

```
timescale 1ns / 1ps
////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////
// Company:
// Engineer:
//
// Create Date: 11/03/2020 02:06:48 AM
// Design Name:
// Module Name: Top_Level
// Project Name:
// Target Devices:
// Tool Versions:
// Description:
//
// Dependencies:
//
// Revision:
// Revision 0.01 - File Created
// Additional Comments:
//
////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////
```

```
module Top_Level(
    input clk, btnR, btnC, btnU, btnD, btnL,
    input [15:0] sw,
    output [15:0] led,
    output [6:0] seg,
    output [3:0] an,
    output dp
);

    wire clk;
    wire Digwire;
    wire [15:0] Q;
    wire t1, t2, t3;
    wire up, dw;
    wire utc, dtc;
    wire [3:0] c;
    wire [3:0] r;
    wire fclk;

    assign an = ~r;
//    assign UTC = utc;
//    assign DTC = dtc;

    assign dp = ~( (utc|an[3]) & (dtc|an[0]) );
```

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    assign led[14:1] = sw[14:1];
    assign led[15]=dte;
    assign led[0]=ute;

    //Clock
    lab4_clks clock(.clkin(clkin), .greset(btnR), .clk(clk), .fastclk(fclk),
.digsel(Digwire));

    ClockCase ClockButton(.Btn(btnC), .clk(clk), .Q(Q), .out(t1));
    Edge_Detector UpButton(.Btn(btnU), .clk(clk), .out(t2));
    assign up = (t2 | btnC &~(&Q[15:2]));
    Edge_Detector DownButton(.Btn(btnD), .clk(clk), .out(t3));
    assign dw = t3;

    counterUD16L Counter(.clk(fclk), .Up(up), .Dw(dw), .LD(btnL), .din(sw), .Q(Q),
.UTC(ute), .DTC(dte));

    Ring_Counter Ring(.start(Digwire), .clk(clk), .out(r));
    Selector Select(.sel(r), .N(Q), .H(c));
    Segment_Display Display(.n(c), .sego(seg));

endmodule

```