```
1   `timescale 1ns / 1ps
2   //////////////////////////////////////////////////////////////////////////////////
3   //                                                                              //
4   //  Class: CECS 360                                                             //
5   //  Project name: Project1_CECS360                                              //
6   //  File name: hex_to_7seg.v                                                    //
7   //                                                                              //
8   //  Created by Umar Khan 09/19/2017       .                                     //
9   //                                                                              //
10  //  Abstract: Module hex_to_7segment uses input hex and decodes                 //
11  //            the value to its equivalent representation for the                //
12  //            NEXYS 4 seven segment display. This is outputed to                //
13  //            the wires a, b, c, d, e, f, g accordingly.                        //
14  //                                                                              //
15  //////////////////////////////////////////////////////////////////////////////////
16
17  module hex_to_7seg(hex, a, b, c, d, e, f, g);
18
19     input    [3:0] hex;
20     output         a, b, c, d, e, f, g;
21     reg            a, b, c, d, e, f, g;
22
23     always @ (hex) begin
24        case (hex)
25           4'b0000: {a, b, c, d, e, f, g} = 7'b0000001;
26           4'b0001: {a, b, c, d, e, f, g} = 7'b1001111;
27           4'b0010: {a, b, c, d, e, f, g} = 7'b0010010;
28           4'b0011: {a, b, c, d, e, f, g} = 7'b0000110;
29           4'b0100: {a, b, c, d, e, f, g} = 7'b1001100;
30           4'b0101: {a, b, c, d, e, f, g} = 7'b0100100;
31           4'b0110: {a, b, c, d, e, f, g} = 7'b0100000;
32           4'b0111: {a, b, c, d, e, f, g} = 7'b0001111;
33           4'b1000: {a, b, c, d, e, f, g} = 7'b0000000;
34           4'b1001: {a, b, c, d, e, f, g} = 7'b0000100;
35           4'b1010: {a, b, c, d, e, f, g} = 7'b0001000;
36           4'b1011: {a, b, c, d, e, f, g} = 7'b1100000;
37           4'b1100: {a, b, c, d, e, f, g} = 7'b0110001;
38           4'b1101: {a, b, c, d, e, f, g} = 7'b1000010;
39           4'b1110: {a, b, c, d, e, f, g} = 7'b0110000;
40           4'b1111: {a, b, c, d, e, f, g} = 7'b0111000;
41           default: {a, b, c, d, e, f, g} = 7'b1111111;
42        endcase
43     end
44
45  endmodule
46
```