*University of Cincinnati  
Department of Electrical Engineering and Computing Systems*EECE 2060C – Digital Design, Lab room 806/808 Rodes, Section# 005

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**Laboratory Project 6  
A Survey Circuit Implementation Using Verilog and Vivado**Fall 2022

**Design specifications**

To gauge the popularity of their television program, UCTV Inc. has retained your (a digital system’s designer) services. UCTV has divided its viewing area into four regions and has representatives who sample the population in their respective regions. Based on the population, of the regions he/she represents, each representative has a certain number of votes: Mr. A: 2 Mr. B: 3 Mr. C: 4 Ms. D: 5 Assume that the representatives will indicate their regions inclinations by closing a switch to indicate that an episode was liked and opening a switch to show that the episode was disliked. UCTV is interested in a digital system, indicates the total number of votes that say the episode was liked. The total number of votes can be ranged from 0 to 14.

**Module: VoteCount**

module VoteCount(a,b,sel,w,x,y,z);

output w,x,y,z;

reg w,x,y,z;

input a,b;

input[3:0] sel;

always@\*

case(sel)

4'b0000: begin w=a;x=a;y=a;z=a;end

4'b0001: begin w=a;x=b;y=a;z=b;end

4'b0010: begin w=a;x=b;y=a;z=a;end

4'b0011: begin w=b;x=a;y=a;z=b;end

4'b0100: begin w=a;x=a;y=b;z=b;end

4'b0101: begin w=a;x=b;y=a;z=a;end

4'b0111: begin w=b;x=b;y=a;z=a;end

4'b1000: begin w=a;x=a;y=b;z=a;end

4'b1001: begin w=a;x=b;y=b;z=b;end

4'b1010: begin w=a;x=b;y=b;z=a;end

4'b1011: begin w=b;x=a;y=b;z=b;end

4'b1100: begin w=a;x=b;y=a;z=b;end

4'b1101: begin w=b;x=a;y=b;z=a;end

4'b1110: begin w=b;x=a;y=a;z=b;end

4'b1111: begin w=b;x=b;y=b;z=a;end

endcase

endmodule

**Test Bench: VoteCount**

module sim;

reg[3:0] sel;

reg a,b;

wire w,x,y,z;

VoteCount uut (.a(a),.b(b),.sel(sel),.w(w),.x(x),.y(y),.z(z));

initial begin

a=0;b=1;sel=4'b0000;

#20 sel=4'b0001;

#20 sel=4'b0010;

#20 sel=4'b0011;

#20 sel=4'b0100;

#20 sel=4'b0101;

#20 sel=4'b0110;

#20 sel=4'b0111;

#20 sel=4'b1000;

#20 sel=4'b1001;

#20 sel=4'b1010;

#20 sel=4'b1011;

#20 sel=4'b1100;

#20 sel=4'b1101;

#20 sel=4'b1110;

#20 sel=4'b1111;

#40;

end

initial begin $monitor("t=%3d,a=%1b,b=%1b,w=%1b,x=%1b,y=%1b,z=%1b,sel=%4b",$time,a,b,w,x,y,z,sel);

end

endmodule

Graphical user interface, chart

Description automatically generated