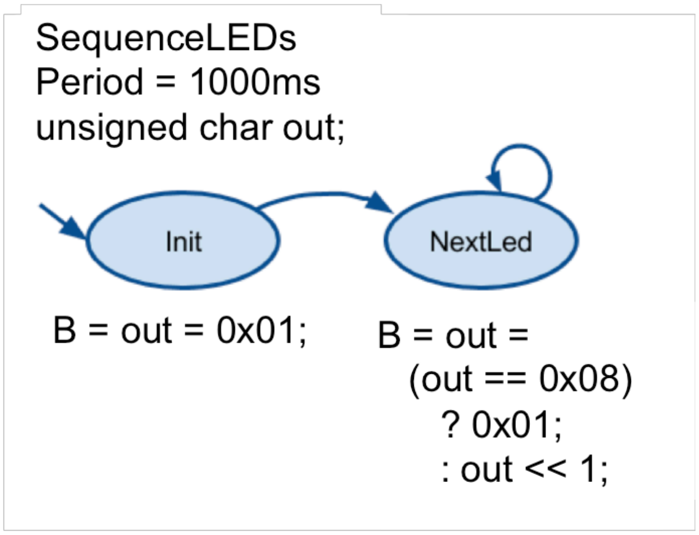
Name: ______________________________________________________________

PES, Section 4.1 – 4.5
Time Intervals, SynchSMs, Microcontrollers with Timers,
SynchSM Conversion to C, State Actions Should Never Wait

1. Convert the following synchSM to RIMS-compatible C using the template described in PES and in class.



**Implement the SynchSM in RIBS and convert to C. Test using RIMS.**

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2. Explain the mistake in the following SynchSM written in RIMS-compatible C

```
#include "RIMS.h”
enum States {Start, S0, S1} state;

volatile unsigned char TimerFlag = 0;
void TimerISR() { TimerFlag = 1; }

void Tick() {

        switch(state) { // Transitions
        case Start:     state = S0; break;
        case S0:        state = S1; break;
        case S1:        state = S1; break;
        default:        state = Start; break;
        }; // Transitions

        switch(state) { // State actions
        case Start:     break;
        case S0:        B0 = 1; while(!A0); B0 = 0; break;
        case S1:        break;
        default:        break;
        }; // State actions
}

void main() {
        B = 0x00;
        state = Start;
        TimerSet(1000);
        TimerOn();

         while(1) {
                Tick();
                while (!TimerFlag) {}
                TimerFlag = 0;
        }
}
```

**The state action for S0 does not run to completion.**