```
//status: IN PROGRESS
module StateMachine(
    input Go,
    input Stop,
    input FourSecs,     //always
counting four_secs
    input TwoSecs,      //always
counting two_secs
    input Match,        //HIGH if
show_num module equals time_counter,
else LOW
    input clk,
    output ShowNum,
    output ResetTimer,
    output RunGame,
    output Delay,
    output Sec4Delay,
    output Scored,
    output FlashBoth,
    output FlashAlt
    );
```

```
    wire IDLE, SEC2, RUN_GAME,
SEC4;//, FLASH_BOTH, FLASH_ALT;
    wire Next_IDLE, Next_SEC2,
Next_RUN_GAME, Next_SEC4;//,
Next_FLASH_BOTH, Next_FLASH_ALT;
    wire go, stop;
    FDRE #(.INIT(1'b0)) sync1
(.C(clk), .CE(!SEC4), .D(Go),
.Q(go));     //supposed to reset when
depressed
    FDRE #(.INIT(1'b0)) sync2
(.C(clk), .CE(!SEC4), .D(Stop),
.Q(stop));          //supposed to
reset when depressed

    assign Next_IDLE = (IDLE & !go) |
(SEC4 & FourSecs);
    FDRE #(.INIT(1'b1)) IdleFF
(.C(clk), .R(1'b0), .CE(1'b1),
.D(Next_IDLE), .Q(IDLE));
```

```
    assign Next_SEC2 = (SEC2 &
!TwoSecs) | (IDLE & go);//| (Delay &
!TwoSecs);
    FDRE #(.INIT(1'b0)) Sec2FF
(.C(clk), .R(1'b0), .CE(1'b1),
.D(Next_SEC2), .Q(SEC2));

    assign Next_RUN_GAME = (RUN_GAME
& !stop) | (SEC2 & TwoSecs);
    FDRE #(.INIT(1'b0)) Run_GameFF
(.C(clk), .R(1'b0), .CE(1'b1),
.D(Next_RUN_GAME), .Q(RUN_GAME));

    assign Next_SEC4 = (RUN_GAME &
stop) | (SEC4 & !FourSecs);
    FDRE #(.INIT(1'b0)) Sec4FF
(.C(clk), .R(1'b0), .CE(1'b1),
.D(Next_SEC4), .Q(SEC4));

    assign ResetTimer = RUN_GAME;// |
(IDLE & !FourSecs & !Delay)| (IDLE &
```

```
!TwoSecs & !Delay);//| (FLASH_BOTH &
!FourSecs) | (FLASH_ALT & !FourSecs);
//big Go and Stop so it only runs one
time
    assign ShowNum = !IDLE;
    assign Delay =  SEC2; //SEC2 |
SEC4;
    assign Sec4Delay = SEC4;//SEC2 |
SEC4;//SEC4 | (TwoSecs&!Delay);
    assign RunGame = RUN_GAME;
    assign Scored = RUN_GAME & Stop &
Match;   //Stop is the button and
Match is the correct match
    assign FlashAlt = SEC4 & !Match;
    assign FlashBoth = SEC4 & Match;



endmodule
```