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This lab was the combinational logic to use BCD to 7 segment decoder. There are 4 push buttons, which means the input will be 4 bits. There are also 7 possible portions of the display that can be active, which corresponds to the 7 bit ‘segs’. The code executes continuously, checking for changes in the push buttons.

module bcd7segdecoder(input [3:0] bcdin, output reg [6:0] segs);

always @(bcdin) begin

    case (bcdin)

            0 : segs = 7'b0000001;

            1 : segs = 7'b1001111;

            2 : segs = 7'b0010010;

            3 : segs = 7'b0000110;

            4 : segs = 7'b1001100;

            5 : segs = 7'b0100100;

            6 : segs = 7'b0100000;

            7 : segs = 7'b0001111;

            8 : segs = 7'b0000000;

            9 : segs = 7'b0000100;

10 : segs = 7'b0001000;

11 : segs = 7'b0000000;

12 : segs = 7'b0110001;

13 : segs = 7'b0000001;

14 : segs = 7'b0110000;

15 : segs = 7'b0111000;

            default : segs = 7'b1111111;

    endcase

end

endmodule