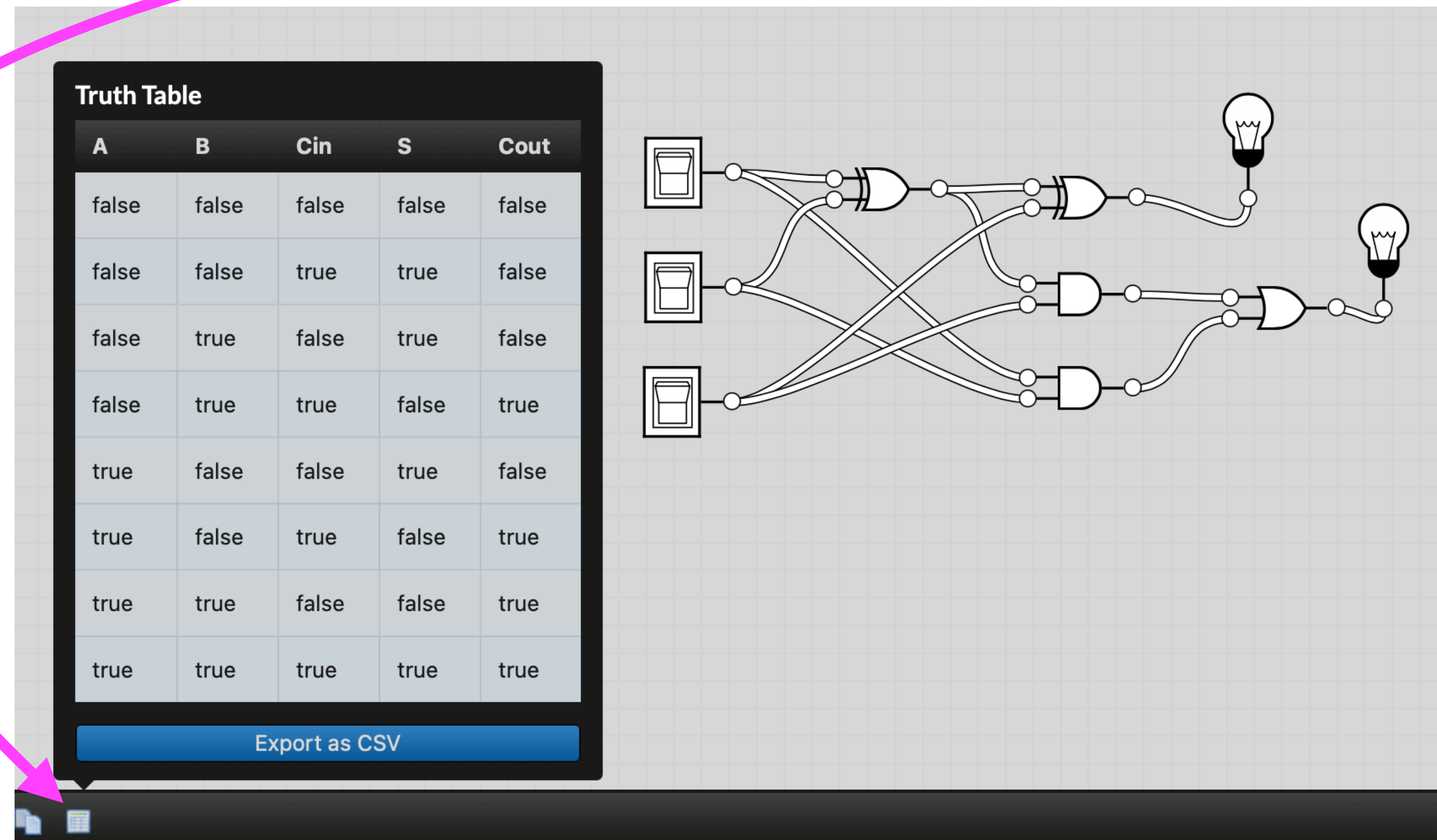1110
+0010
10000

Step 7:
Test your adder!

e.g., 3 + 6 = 9

0011
+0110
‾‾‾‾‾
1001

Post:

If you right/ctrl-click on your adder's symbol under "Custom" in the left-hand panel, you can select "View Integrated Circuit" and then click the "Generate Truth Table" button to get the truth table: