Assignment 10

Boolean Function

Introduction

This will be the first of many assignments that use the LogicCircuit software. In this assignment, we will create a circuit that represents a given boolean function of four variables.

The Function

The boolean function to be represented is as follows.

Input				Output
A	B	C	D	
0	0	0	0	0
0	0	0	1	0
0	0	1	0	0
0	0	1	1	0
0	1	0	0	0
0	1	0	1	1
0	1	1	0	0
0	1	1	1	1
1	0	0	0	0
1	0	0	1	0
1	0	1	0	1
1	0	1	1	1
1	1	0	0	0
1	1	0	1	0
1	1	1	0	1
1	1	1	1	1

Write a boolean expression for this function and simplify it as much as possible.

The Circuit

Implement the boolean function in a circuit named `Bool Function`. The input should be a single 4-bit input object. Use a splitter to split the input into four 1-bit inputs. The output should be a single LED object.

Create another circuit named `Tester`. Place an instance of `Bool Function` in the `Tester` circuit, attach "live" input (4-bit) and output (1-bit), and test it. The splitter should be set up so that the input values `0`, `1`, `2`, . . . , `E`, `F` represent the rows in the table above, in that order.

Due Date

Save your circuit as `Bool Function.CircuitProject`. Place it in a folder named `Assignment 10` and drop it in the dropbox. It is due by midnight Monday, October 21.