

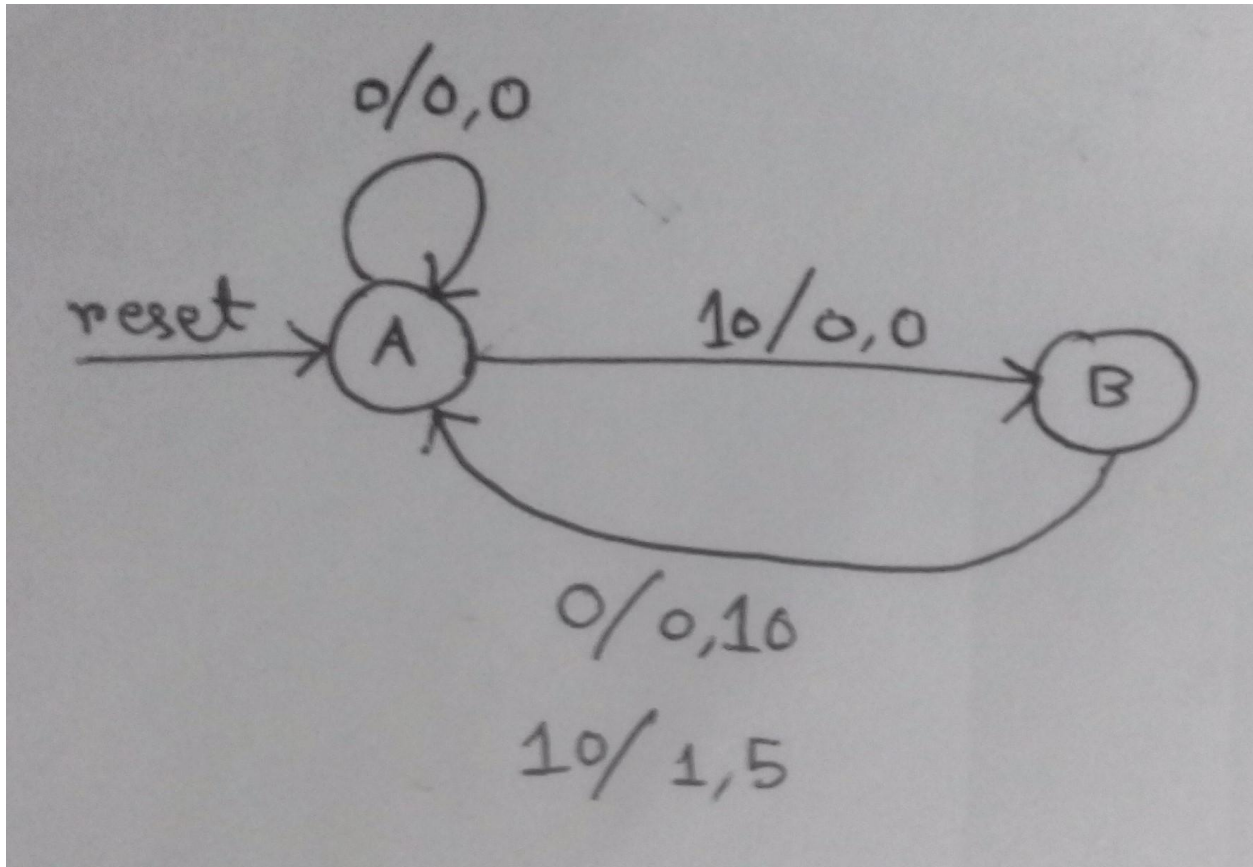
### CSE460 Lab 3 part-2

Name : Abdullah Hasan Sajjad Rafi

ID : 19301097

Section : 5

State diagram :



## CODE:

```
module exp2(clock, reset, cash_in, purchase, present_state,
next_state, cash_return);
    input clock, reset;
    input cash_in;
    output reg purchase, present_state, next_state;
    output reg [1:0] cash_return;
    parameter state0= 0,
               state1= 1,
               n = 15,
               R0= 2'b00,
               R5= 2'b01,
               R10= 2'b10;

    always@(posedge clock)
    begin
        if(reset==1)
        begin
            present_state = state0;
            next_state = state0;
        end
        else
        begin
            present_state = next_state;

            case(present_state)
            state0: if(cash_in == 0)
                begin
                    next_state = state0;
                    purchase =0;
                    cash_return = R0;
                end
            else if(cash_in == 1)
                begin
                    next_state = state1;
                    purchase = 0;
                    cash_return = R0;
                end
            end

            state1: if(cash_in == 0)
                begin
                    next_state = state0;
```

```
                purchase =0;
                cash_return = R10;
            end
        else if(cash_in == 1)
            begin
                next_state=state0;
                purchase = 1;
                cash_return = R5;
            end
        endcase
    end
endmodule
```

**Time diagram :**

Quartus II - D:/Downloads/Spring\_2022/Spring\_2022\_submissions/CSE460/CSE460\_Lab/Lab 4/exp2/exp2 - exp2 - [Simulation Report - Simulation Waveforms]

File Edit View Project Assignments Processing Tools Window Help

exp2

Project Navigator: exp2.v

Entity: Stratix II: AUTO

Simulation Report: Legal Notice, Flow Summary, Flow Settings, Simulator, Summary, Settings, Simulation, INI Usage, Messages

Tasks: Compile Des, Analysis, Fitter (F), Assemb, Classic, EDA Ne, Program De

Flow: Compilation

Task: Compile Des, Analysis, Fitter (F), Assemb, Classic, EDA Ne, Program De

Simulation Waveforms: Simulation mode: Functional

Master Time Bar: 21.75 ns | Pointer: 325.37 ns | Interval: 303.62 ns | Start: | End: |

Name	Value	21.75 ns
reset	A 0	
clock	A 1	
cash_in	A 1	
sh_return	A [0]	[0] [1] [0] [1] [0] [1] [0] [2] [0] [2]
...m[1]	A 0	
...m[0]	A 0	
purchase	A 0	
...ent_state	B 0	
next_state	B 1	

Messages: Info: Simulation partitioned into 1 sub-simulations  
Info: Simulation coverage is 85.29 %  
Info: Number of transitions in simulation is 383  
Info: Quartus II Simulator was successful. 0 errors, 4 warnings

System (44) | Processing (13) | Extra Info | Info (9) | Warning (4) | Critical Warning | Error | Suppressed | Flag |

Message: 0 of 20 | Location: |

For Help, press F1

