# DAY-33

# #100DAYSOFRTL

**Aim:-** Implementation of 1-Bit Comparator Using 4x1 Mux.

## RTL CODE:-

```
////DATE:-02/02/2024
////Implementation of 1 BIT Comparator using 4x1 Mux
module Mux3_4x1(input in1,in2,in3,in4,
input s0,s1, output y);
assign y=s1?(s0?in4:in3):(s0?in2:in1);
endmodule


module Comp_Mux(input A0,B0,
output L,E,G);
Mux3_4x1 U1(1'b1,1'b0,1'b0,1'b1,A0,B0,E);///equal-0
Mux3_4x1 U2(1'b0,1'b1,1'b0,1'b0,A0,B0,L);///lesesr than 0
Mux3_4x1 U3(1'b0,1'b0,1'b1,1'b0,A0,B0,G);///greater than 0
endmodule
```

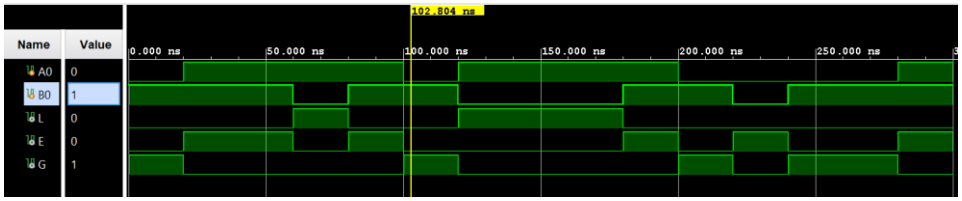
## TESTBENCH:-

```
module Comp_Mux_tb();
reg  A0,B0;
wire L,E,G;
Comp_Mux uut(A0,B0,L,E,G);
initial begin
for (int i=0; i<15; i=i+1) begin
A0=$random();
B0=$random();
#10;
$display("A0=%d,B0=%d,L=%d,E=%d,G=%d",A0,B0,L,E,G);
#10;
end
end
initial begin
#300;
$finish();
end
endmodule
```

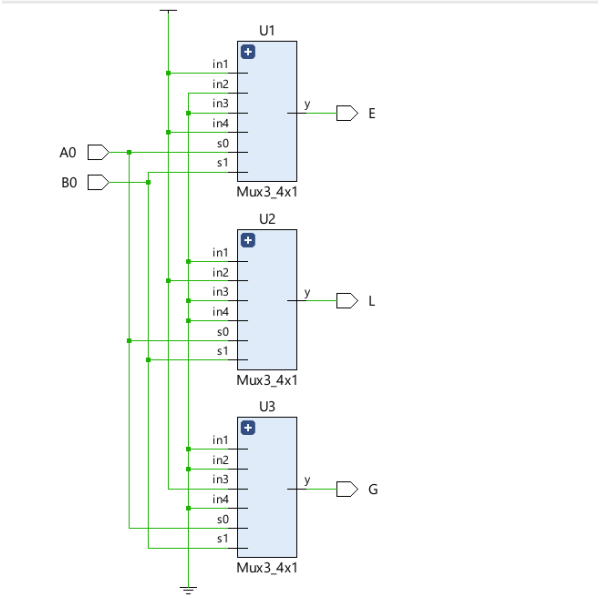
# OUTPUT:-

```
A0=0,B0=1,L=0,E=0,G=1
A0=1,B0=1,L=0,E=1,G=0
A0=1,B0=1,L=0,E=1,G=0
A0=1,B0=0,L=1,E=0,G=0
A0=1,B0=1,L=0,E=1,G=0
A0=0,B0=1,L=0,E=0,G=1
A0=1,B0=0,L=1,E=0,G=0
A0=1,B0=0,L=1,E=0,G=0
A0=1,B0=0,L=1,E=0,G=0
A0=1,B0=1,L=0,E=1,G=0
A0=0,B0=1,L=0,E=0,G=1
A0=0,B0=0,L=0,E=1,G=0
A0=0,B0=1,L=0,E=0,G=1
A0=0,B0=1,L=0,E=0,G=1
A0=1,B0=1,L=0,E=1,G=0
```

# WAVEFORMS:-




# SCHEMATIC:-

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