DAY-12
#100DAYSOFRTL

Problem statement :-

1. Create a circuit that has two 2-bit inputs `A[1:0]` and `B[1:0]`, and produces an output z. The value of z should be 1 if `A = B`, otherwise z should be 0.

Write your solution here

[Load a previous submission] Load

```
module top_module ( input [1:0] A, input [1:0] B, output z );

wire t1,t2,t3,t4;

    and(t1,~A[0],~A[1],~B[0],~B[1]);
    and(t2,~A[0],A[1],~B[0],B[1]);
    and(t3,A[0],~A[1],B[0],~B[1]);
    and(t4,A[0],A[1],B[0],B[1]);
    or(z,t1,t2,t3,t4);

endmodule
```

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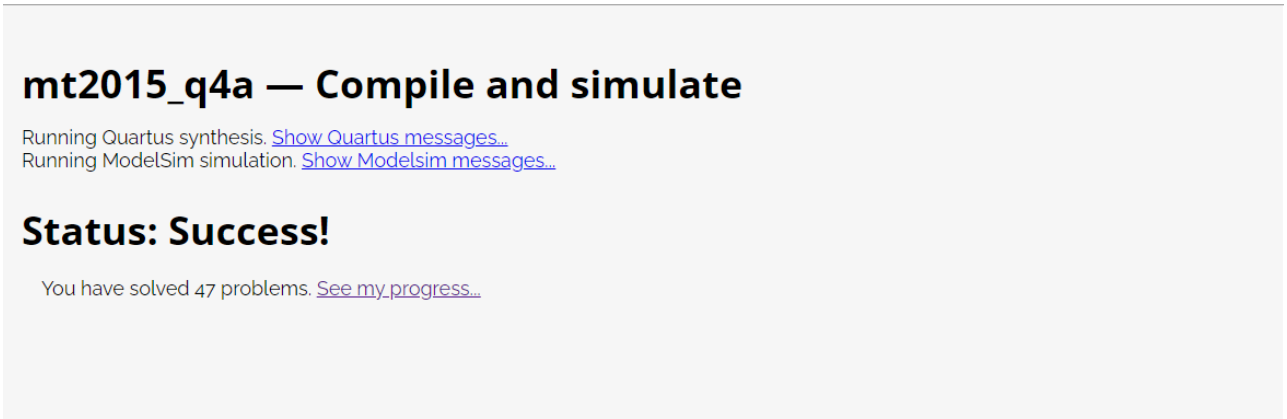
Running Quartus synthesis. Show Quartus messages...
Running ModelSim simulation. Show Modelsim messages...

Status: Success!

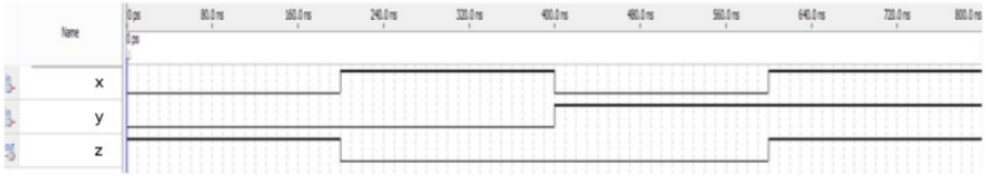
You have solved 46 problems. See my progress...

2. Module A is supposed to implement the function z = (x^y) & x. Implement this module.



3.

Circuit B can be described by the following simulation waveform:



Write your solution here

[Load a previous submission] Load

```
module top_module ( input x, input y, output z );

    xnor(z,x,y);

endmodule
```

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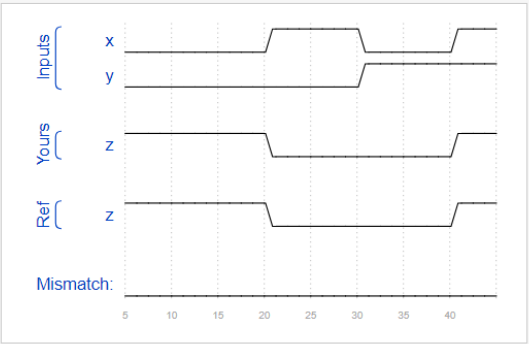
Status: Success!

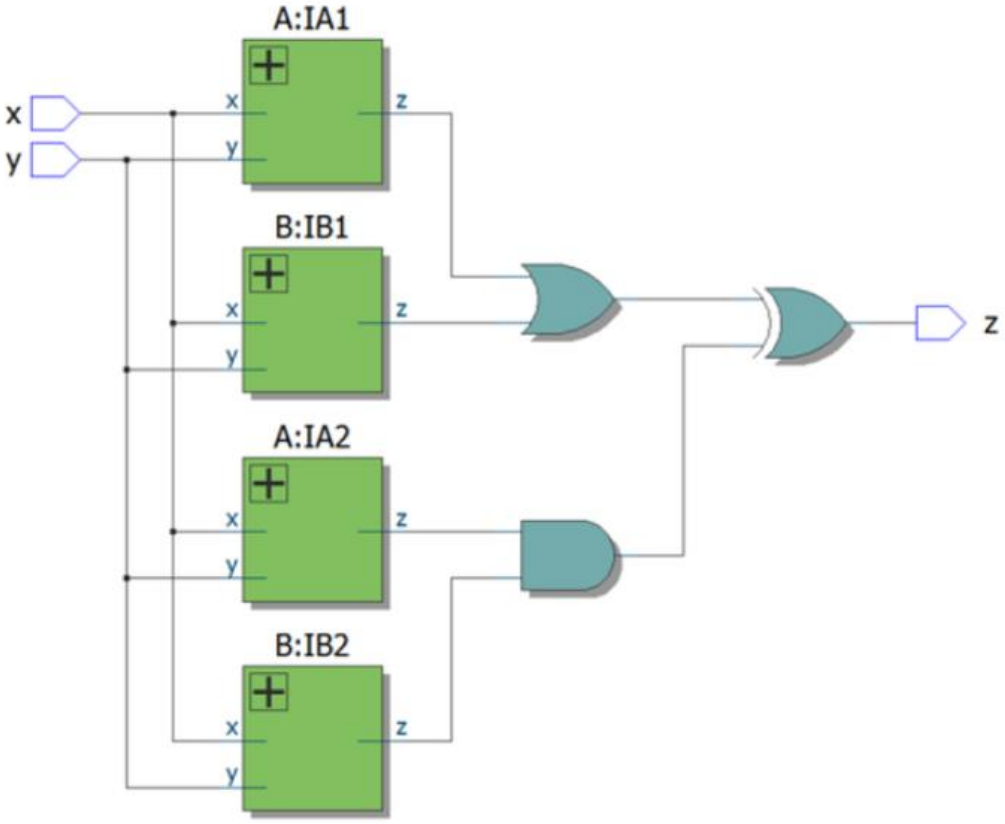
You have solved 48 problems. See my progress...

Timing diagrams for selected test cases

These are timing diagrams from some of the test cases we used. They may help you debug your circuit. The diagrams show inputs to the circuit, outputs from your circuit, and the expected reference outputs. The "Mismatch" trace shows which cycles your outputs don't match the reference outputs (0 = correct, 1 = incorrect).



4.



Write your solution here

[Load a previous submission] Load

```
module top_module (input x, input y, output z);

    wire t1,t2,t3,t4,t5,t6;
    A a1(x,y,t1);
    A a2(x,y,t2);
    B b1(x,y,t3);
    B b2(x,y,t4);
    or(t5,t1,t2);
    and(t6,t3,t4);
    xor(z,t5,t6);

endmodule

module A (input x, input y, output z);

    assign z=(x^y)&x;

endmodule


module B ( input x, input y, output z );

    xnor(z,x,y);

endmodule


```

mt2015_q4 — Compile and simulate

Running Quartus synthesis. Show Quartus messages...
Running ModelSim simulation. Show Modelsim messages...

Status: Success!

You have solved 49 problems. See my progress...