

DAY-97

#100DAYSOFRTL

AIM:--- IMPLEMENTATION OF MOORE MACHINE.

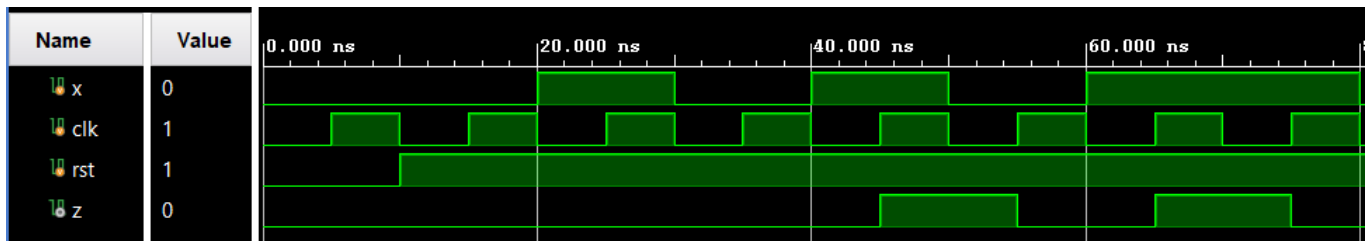
VERILOG CODE:--

```
1 module moore_seq_detect (input x,
2                           input clk,
3                           input rst,
4                           output reg z);
5
6 parameter s0 = 2'b00, s1 = 2'b01, s2 = 2'b10, s3 = 2'b11;
7
8 reg[1:0] current_state, next_state;
9
10 always @(posedge clk or negedge rst)
11 begin
12     if(!rst)
13         current_state <= s0;
14     else
15         current_state <= next_state;
16 end
17
18 always@(*)
19 begin
20     case (current_state)
21     s0 : begin
22         if (x == 1)
23             next_state = s1;
24         else
25             next_state = s0;
26         end
27     s1 : begin
28         if (x == 1)
29             next_state = s1;
30         else
31             next_state = s2;
32         end
33     end
```

TESTBENCH CODE:---

```
1  module tb_moore_seq_detect;
2
3      reg x;
4      reg clk;
5      reg rst;
6      wire z;
7
8      moore_seq_detect uut (
9          .x(x),
10         .clk(clk),
11         .rst(rst),
12         .z(z)
13     );
14
15     always #5 clk = ~clk;
16
17     initial begin
18         clk = 0;
19         rst = 0;
20         x = 0;
21
22         #10 rst = 1;
23
24         #10 x = 1;
25         #10 x = 0;
26         #10 x = 1;
27         #10 x = 0;
28         #10 x = 1;
29
30         #10 x = 1;
31         #10 x = 0;
32         #10 x = 1;
```

WAVEFORM:-----



SCHEMATIC BLOCK :-----

